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The great supply shock and the euro area, viewed through a suite of supply indices

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Abstract

This paper examines the great supply shock following the pandemic and the invasion of Ukraine, using a novel suite of supply indices. The suite has indices for the euro area total economy, euro area industries, sectors and countries. The suite also computes the contributions to the indices from supply drivers at origin, in transport, or at destination. The results from the suite show that the supply shock has had wide-spread effects, and that their dynamics have been industry-, sector- and country-specific. Supply conditions have been tighter for longer in the euro area than other areas, in automobile than digital and food industries, in services relative to other sectors, and in some countries than others. The drivers at home appear to account for an increasing share of the specificity at the end of the sample, and a broader data set helps to better capture these drivers. The results also confirm that the supply indices in the suite lag supply shocks and lead variables susceptible to the effects of supply shocks.

Keywords: supply conditions, supply chains, industries, sectors, euro area countries
JEL codes: C43, C82, E66, R32, R41

Non-Technical Summary

Following the COVID-19 pandemic and the invasion of Ukraine, supply conditions worsened around the globe. Inputs suddenly became more difficult to obtain, took longer to arrive, and commanded a higher price than before, causing supply disruptions and bottlenecks that have yet to disappear fully, even though they have eased noticeably. This episode is what we refer to as the great supply shock, because it is characterised by changes in supply conditions that were widely unexpected, and had not been seen to that extent and in that time frame since at least the oil price shocks of the seventies.

The fact that this episode had been so different from what had occurred before is exactly what makes it so important to examine it more closely. Taking a closer look at this episode should make it possible to learn from it, and to ensure that future episodes are better detected and better dealt with. The way this is done in this paper is to construct and analyse a novel suite of supply indices - a number of measures of the severity of the supply disruptions, for the euro area economy as a whole, the euro area industries or supply chains, sectors and countries - and a breakdown into the factors that explain the evolution of the supply indices over time.

Supply chains are what links certain goods and services to the inputs that are used in their production or provision, such as computer chips for the computer industry, or electronics, engines and tires for the car industry. This paper focuses on the industries linked to some of the most important supply chains from the euro-area perspective, including automobile, digital and food. These industries and the associated supply chains are considered in this paper because they typically involve a number of goods and services, and a number of sectors and countries, and so are not captured fully by looking only at indices for specific sectors or countries.

The key sectors of the economy are manufacturing, services and construction. Manufacturing is the production of goods, and can be classified further according to the type of goods concerned. It is part of the so-called secondary sector. Services is the provision of services, which can be financial or non-financial, and related to wholesale and retail, or supporting businesses, for example. Construction is related to infrastructure, the set-up or maintenance, and can be further divided into housing ('residential') and non-residential other ('non-residential') construction. It is part of the secondary sector, alongside manufacturing.

The indices constructed in this paper intend to capture the supply conditions in a single number that changes over time, with higher values suggesting tighter supply conditions and

therefore worse prospects for the economy, and vice versa. In order to make an encompassing assessment, there are several measures, which differ in the amount and type of data used in their construction, from a basic set of data as used also by others, to a broader data set including also new types of data with information on supply conditions. In case some of the data are not available, indices are constructed either solely on the basis of the data that are available, or by substituting alternative data that are expected to be very similar to the data not available.

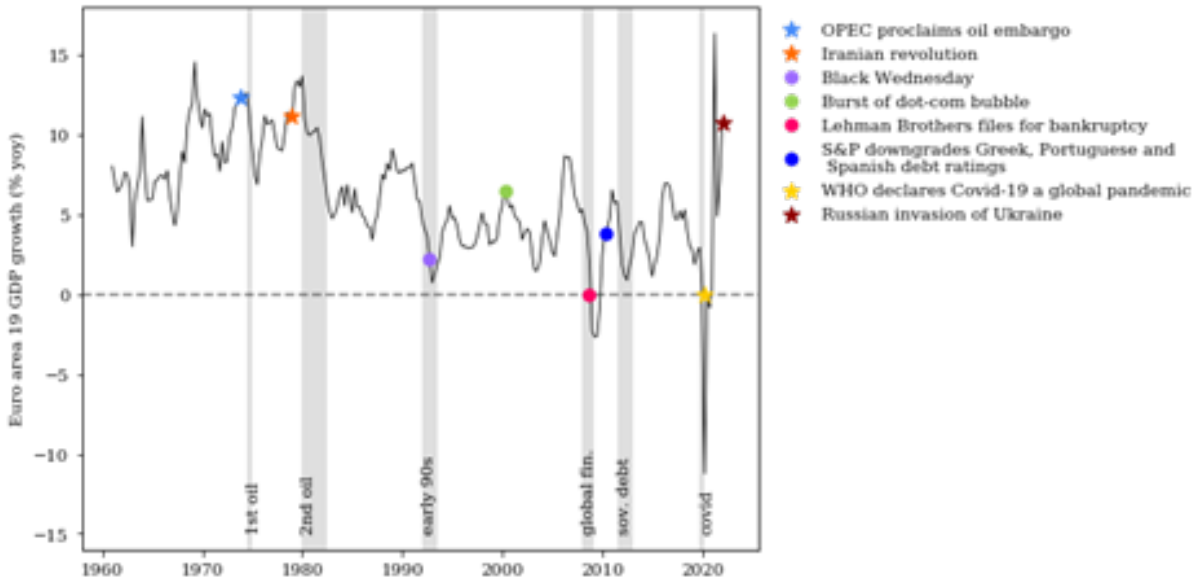
The results illustrate the impact of the great supply shock on the industries, sectors and countries in the euro area as well as the euro area total economy. They suggest that the great supply shock has had wide-spread effects, and that these effects have varied from industry to industry, sector to sector, and country to country. Supply conditions have remained tighter for longer in the euro area relative to other areas, in automobile than digital and food industries, in services than manufacturing and construction sectors, and in some countries than others.

In the final part of the paper, applications are shown of the supply indices to inflation in energy, non-energy industrial goods, food, as well as labour costs. These applications suggest that the supply indices are extremely useful as leading indicators in times of disturbances originating on the supply side, such as the great supply shock.

1 Introduction

For much of most recent history, the focus of the economics profession has not been on the supply side. The main explanation may be that over that period, the supply side has been, or has been perceived to have been, more stable than the demand side.[1] However, the most recent history has shown that supply may be subject to sudden shifts with substantial impacts. Such shifts have occurred notably subsequently to supply shocks, well-known albeit increasingly fading-from-memory examples being the 1970s and 1980s oil price shocks and, more recently, the pandemic and the invasion of Ukraine. Those and other crises are shown in Figure 1, reprised from Labhard and Malmberg (2024), together with the euro area recessions that have been identified for this period.[2]

Figure 1: **Frequency and variety of crises has increased**



Source: Labhard and Malmberg (2024).
Notes: The figure shows the growth rate of real GDP for the euro area for the period 1960-2024. The icons denote the timing and the type of the shock associated with or triggering the crisis, stars for supply-side shocks and dots for other types of shocks. The shaded areas highlight the corresponding recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

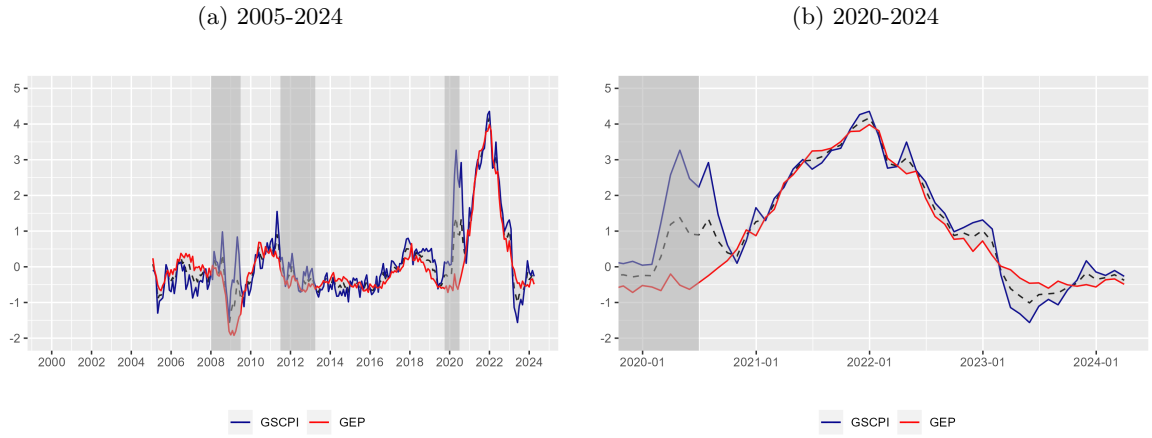
In fact, the supply shock related to the pandemic and the invasion of Ukraine seems to

[1] It may be worth recalling that the early writings in economics have been focused on supply, including those by see Smith (1776), Say (1803) and Mill (1849)), while demand came to prominence much later, primarily with Keynes (1936).

[2] The recessions are as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

have been the most sizeable by far at the global level for the past 25 years or so, according to the Global Supply Chain Pressure Index (GSCPI), presented by Benigno et al. (2022b), which shows global supply conditions moving to the tightest on record, before subsequently reverting to the loosest conditions on record, as recorded also during the financial crisis, in the space of 18 months between December 2021 and May 2023, and then appearing to return to their historical average.[3] A similar picture of global supply conditions, albeit with less loosening of supply conditions over 2020-23 than during the financial crisis, is provided by the GEP Global Supply Chain Volatility Index, described in GEP & S&P Global (2023) and plotted alongside the Global Supply Chain Pressure Index (GSCPI) in Figure 2.[4]

Figure 2: **The Great Supply Shock for the Global Economy**



Sources: Federal Reserve Bank of New York (Global Supply Chain Pressure Index, GSCPI) and GEP & S&P (GEP Global Supply Chain Volatility Index), authors' calculations.
Notes: The units are standard deviations. The broken line depicts the middle of the (shaded) range spanned by the series shown in the figure. The vertical shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

Given how unexpected and unprecedented the episode is, this paper examines what it calls the great supply shock using a novel suite of supply indices for the euro area, the euro area industries (which are dependent on the associated supply chains), sectors and countries. In doing so, it provides insights into the evolution of and the factors driving the different supply sides, as well as any co-movements across industries, sectors and countries. The indices are based

[3]For notes on some of the updates of the GSCPI, see for example Akinci et al. (2023), Benigno et al. (2022a), Akinci et al. (2022).

[4]It should be noted that the normalisation is carried out on the basis of mean and variance for the full sample in the case of the GSCPI, and mean and variance for the pre-pandemic sample in the case of the GEP. For Figure 2, the GEP has been re-normalised to the same mean and variance as the GSCPI.

on data sets varying in data complementarity and specificity, and with or without substitution of proxies for missing series. The decompositions of the indices distinguish drivers of supply at origin, in transport, and at destination.

The decompositions and the coverage of total economy, industries, sectors and countries, sets the suite apart from the single supply indices available in the literature. The development of the suite has been spurred by the release of the index presented by Benigno et al. (2022b), which is included as one of the indices in the suite presented in this paper, as recomputed by its authors. Not surprisingly, the tightening in supply conditions has been the subject of much interest also in other work, as for example Bonadio et al. (2020), Benoit et al. (2021), Celasun et al. (2022) or Kemp et al. (2023), to name a few.

Apart form the topical interest, the motivation for constructing the suite of supply indices is essentially threefold. First, ultimately, supply conditions are indicative of certain types of inflationary pressures. Second, as illustrated by the repercussions of the pandemic and the invasion, supply shocks may cause significant disruptions and entail a restructuring of supply chains and the economy. For those reasons, supply conditions are important to monitor from a monetary policy perspective. The construction of a suite enables gauging the extent to which those conditions are shared across countries, sectors and industries. This in turn, finally, may support a better understanding of the supply side, and thus a more effective policy response.[5]

In particular, the idea of covering industries alongside sectors and countries is driven by their relevance, in terms for example of the risks associated to specific industries, as in Alessandria et al. (2023), Bayoumi et al. (2019), Baldwin and Freeman (2021), Cerdeiro et al. (2022), De Michelis and Somale (2023) or Ganapati and Wong (2023), and others, or supply-chain resilience, as e.g. in Baldwin et al. (2023) or Grossman et al. (2023).

The paper is organised as follows. The suite of supply indices is introduced in Section 2. The suite is then used to examine the supply conditions for the euro area total economy in Section 3, the euro area industries and sectors in Sections 4 and 5, and for the euro area countries in Section 6. Section 7 presents applications of the indices to inflation in energy, non-energy industrial goods, food and labour costs, to illustrate the usefulness of the indices also for other purposes than the reading of episodes dominated by supply shocks. The conclusions follow in Section 8. The supporting material not included in the main text, such as the figures of supply shock and the drivers for the euro area industries, sectors and countries, and tables with

[5]On the implications for monetary policy see for example this CEPR blog and the references therein).

descriptive statistics for the indices and the underlying indicators, can be found in Appendices A to E.

2 A suite of indices for the supply side

As discussed in the introduction, the aim of the suite is to offer the possibility of an encompassing and differentiated assessment of supply conditions in the euro area, across industries, sectors and countries. In order to further the understanding of the drivers of supply conditions, and to enable robustness checks, the suite also offers, for each industry, sector and country, a selection of indices differing in their information content. The indices and the indicators on which they are based are presented in Section 2.1. The details of the computation, on the basis of the methodology used by Benigno et al. (2022b) for the GSCPI, are discussed in Section 2.2.

2.1 The indices and indicators in the suite

The philosophy underlying the suite approach to indices is that no one index is the most suitable for all purposes. Indices may vary in their predictive content, their lead/lag properties, in terms of timeliness or robustness, for example, so that the 'ideal' indicator is purpose and state dependent. The suite of indices approach enables a choice or option for selection as a function of state and/or purpose. In a suite, a number of indices may also be combined, e.g. as a means to achieve further robustness. Moreover, there are several options regarding the weights for the combination, e.g. weights conditional on some information or property, and weights specified mechanically, theoretically or based on some judgement. An overview of the indices and the specific series going into them is provided in Table 1.

As a benchmark, the suite contains an index re-computed in analogy to the GSCPI shown in Figure 2. This index is based on 6 series relating to transportation: the Harpex and Baltic Dry Index (BDI) of shipping rates, and the Bureau of Labour Statistics (BLS)' US-Europe and US-Asia inbound/outbound indices of airfreight rates, alongside 3 series from the Purchasing Managers Index (PMI), delivery times, logs and purchased stocks.[6] This index is labelled SCPI-R/RS, with 'SCPI' short for'supply chain pressure index' as in GSCPI, the 'R' for 're-computed', and depending on whether series for alternative aggregates are substituted for data which are

[6]Two further series from the Purchasing Managers Index (PMI) have been used to purge for demand effects, as in Benigno et al. (2022b) and detailed in Section 2.2

not available for a specific country or sector (the acronym ending in 'S') or not.

Next, the suite includes a more robust version of the redux index built with data from alternative sources for the data included in the SCPI-R/RS. These sources are twofold. First, they include the Freightos Baltic Index, FBX for indices of shipping costs, introduced alongside the other Baltic Exchange series, in order to reduce the sensitivity to alternative calculation and treatment methods regarding specific (especially irregular) price components.[7]

Second, they include the labour and equipment shortages series available from the European Commission (DG-ECFIN), to supplement the information from the PMIs, as the latter is not always available for sectors other than manufacturing nor for countries other than the largest. The advantage of this index is a larger information set and so some insurance against outliers, and making for a more robust indicator. We refer to this index as SCPI-D/DS.

Finally, the suite includes a broader index using also new types of data. For the time being, this is the COVID-19 Government Response Tracker (SI), a composite indicator aiming to capture the stringency of containment measures adopted by the authorities in the pandemic.[8] Going forward, further types of data are going to be included in this index, primarily prices for domestic transport, depending on the means of transportation, to capture the effects of restrictions beyond those captured by the stringency indicator, linked primarily but not exclusively to geography, such as changes in the capacity or congestion of key water, road and rail links. The corresponding index is denoted SCPI-X/XS.

The SCPI-X/XS index has the advantage of offering a better signal-to-noise ratio in the context of purely domestic supply chain disruptions. The indices constructed in the wake of the pandemic and the invasion of Ukraine, have tended to focus on international supply conditions, given the global nature of the pandemic and the global repercussions of the invasion of Ukraine. However, the domestic part of those industries may be important not to miss, especially if industries are, or are becoming, more home-based. Moreover, domestic supply-chain disruptions may become more important in the context of climate change and the associated greater occurrence of extreme weather events.

In Table 1, all the data series used for the construction of the indices have been categorised according to the supply conditions they tend to capture - those at the origin/abroad, in trans-

[7]To series from the FBX are used: the China/East Asia to Mediterranean (for the countries bordering the Mediterranean) and the China/East Asia to Northern Europe index (for the other countries). For the euro area, the average of those two indices is used.

[8]The SI is based on a total of 23 indicators and metrics such as closure and containment measures, economic indicators, health indicators, vaccine indicators and miscellaneous other indicators.

port/transit or at destination/home. This enables the computation of the key drivers of supply conditions and allows for a better understanding of the importance of each of these drivers. In particular, it makes it possible to discern the extent to which each of the key drivers have contributed to the worsening of supply conditions across different supply shocks or different phases of a supply shock.

The factors at the origin and the destination to a great extent mirror structural characteristics of the origin and destination countries, such as institutions and governance, policy and regulatory frameworks, and the structure of competition and markets. The factors in transport, by contrast, reflect the corresponding features of the links between the countries and the regions or continents they are located in.

Table 1: The indices and indicators in the suite

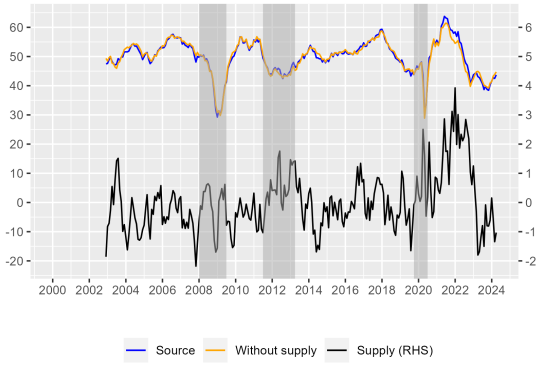
Indices	Indicators	Factors
SCPI-R/RS	PMI Backlogs of work (Backlogs)	Origin
	PMI Suppliers' delivery times (SDT)	Origin
	Baltic Dry Index (BDI)	Transport
	BLS inbound price index: air freight for Europe (EuropeIn)	Transport
	BLS outbound price index: air freight for Europe (EuropeOut)	Transport
	HARPER PETERSEN Charter Rates Index (Harpex)	Transport
	PMI Stocks of Purchases (PS)	Destination
SCPI-D/DS	all series in SCPI-R/RS (above) plus	
	Freightos China/East Asia to Mediterranean (FBX-MED)	Transport
	Freightos China/East Asia to Northern Europe (FBX-NEU)	Transport
	ECFIN Equipment shortages (Equipment_Shortages)	Destination
	ECFIN Labour shortages (Labour_Shortages)	Destination
SCPI-X/XS	all series in SCPI-D/DS (above) plus	
	COVID-19: Stringency Index (SI)	Destination
All	PMI New Orders (Orders)	Demand
	PMI Quantity of Purchases (QP)	Demand

Source: data providers as linked in the table, authors' calculations.

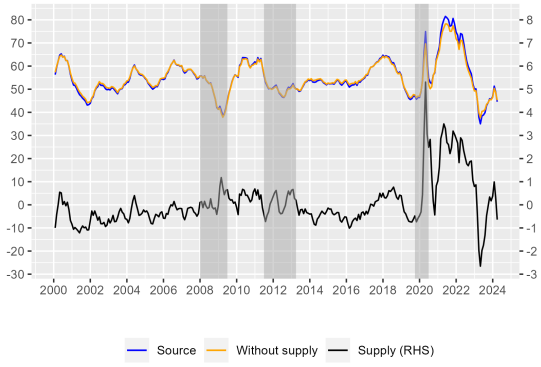
Notes: The table shows the indices in the suite, the indicators on which they are based, and the factors those indicators are taken to reflect: 'Origin', 'Transport', 'Destination' and 'Demand'. The indicators taken to reflect 'Demand' are those used to purge the other indicators (above the line in this table) in order to retrieve the element that is expected to capture only supply. For the procedure purging the series from demand effects see Section 2.2, step 2. The 'SCPI-R/RS' is the recomputed SCPI, 'SCPI-D/DS' is the SCPI-R/RS plus alternative data, 'SCPI-X/XS' is the SCPI-D/DS plus new types of data. The indices ending in 'S' are constructed using area-wide series where country-specific series are not available, those not ending in 'S' using only country-specific series, even if this implies that fewer series are used. The BLS inbound price index: air freight for Europe (EuropeIn) has been downloaded from the Federal Reserve Bank of St. Louis database, series EIUIC1311, the BLS outbound price index: air freight for Europe (EuropeOut) from the Federal Reserve Bank of St. Louis database, series EIUIS2311. The Oxford University Blavatnik School of Government COVID-19 Government Response Tracker (SI) has been taken from Our World in Data, COVID-19: Stringency Index. The other series are available only from commercial providers. The acronym 'BLS' is short for the Bureau of Labour Statistics, the acronym 'PMI' for S&P Global's Purchasing Managers' Index.

Figure 3: The indicators going into SCPI-R/RS

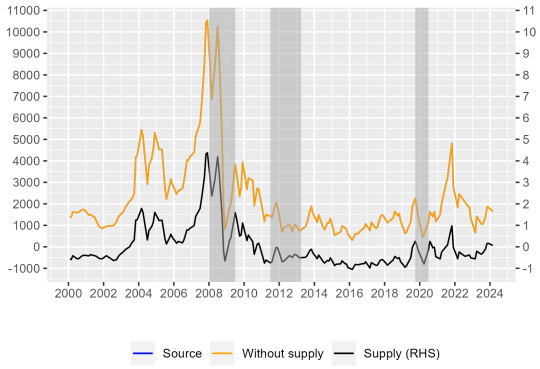
(a) Backlogs



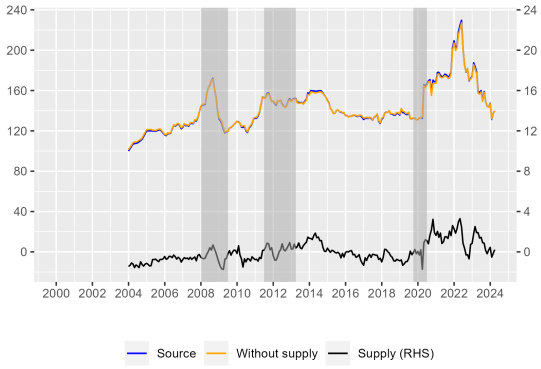
(b) SDT



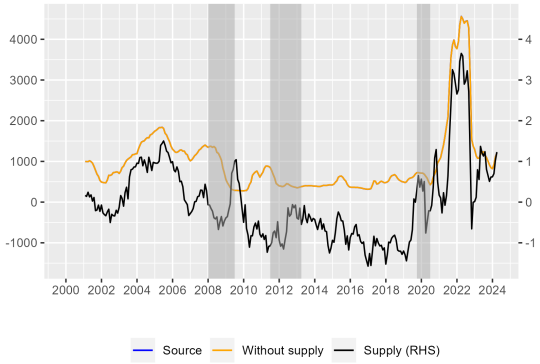
(c) BDI



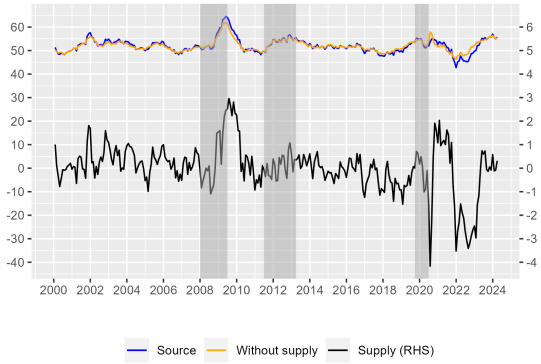
(d) EuropeIn



(e) Harpex



(f) PS

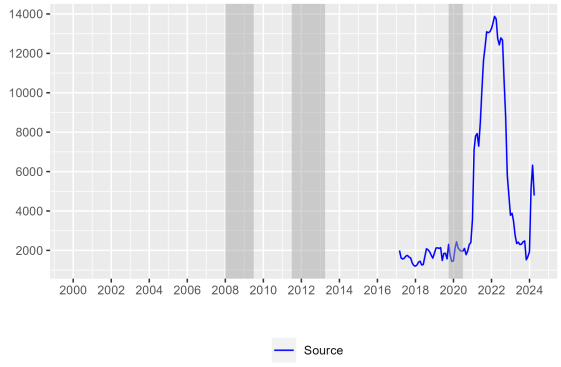


Source: as detailed in Table 1, authors' calculations.

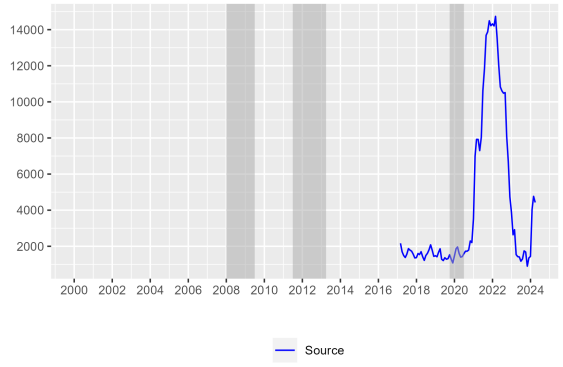
Notes: The lines show the indicator as from the source ('Source'), the indicator without the component capturing supply ('Without supply'), and the component capturing supply ('Supply'). For the procedure purging the indicators from demand effects see Section 2.2, step 2. The vertical shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

Figure 4: The additional indicators going into SCPI-D/DS and SCPI-X/XS

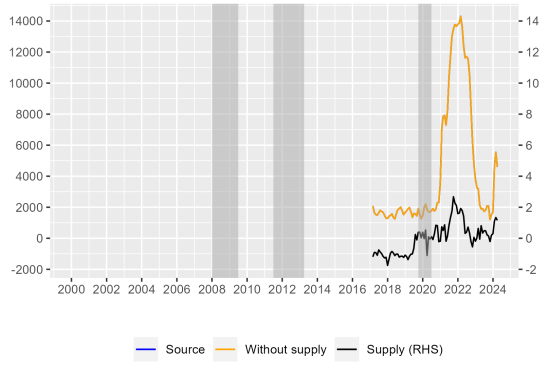
(a) FBX-MED



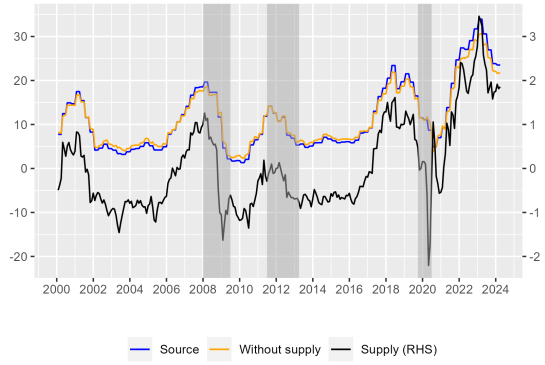
(b) FBX-NEU



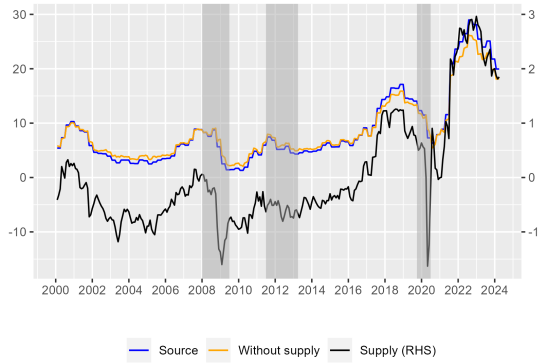
(c) FBX



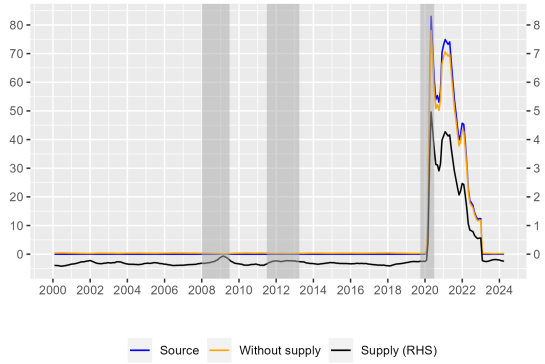
(d) ES



(e) LS



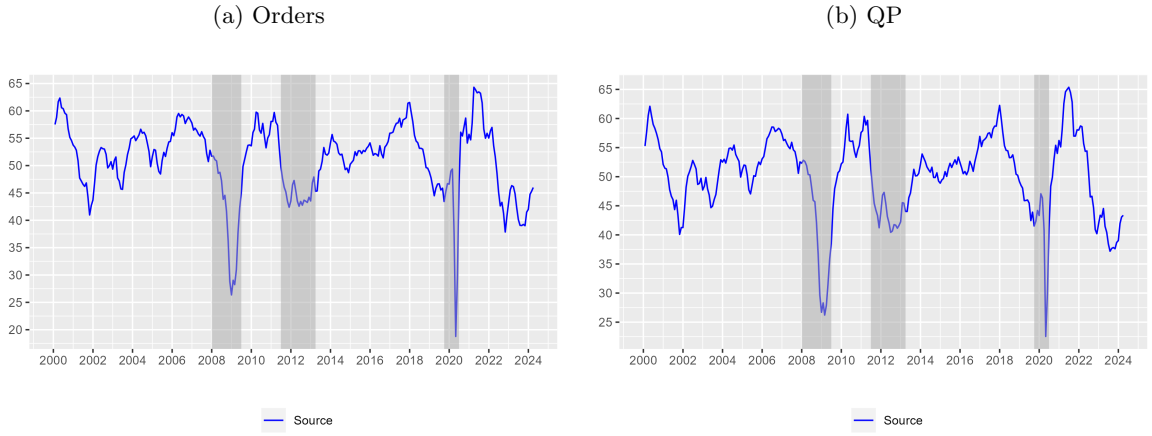
(f) SI



Source: as detailed in Table 1, authors' calculations.

Notes: The lines show the indicator as from the source ('Source'), the indicator without the component capturing supply ('Without supply'), and the component capturing supply ('Supply'). For the procedure purging the indicators from demand effects see Section 2.2, step 2. The vertical shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

Figure 5: The indicators used for purging for demand effects



Source: as detailed in Table 1, authors' calculations.
Notes: The lines show the indicator as from the source and as used to purge the indicators listed above the line in Table 1 for demand effects. For the procedure purging the indicators from demand effects see Section 2.2, step 2. The vertical shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

For all indices, the acronym ending in 'S' signals that series for another aggregate are substituted when series for specific countries,sectors or industries are not available. The acronym not ending in this way indicates that the index is constructed without substitution.[9] All indices as listed in Table 1, have been computed for the euro area, the euro area industries, sectors and countries to examine the fall-out from the great supply shock.

The details of the computation of the indices are outlined in Section 2.2. The descriptive statistics for the indices and the indicators going into them are available in Appendix A, the substitutions for the 'S' indices are supplied in Appendix B.

2.2 The computation of the indices

The indices are computed on the basis of the methodology adopted for the GSCPI as presented by Benigno et al. (2022b). The key steps of the computation and their motivation are as follows:

1. normalising; in this step, the data are transformed to standard deviations, and such that positive standard deviations reflect tightness; this step enables using different data in a single index; formally, the standard-normal transformation is combined with an indicator

[9] The substitution has the advantage of using more information but the disadvantage that this information may not be representative for the specific industry, country or sector being looked at. By definition, the disadvantage may weigh more heavily for those sectors, industries and countries for which more data are missing.

variable such that

$$z_t = (x_t - \mu)\sigma^{(-1)}I, \tag{1}$$

where z_t is the transformed data, x_t is the original data, μ and σ are mean and standard deviation of the series, and I the indicator variable with $I = 1$ if $x_t > 0$ is associated with tightness and $I = -1$ otherwise;[10]

2. purging; in this step, the transformed data are corrected for effects other than supply; this step is key, as all data to some extent reflect both supply and demand effects; the correction is made by regressing all data on a selection of indicators of other things than supply such that

$$\epsilon = y - X(X'X)^{(-1)}(X'Y), \tag{2}$$

where ϵ is the vectors of residuals from a standard OLS regression of the data y on the data X, and $(X'X)^{(-1)}(X'Y) = \hat{\beta}$ is the vector of estimated coefficients from that regression;

3. transforming; in this third step the normalised and purged series are then transformed into an index, using principal components;[11] specifically, as the sum of the first p principal components such that

$$C_p = \sum_{i=1}^{p} \pi_1 {v_1}' X_1 + ... + \pi_i {v_i}' X_i, \tag{3}$$

where C_p is the sum of the first p principal components v_i is the eigenvector corresponding to the i-th eigenvalue of the data matrix X, and π_p is the variance contribution of the p-th principal component;[12]

4. aggregating; this fourth step follows for the indices for the euro area total economy and the industries; these indices are derived as weighted averages of the indices of the components such that

$$\overline{C} = \sum_{i=1}^{n} \omega_1 (C_p)_1 + ... + \omega_n (C_p)_n, \tag{4}$$

[10] Normalising implies that as a new data point is added to the indicators/indices, mean and standard deviation and so past data points of the indicators/indices are subject to revision.

[11] Naturally, the third step may be made with variations of the principal components analysis, as provided for example by various types of factor models. See Stock and Watson (2002) for the seminal paper.

[12] The variance contribution of the p-th principal component, π_p, is computed as $\pi_p = {\sigma_p}^2 (\sum_{i=1}^{p} {\sigma_i}^2)^{-1}$, where σ_p is the variance of the p-th principal component. The variance contribution weights tend to yield more robust results than the equal weights given by the inverse of the number of principal components p^{-1} as/when the number of principal components is changed, and are preferred for that reason.

where $\overline{C}$ is the index for the total economy or supply chain, $\omega_i(C_p)_i$ is the product of the weight on the index of the i-th component and the index of the i-th component, as defined in equation 3.[13]

3 The great supply shock from the total economy perspective

The remainder of the paper is devoted to the results, starting with the euro area total economy perspective in Section 3 and continuing with the industry perspective in Section 4, the sector perspective in Section 5, and the euro area country perspective in Section 6.

3.1 The shock for the total economy

Overall, the indices for the euro area total economy are moving closely together, and more often than not tend to coincide in their troughs and peaks, both local and global ones, and both following the great supply shock and the earlier part of the sample for which it has been computed, as visible in Figure 6. Figure 6 shows three indices, the SCPI-RS which uses the euro area analogues of the series employed in the GSCPI as presented by Benigno et al. (2022b), the SCPI-DS which includes alternative data to those in the SCPI-RS, as well as the SCPI-XS which draws on new types of data sources relative to SCPI-RS and SCPI-DS. There are however noteworthy differences which highlight the importance of considering alternative and new types of data to arrive at a more robust assessment.

Following the great supply shock, the SCPI-RS index together with the SCPI-XS, initially responds more strongly than the SCPI-DS, while towards the end of the sample it suggests that supply conditions are back to the historical average, which however is higher than the pre-pandemic average. In contrast, the SCPI-DS and SCPI-XS suggest that supply conditions remain tighter, especially when viewed against the pre-pandemic average, with those indices approximately half way between the 2021 peak and the zero line, one of the greatest discrepancies, if not the greatest, of the two indices relative to the SCPI-RS over the sample to date. Differences between the indices can also be seen in the earlier part of the sample. In the early

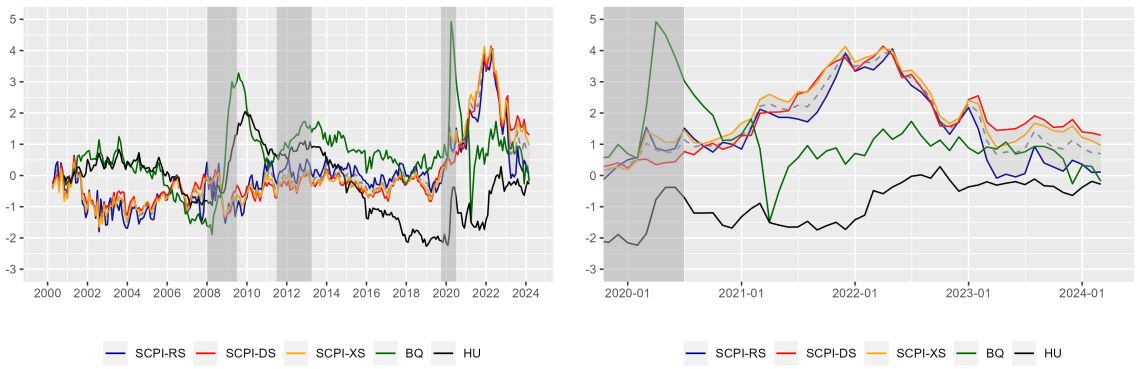
[13] For the total economy indices, reflecting the aggregation of the manufacturing, services and construction sectors, the index is obtained as $C_T = (w_T C_T + w_S C_S + w_C C_C)^{-1/3}$, where the weights w correspond to the relative size of the sector and the exponent ensures that the resulting index has unit variance. The weights of the sectors for the full sample and the pandemic are provided in Tables A.21 and A.22 in Appendix A. The reason for deriving the indices for the total economy and the industries in this way simply is that this allows to back out the contributions to this index of the different parts of the supply chain and the total economy.

part of the sample up to the financial crisis in 2008/09, the SCPI-DS and SCPI-XS tend to be above the SCPI-RS, while for the time from 2008/09 to 2020, the onset of the pandemic it is the reverse.

As a cross-check on plausibility, Figure 6 also shows two estimates of supply shocks, both obtained from seminal structural VAR specifications suggested for the identification of supply shocks (and demand shocks). The first is due to Blanchard and Quah (1989) who analyse the case of supply vs demand shocks explicitly. The second is based on Uhlig (2017), who discuss the identification of supply shocks (and demand shocks) in the spirit of Uhlig (2005). When the estimates of the supply shocks from those models are accumulated over time, the great supply shock is clearly reflected in those series, as can be seen in Figure 6. Moreover, both the increase and the peak in the supply shock series lead the supply indices.

Figure 6: The shock for the euro area total economy

(a) 2000-2024 (b) 2020-2024



Source: authors' calculations.
Notes: 'SCPI-RS' denotes the redux of the euro-area SCPI, 'SCPI-DS' the index with additional data, and 'SCPI-XS' the index with new types of data, all with substitution for missing series. The units are standard deviations. The broken line depicts the middle of the (shaded) range spanned by the three SCPI series shown in the figure. 'BQ' and 'HU' denote the estimates of supply shocks using the methodology of Blanchard and Quah (1989) and Uhlig (2005) as suggested for demand and supply shocks by Uhlig (2017), respectively, both accumulated over time and re-normalised to the mean and standard deviation of the supply indices. The vertical shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

The discrepancies across indices highlighted in Figure 6 illustrate the benefits from a suite of indices for a robust reading of supply developments, as readings might differ as a function of the information set. For the purpose of exposition of the results across industries, sectors or countries, it is helpful though to employ only a single index. For this purpose, and this purpose only, the focus in the remainder of the paper is going to be on the SCPI-XS. As noted in section

2.1, this index has the advantage of drawing on the largest information set and so offering the most insurance against data issues with specific series, and so is the index that is considered the most suitable for this purpose.

3.2 The supply drivers for the euro area total economy

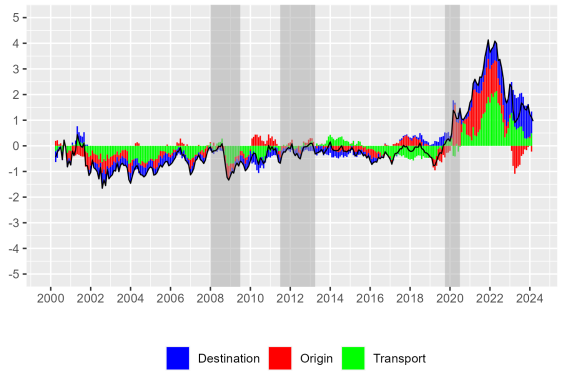
The relative importance of the different drivers of the SCPI-XS as documented in Section 3.1 is illustrated in Figure 7. The upper panels show the respective contributions from the drivers origin (at the origin of supply), destination (at the destination of supply) and those of transport (transport from the origin to the destination), the lower panels the contributions of each of the underlying series. The panels to the left are for the full sample, the panels to the right are for the end of the sample since the onset of the pandemic.

Figure 7 points to transport as a key driver not only over the pandemic but also the full sample for which the index has been computed, accounting roughly for about one half of the changes in supply conditions. The figure illustrates how the contribution from transport reached a peak in 2021 related to the pandemic, owed to the restrictions imposed on physical movement, before declining subsequently in the course of 2022 as those restrictions became less and less binding. According to the lower panels, showing the contributions of the individual series, much of the transport-related worsening in supply conditions during the pandemic could be attributed to air transport, as captured by the Bureau of Labour Statistics' air inbound/outbound freight cost indices.

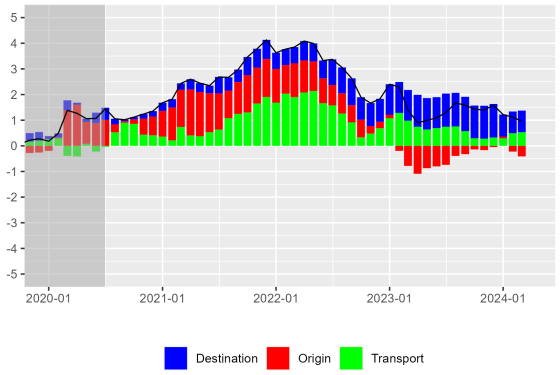
All drivers though have contributed to the tightening during the pandemic, as highlighted in the panels for the shorter 2020-24 sample to the right. It is interesting to note that in the early phase and at the height of the pandemic the tightening was due to a greater extent from the drivers at the origin, while in the later stages as the pandemic was fading it was the drivers at destination, in the euro area, and in particular shortages of labour and equipment, reflecting some of the fall-out from the pandemic that may actually not have been fully anticipated.

Figure 7: The supply drivers for the euro area total economy

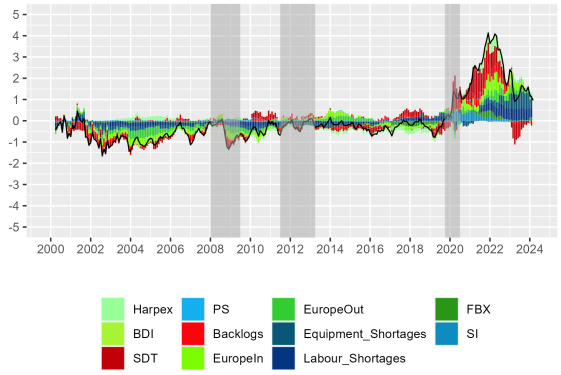
(a) 2000-2024, groups



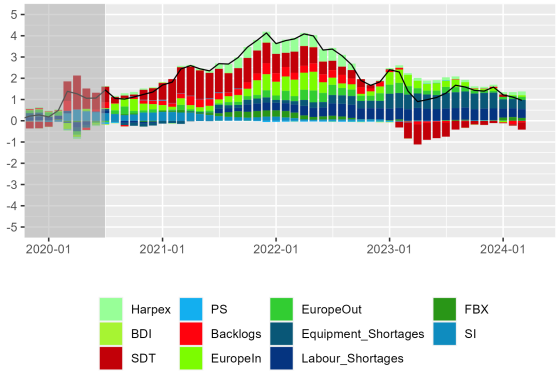
(b) 2020-2024, groups



(c) 2000-2024, indicators



(d) 2020-2024, indicators



Source: authors' calculations.
Notes: The bars show the contributions of the indicators (in panels (c) and (d)) or groups of indicators (in panels (a) and (b)) to the 'SCPI-XS' index. The indicators are denoted as detailed in Table 1. The units are standard deviations. The shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

Indeed it is the contributions from the drivers at destination, in the euro area, that have so far prevented a further normalisation in supply conditions in the euro area as a whole. The drivers at the origin since the start of 2023 have been making supply conditions less tight than they would have been otherwise, and taken together with the drivers in transport, have been broadly neutral at the end of the sample until the end of 2023, before becoming noticeable again at the start of 2024, in connection with disruptions to transport through the Red Sea.

4 The great supply shock from the industry perspective

In this section, the great supply shock is viewed from the industry perspective. As noted before, industries and the associated supply chains play an important role in determining supply conditions. In a world in which preferences are heterogeneous and products are complex, industries also tend to involve different sectors and different countries. Understanding the developments at the sector and country dimension therefore is much easier if it is clear what the developments are for the corresponding industries.

Here we comment on three industries that are or have been playing an important role in the euro area context, and that are relatively easy to obtain data for, either because they are well-established in the statistics, or of a sufficient size to be identifiable, in either case enabling data to be (more) easily found. The aim is to extend the suite to all industries, in order to fully appreciate those that have been severely affected by the great supply shock, and also may be of topical relevance in other respects.

In each case, the data are obtained by considering the NACE2 sub-sectors that pertain to that industry. This involves at least one sub-sector from manufacturing, and one sub-sector from services. The data for the sub-sectors are aggregated as described in detail in Section 2.2, by means of the shares of the sub-sectors in added value. The corresponding weights are available in Tables A.21 and A.24 in Appendix A. Given that the corresponding indicators cover upstream and downstream elements, the look at these industries is essentially covering the supply chain pertaining to that industry.

The first industry is automobile, an example of a mature industry that has had major impacts on the euro area economy in the past, it is an example of a chain involving several euro area countries and the international context, and may be an example of a chain that might be loosing in importance going forward. This is defined as the sum of the 'Manufacture of motor vehicles, trailers and semi-trailers' (PMI and ECFIN) plus 'Land transport and transport via pipelines' (PMI and ECFIN).

The second industry is digital, an attempt to capture industries that are going to be more important going forward. Efforts are underway to measure more accurately the digital economy, and so allowing this chain to be analysed is adequate. The digital chain is constructed from 'Manufacture of computer, electronic and optical products, electrical equipment' (PMI) and 'Manufacture of computer, electronic and optical products' (ECFIN) plus 'Computer program-

ming, consultancy and related activities' (PMI and ECFIN).

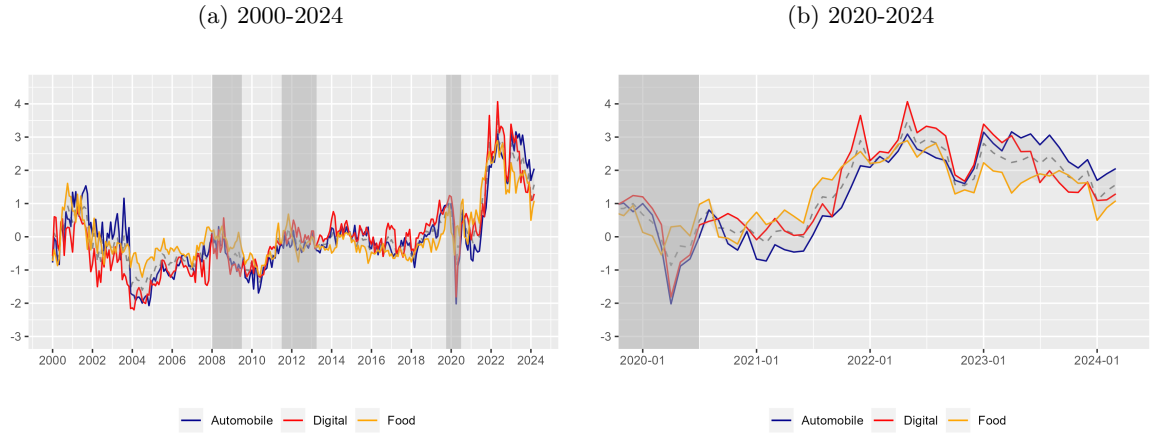
The third industry is food and beverage. The corresponding data are taken from 'Manufacture of food products and beverages' (PMI and ECFIN), plus 'Accommodation and food and beverage service activities' (PMI) or 'Accommodation' (ECFIN). The food and beverage chain is an example of a chain that is always going to be important, and also involves a large number of countries in the euro area. Moreover, even though the weight is not as large as for some other chains, this chain has been important in the connection with the post-pandemic pick-up in inflation that is often attributed in part to the great supply shock.

As can be seen from their labels, the sub-sectors generally include a range of connected activities and not all of them to the same extent reflect the supply chain or industry that is being captured here. In the case of automobile, there are activities going beyond the manufacture and servicing of the vehicles alone, for example. The digital chain includes several activities that may make heavy use of digital equipment, but other than that are independent. The food chain is distinct, or at least more narrow, than what tends to be encompassed by food and accommodation. In general, the definitions are such that some activities are included or excluded that should not be.

4.1 The shock across euro area industries

The results suggest that the overall patterns in supply conditions are shared by the three industries in focus here - the substantial spike in the course of the pandemic, and the relative tightness ahead of and in the early part of the recessions in the sample, as illustrated in Figure 8. The three industries also move much in tandem in other earlier episodes in the sample, for example between the sovereign debt crisis and the pandemic.

Figure 8: The shock across euro area industries



Source: authors' calculations.
Notes: The lines show the 'SCPI-XS' indices for the respective industries. The units are standard deviations. The broken line depicts the middle of the (shaded) range spanned by the series shown in the figure. The vertical shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

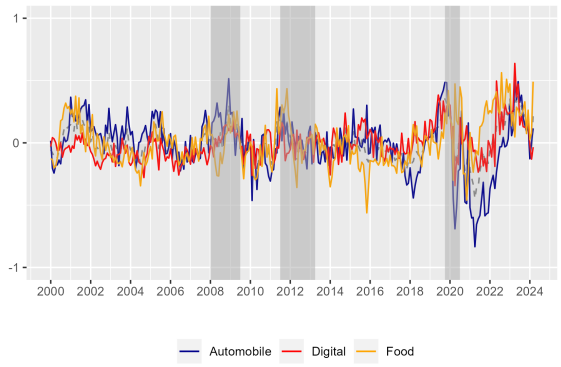
Despite this, the indices do display and reveal some industry specificity, notably the relatively more persistent tightness in the automobile industry than digital and food at the very end of the sample since mid-2023. Such specificity though is not limited to the pandemic. After the turn of the millennium, for instance, the automobile industry shows signs of tightness relative to digital and food industries, while for the years following the financial crisis it tends to display looser supply conditions than those in other industries.

4.2 The supply drivers across euro area industries

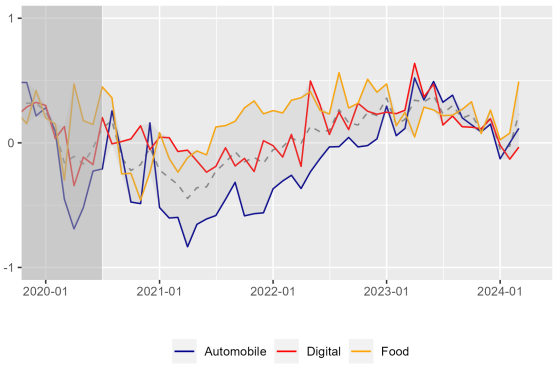
The relative tightness of the automobile chain at the end of the sample can be traced to a large extent to the drivers at destination, as can be seen in Figure 9. While the spike in the pandemic shared by all three industries seems to reflect mostly the drivers in transport, the end of the sample the automobile chain seems to experience more tightness than the digital and food industries owing to drivers at destination. This is likely owed to the services part of the activities, and the labour shortages affecting those activities, and underscores the motivation for considering further indicators capturing domestic conditions.

Figure 9: The supply drivers across euro area industries

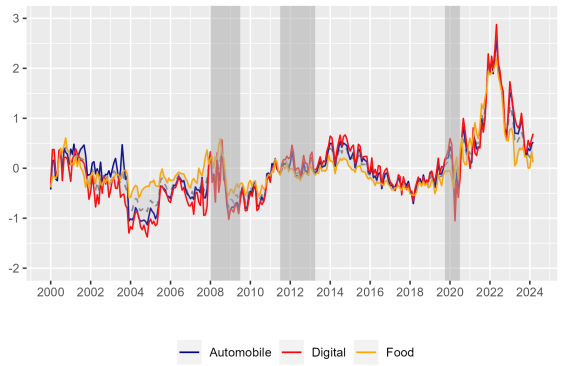
(a) 2000-2024, origin



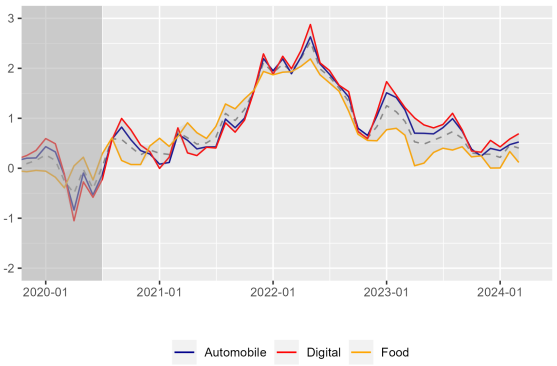
(b) 2020-2024, origin



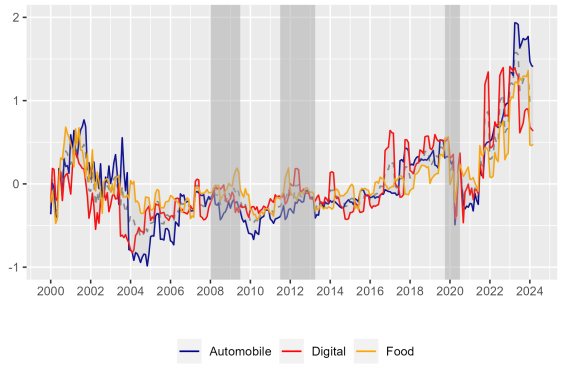
(c) 2000-2024, in transport



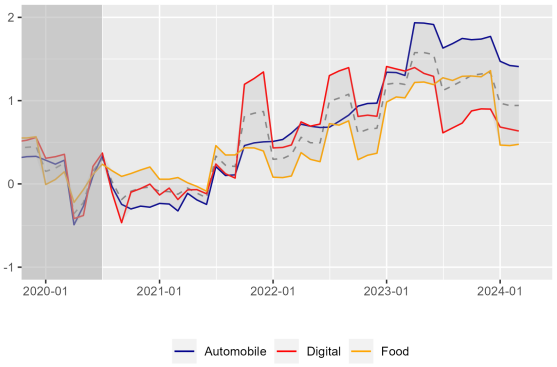
(d) 2020-2024, in transport



(e) 2000-2024, destination



(f) 2020-2024, destination



Source: authors' calculations.

Notes: The lines show the contributions of the captioned supply drivers to the 'SCPI-XS' indices for the respective industries. The units are standard deviations. The broken line depicts the middle of the (shaded) range spanned by the series shown in the figure. The vertical shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

5 The great supply shock from the sector perspective

In this section, the great supply shock is viewed from the cross-sector perspective, distinguishing between the main euro area sectors as per the NACE 2 statistical classification of economic activities - manufacturing (in the classification 'industry excluding construction'), about one third of total value added, services, around half of value added, and construction, roughly one sixth.[14]

5.1 The shock across sectors

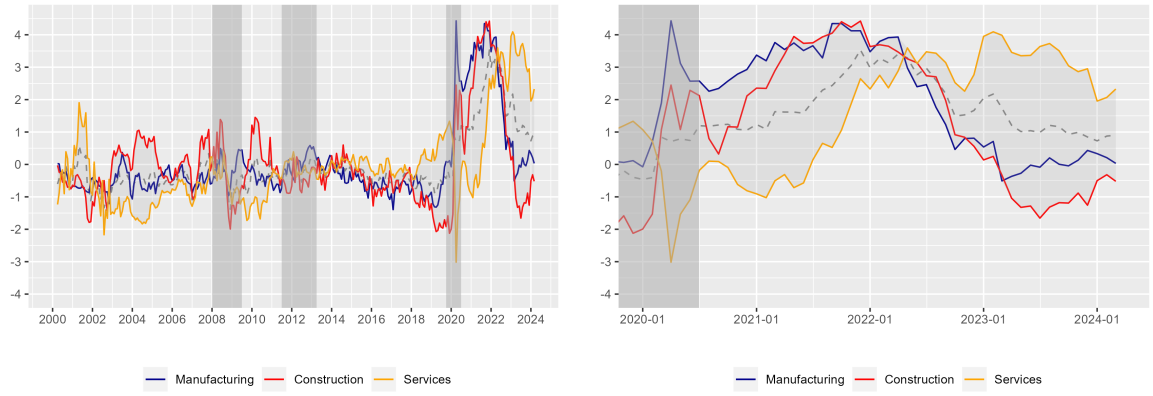
The evolution of the indices for the sectors suggest a greater specificity than for the industry indices discussed in Section 4, as can be seen in Figure 10. That figure suggests that the peak in the tightness of supply conditions was reached later in services than manufacturing and construction and that the great supply shock may have had a strong sectoral component, affecting sectors more than industries. One possible explanation for this may be that industries tend to involve activities from more than one sector, and thus tend to be affected less by effects of shocks that impact on specific sectors.

While the manufacturing and construction sectors have shown a normalization mirroring global supply conditions at the end of the sample, the supply conditions for the services sectors appear to have yet to normalize. In the service sector, moreover, supply conditions have only just receded from their tightest yet in the full sample at the start of 2023. Despite the sector specificity at the end of the sample, starting in the second half of 2022, the period starting from the pandemic up to and including the first half of 2022 seems to have been characterised by supply conditions more common across sectors, a hint that the effects may be lasting to a different extent across sectors, and some of the sectors may be experiencing hysteresis.

[14] The weights of the main sectors for the full sample and the pandemic sample are provided in Tables A.21 and A.22 in Appendix A. The analysis of the sub-sectors of the main sectors is left for future work.

Figure 10: The shock across euro area sectors

(a) 2000-2024 (b) 2020-2024



Source: authors' calculations.
Notes: The lines show the 'SCPI-X/XS' indices for the respective sectors. The units are standard deviations. The broken line depicts the middle of the (shaded) range spanned by the series shown in the figure. The vertical shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

Figure 10 also suggests a leading property of the manufacturing sector especially in exits from recessions, and the in-between character of the manufacturing sector for several between-recession episodes, which implies that the index for the manufacturing sector may be the best approximation to the total economy index. If so, this would vindicate the use of the manufacturing index as a proxy as in the GSCPI and the approach followed in this paper for the indices with substitution and ending with the acronym 'S' (as discussed in Section 2.2).

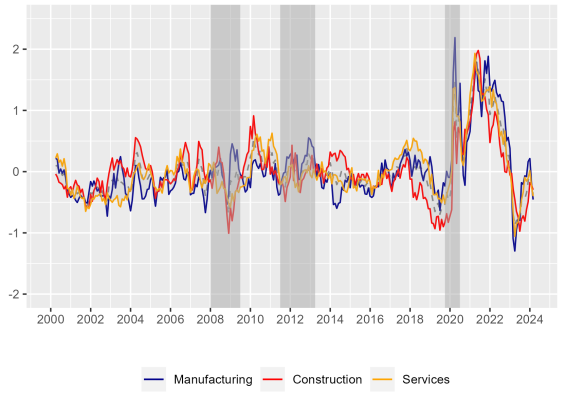
5.2 The supply drivers across sectors

In order to understand better the sector specificity, it is informative to consider the corresponding drivers and compare those across sectors, as done in Figure 11. According to that figure, the specificity at the end of the sample appears to be attributable to the factors at destination which display the same lag as the index for services relative to manufacturing and construction.

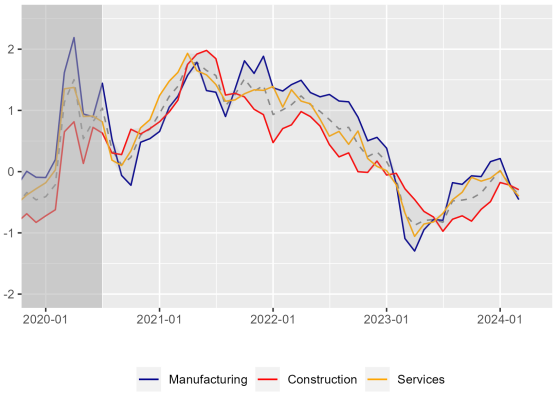
The factors at destination are not the only ones driving the result for the index at the end of the sample though, as also the contributions from factors in transport and at origin are at the upper end of the range of the contributions for that period. While services are to some extent non-traded, and so perhaps particularly exposed to conditions at destination, the tightness still is somewhat surprising, and an indication that shortages are not that easily overcome.

Figure 11: The supply drivers across euro area sectors

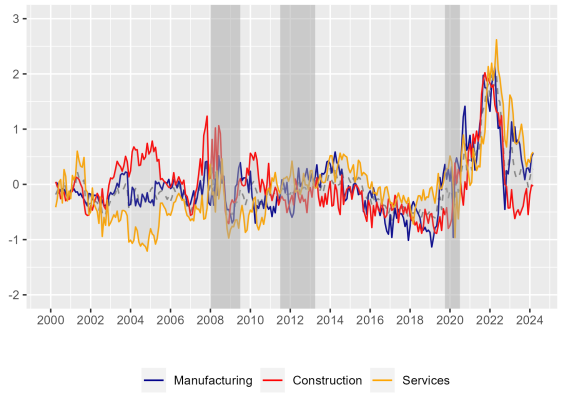
(a) 2000-2024, origin



(b) 2020-2024, origin

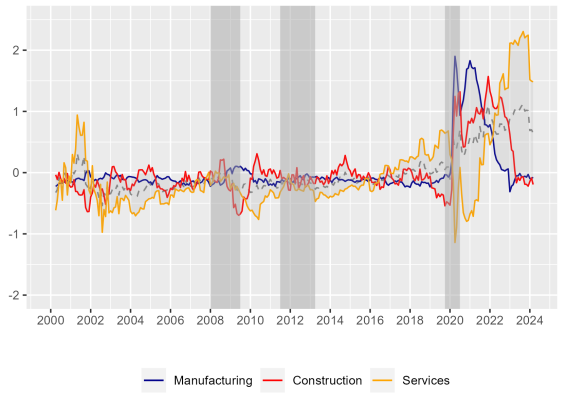


(c) 2000-2024, in transport

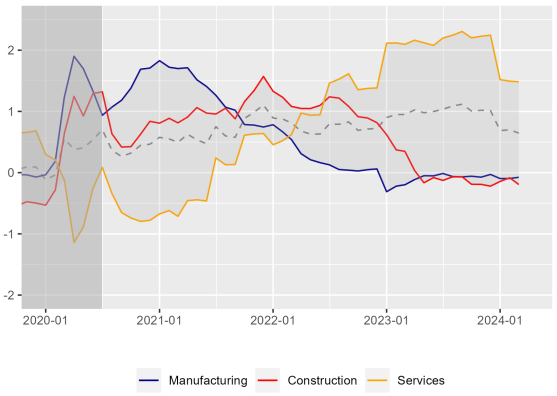


(d) 2020-2024, in transport

(e) 2000-2024, destination



(f) 2020-2024, destination



Source: authors' calculations.

Notes: The lines show the contributions of the captioned supply drivers to the 'SCPI-X/XS' indices for the respective sectors. The units are standard deviations. The broken line depicts the middle of the (shaded) range spanned by the series shown in the figure. The vertical shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

From Figure 11 it is also interesting to note that the manufacturing index is a proxy for the total economy not because in the case of manufacturing all contributions are between those of services and construction, but because a higher contribution from factors at origin and a lower contribution from factors at destination than for the other sectors tend to average out.

6 The great supply shock from the country perspective

To complement the industry and sector perspectives of Sections 4 and 5, this section takes the country perspective. As in Sections 4 and 5, the focus will be on the cross-comparisons of the supply shock and the contributions from factors at origin, in transport and at destination. While the exposition in this section is focused on the upper half in the size distribution, covering 11 countries out of 20, the results for all 20 countries are available in Appendix E.[15]

The first group of countries, in panels a) and b) of Figure 12 and Figure 13, consists of the largest four countries (Germany, France, Italy and Spain), which have weights greater than 10%. The second group of countries, in panels c) and d) of Figure 12 and Figure 14, includes the three countries that follow, and make up between 10% and 2% of the euro area total, i.e. the Netherlands, Belgium and Austria. The third and final group, in panels e) and f) of Figure 12 and Figure 15, covers the four countries completing the upper half of the size distribution, with weights between 2% and 1% of the euro area total (Ireland, Finland, Greece and Portugal).

6.1 The shock across countries

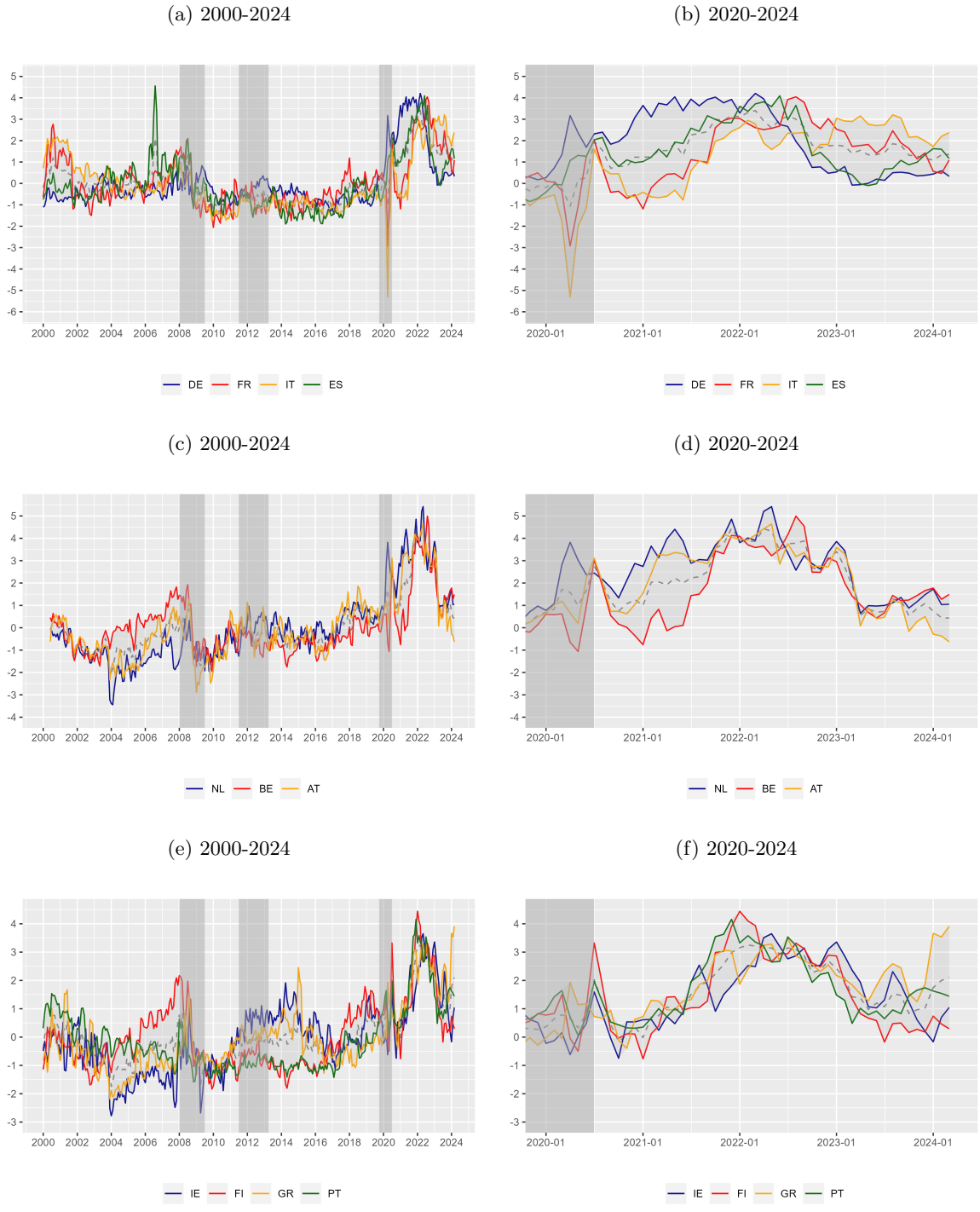
Focusing first on the pandemic and the end of the sample, the repercussions of the great supply shock seem to be specific also to countries, and both in terms of timing and magnitude, as documented in Figure 12. Among the largest economies, the tightening and subsequent loosening of supply conditions seems to have been earlier in Germany and Spain than France and Italy, with similar tightness at the peak for Germany, France and Italy, and somewhat less for Spain. To some extent this may also be seen for the countries in the other groups, with the Netherlands peaking before Belgium and Austria, and Ireland and Finland before Greece and Portugal, with the tightness at the peak similar to that for Germany, France and Italy, except for Austria which

[15]For some of the countries, data are not available for sectors other than manufacturing and so, in order to ensure cross-country comparability of some sort, the results in this section are those for the manufacturing sector rather than the total economy. The size of the manufacturing sector and its suitability as a total economy proxy are available in Tables A.23 and A.24 in Appendix A.

has a peak similar to Spain.

In a few countries, including France and Italy from the largest, Belgium from the next, and Ireland and Greece from the third group, tightness has started to increase again at the end of the sample in the first quarter of 2024, when there were disruptions in the Red Sea, in the case of Greece with the greatest post-pandemic tightness so far occurring in that quarter. In more cases than not, the renewed tightness appears to be associated to the countries that also saw supply conditions tighten and then loosen earlier in the context of the pandemic. If so, then it could be an indication of longer lags in some countries and so that supply conditions going forward might tighten again soon in those other countries. The results for the full sample in the cases of some countries e.g. Germany and the Netherlands seem to point in that direction.

Figure 12: The shock across euro area countries



Source: authors' calculations.

Notes: The lines show the 'SCPI-X/XS' indices for the respective countries. The units are standard deviations. The broken line depicts the middle of the (shaded) range spanned by the series shown in the figure. The vertical shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

Another observation relates to the volatility of the supply conditions as captured by the SCPI-XS. Judging by the results for the countries in Figure 12, the largest four euro area economies appear to have experienced that volatility mostly in connection with the pandemic. Other countries, by contrast, seem to have experienced the volatility in supply conditions also at other times, and not necessarily only in the context of the recessions related to previous crises.

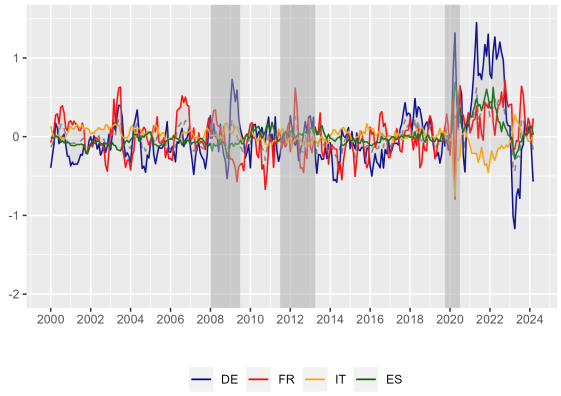
6.2 The supply drivers across countries

The results for the countries become clearer when looking at the underlying drivers, at origin, destination and in transport. The earlier tightening and earlier loosening in supply conditions appears to be home-made, in the sense that the contributions from factors at destination have a key role in the cross-country differences of the country indices over time, for example in the cases of France, Italy, the Netherlands and Belgium, as shown in Figures 13 to 15. Some of the heterogeneity of the countries may also be attributed to the factors at origin, and the specificity from those two sources observed for the pandemic and the end of the sample in fact extends to the earlier part of the sample before the pandemic.

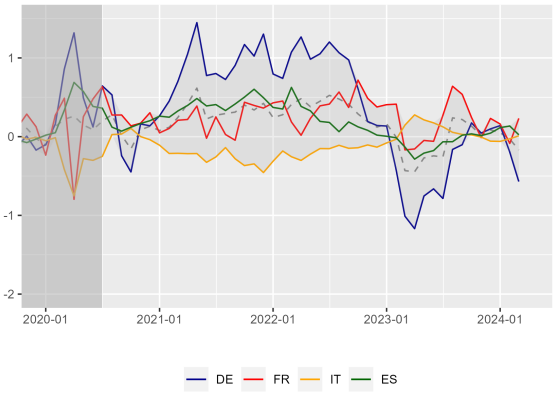
Less of the differences in timing but more of the magnitude of the tightness in supply conditions at the post-pandemic peak and in the respective country indices appears to have been driven mostly by the factors in transport. This can be seen especially clearly for the four largest economies in 13. It is important to bear in mind that for the time being, the contributions from the factors in transport may not capture all relevant country-specific information, as they are currently not available by country, and only based on selected routes and their end points.

Figure 13: The supply drivers across countries (DE, FR, IT, ES)

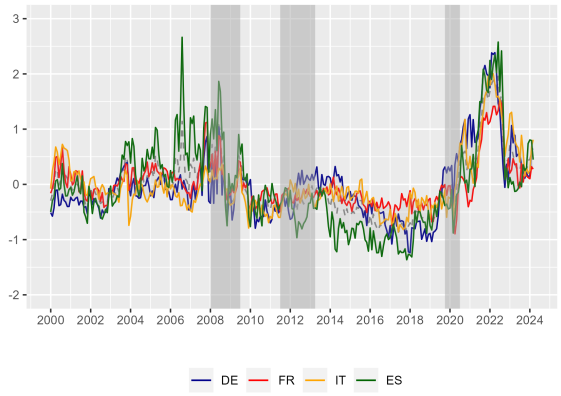
(a) 2000-2024, origin



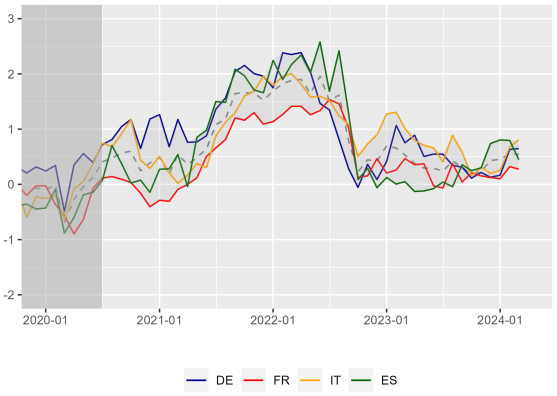
(b) 2020-2024, origin



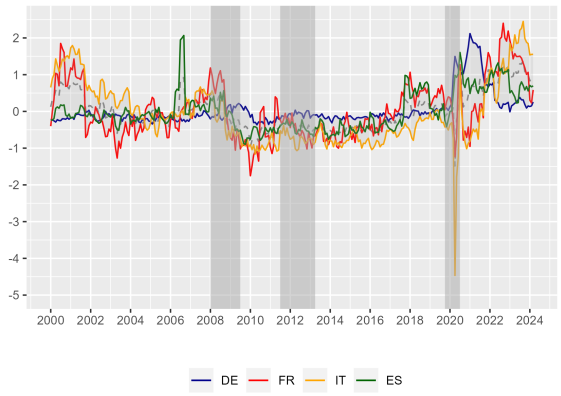
(c) 2000-2024, in transport



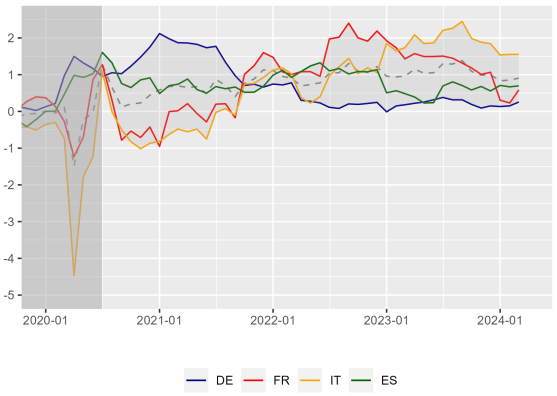
(d) 2020-2024, in transport



(e) 2000-2024, destination



(f) 2020-2024, destination

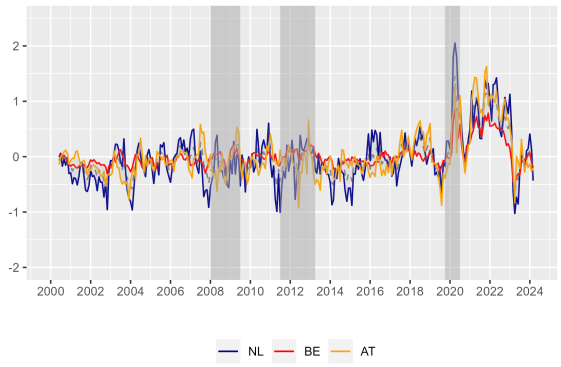


Source: authors' calculations.

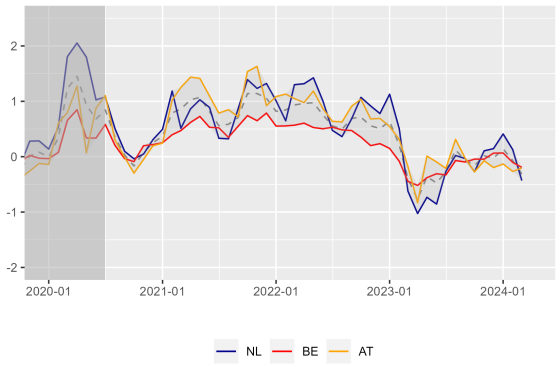
Notes: The lines show the contributions of the captioned supply drivers to the 'SCPI-X/XS' indices for the respective countries. The units are standard deviations. The broken line depicts the middle of the (shaded) range spanned by the series shown in the figure. The vertical shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

Figure 14: The supply drivers across countries (NL, BE, AT)

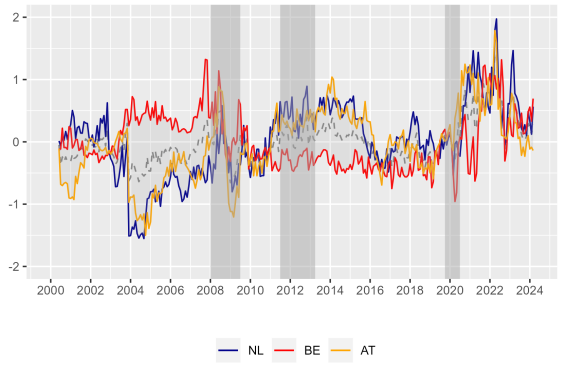
(a) 2000-2024, origin



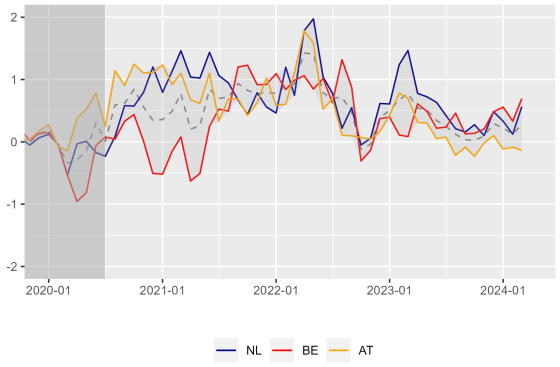
(b) 2020-2024, origin



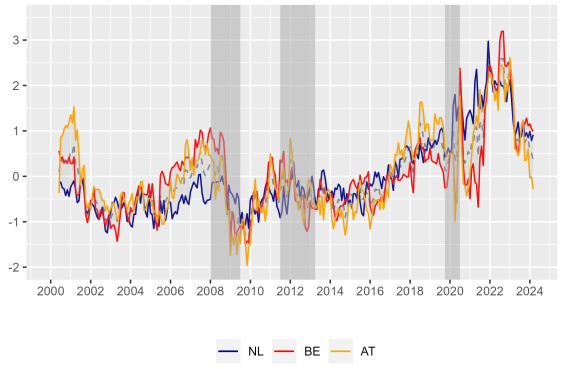
(c) 2000-2024, in transport



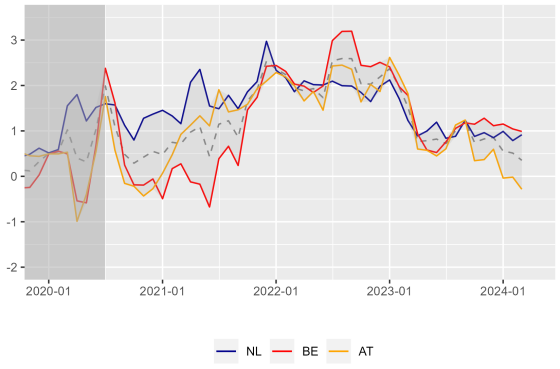
(d) 2020-2024, in transport



(e) 2000-2024, destination



(f) 2020-2024, destination

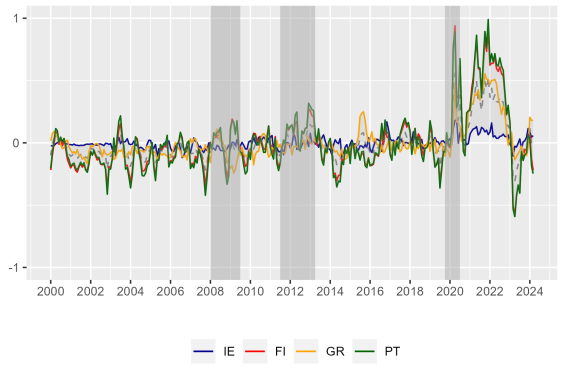


Source: authors' calculations.

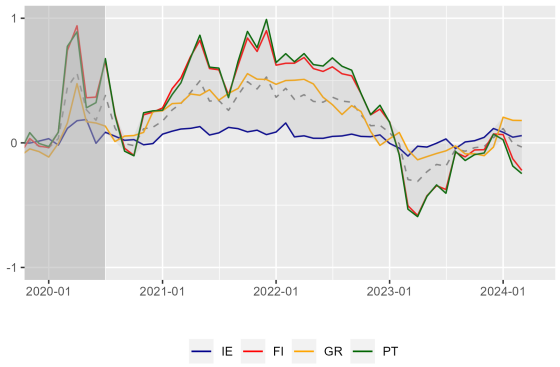
Notes: The lines show the contributions of the captioned supply drivers to the 'SCPI-X/XS' indices for the respective countries. The units are standard deviations. The vertical shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

Figure 15: The supply drivers across countries (IE, FI, GR, PT)

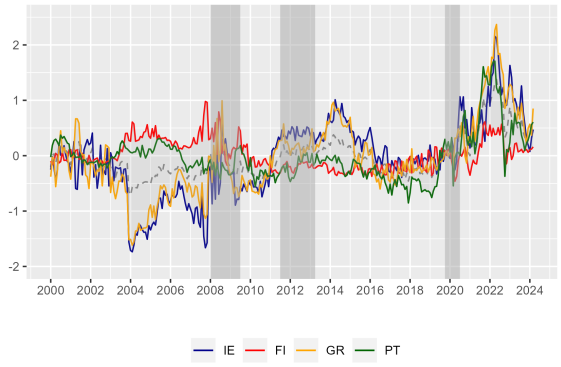
(a) 2000-2024, origin



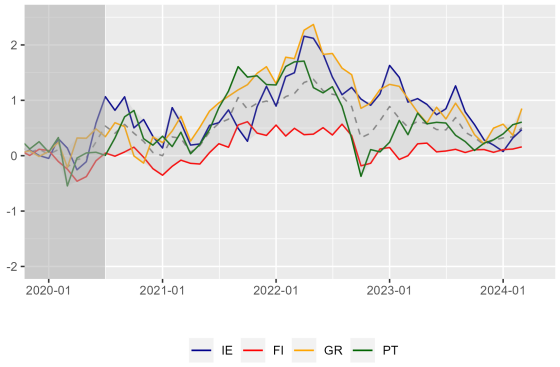
(b) 2020-2024, origin



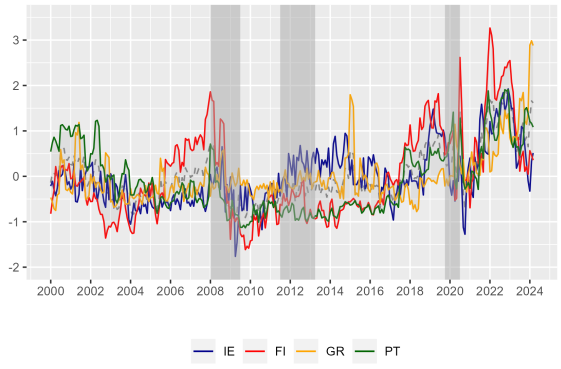
(c) 2000-2024, in transport



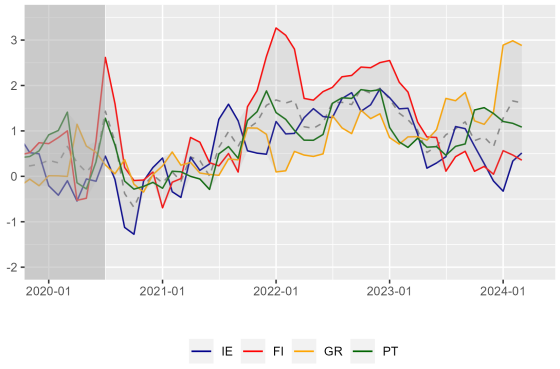
(d) 2020-2024, in transport



(e) 2000-2024, destination



(f) 2020-2024, destination



Source: authors' calculations.

Notes: The lines show the contributions of the captioned supply drivers to the 'SCPI-X/XS' indices for the respective countries. The units are standard deviations. The shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

7 Applications

Beyond the analysis of the great supply shock and supply conditions themselves, the supply indices may also be used for the monitoring and projections of other variables influenced by supply conditions. The specific example considered explicitly in this section is inflation in three of the HICP components - energy (in Section 7.1), non-energy industrial goods, with the distinction between intermediate and non-food consumer goods (in Section 7.2) and food (in Section 7.3) - as well as labour costs (in Section 7.4). For these examples, we again adopt the total economy perspective on the euro area taken also in Section 3.

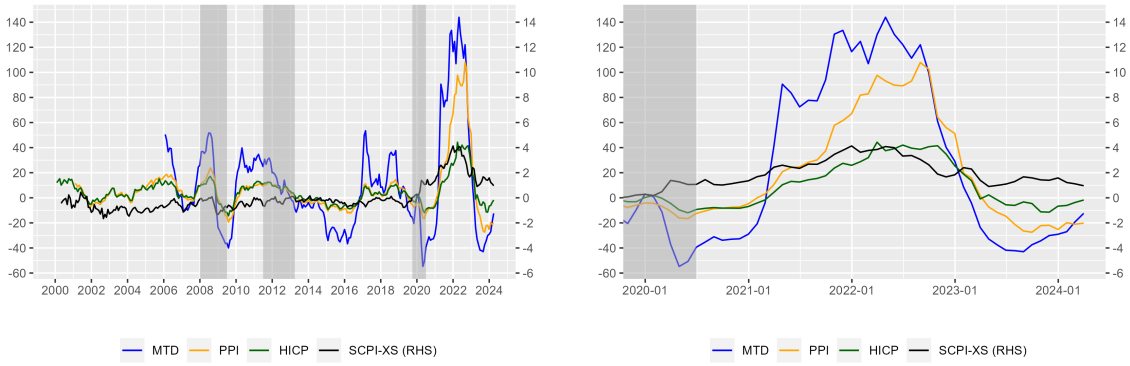
7.1 Inflation in energy

In the case of energy inflation, the SCPI-XS index picks up and peaks prior to the indices for the corresponding import prices, producer prices and HICP component, as shown in Figure 16 (right-hand-side panel). This suggests that in episodes such as the great supply shock the SCPI-XS may be useful as a leading indicator for both the rate of inflation and the turning point in that rate.

It is important to stress that the great supply shock is an episode shaped to a large extent by the supply disruptions associated to the pandemic and the war in Ukraine. In such a context, a supply index would be expected to have such a leading indicator property. By contrast, in times shaped primarily by disturbances other than supply shocks, no leading indicator property would be expected and Figure 16 (left-hand-side panel) documents this for the part of the sample prior to the pandemic and the war.

Figure 16: Supply indices and energy inflation

(a) 2000-2024 (b) 2020-2024



Source: authors' calculations.

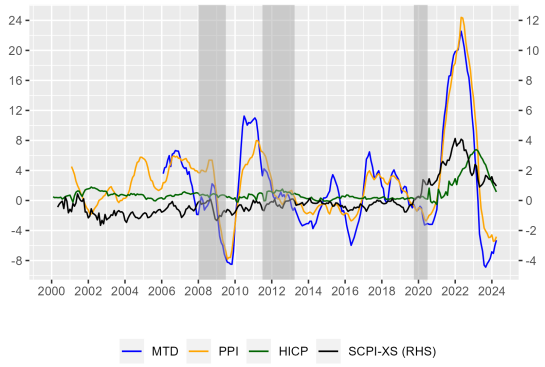
Notes: The figure shows the import price inflation ('MTD'), the producer-price inflation ('PPI') and the HICP component inflation for energy ('HICP'). 'SCPI-XS' denotes the index with new types of data, with substitution for missing series. The units are standard deviations (for the SCPI, right-hand scale) and percentage changes year-on-year for the other series. The vertical shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

7.2 Inflation in non-energy industrial goods

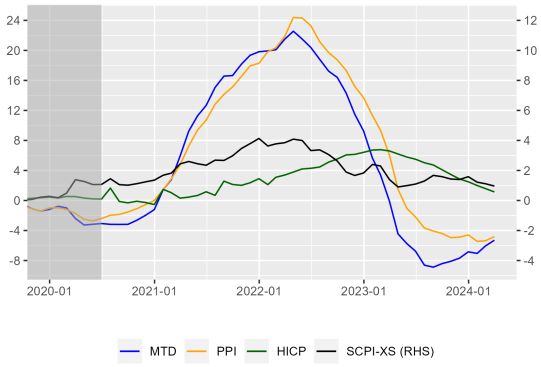
The SCPI-XS index has a similar property in the case non-energy industrial goods, as illustrated in Figure 17. Also in this case, it is clear that the property is prominent in the more recent part of the sample, in connection with pandemic and war, and not very pronounced before. The delay is similar, too, with a lag of around a year between the peak in SCPI-XS and the peak in the corresponding MTD, a year and a half for the producer price index, and a little more than a year and a half for the HICP component index.

Figure 17: Supply indices and non-energy industrial goods inflation

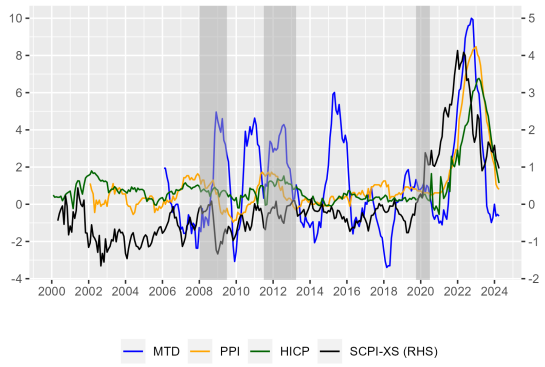
(a) 2000-2024, intermediate goods



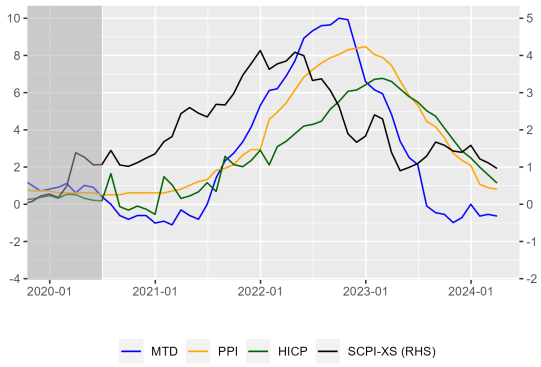
(b) 2020-2024, intermediate goods



(c) 2000-2024, non-food consumer goods



(d) 2020-2024, non-food consumer goods



Source: authors' calculations.

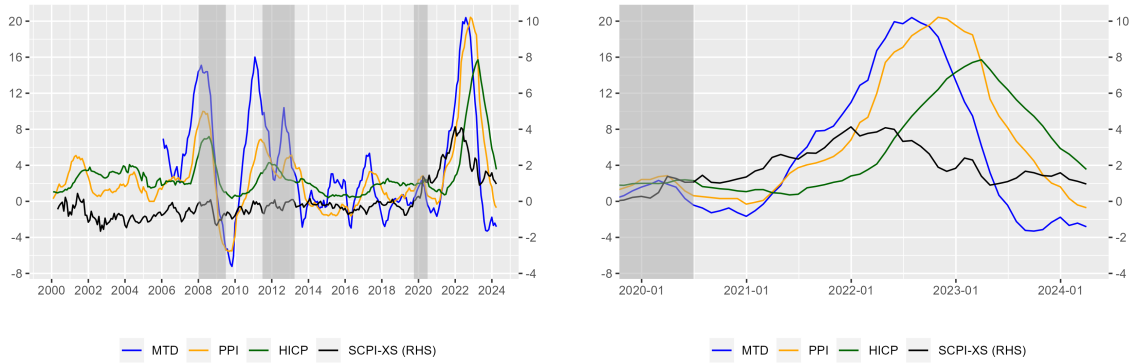
Notes: The figure shows the import price inflation ('MTD'), the producer-price inflation ('PPI') and the HICP component inflation for non-energy industrial goods ('HICP') - intermediate goods in panels '(a)' and '(b)' and non-food consumer goods in panels '(c)' and '(d)'. 'SCPI-XS' denotes the index with new types of data, with substitution for missing series. The units are standard deviations (for the SCPI, right-hand scale) and percentage changes year-on-year for the other series. The vertical shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

7.3 Inflation in food

The third component of inflation considered in this section is food. The results though are similar, in that the SCPI-XS leads the indices in the course of the pandemic and the war, during which supply shocks show particularly large effects. For the earlier part of the sample, where supply shocks and their effects are much more subdued, the SCPI-XS not surprisingly is not as telling as an early indicator. After all, inflation is a phenomenon that stems from the interaction of supply and demand factors and depending on which of them are greater, series depicting supply or demand factors are offering greater information content for inflation.

Figure 18: Supply indices and food inflation

(a) 2000-2024 (b) 2020-2024



Source: authors' calculations.

Notes: The figure shows the import price inflation ('MTD'), the producer-price inflation ('PPI') and the HICP component inflation for food ('HICP'). 'SCPI-XS' denotes the index with new types of data, with substitution for missing series. The units are standard deviations (for the SCPI, right-hand scale) and percentage changes year-on-year for the other series. The vertical shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

7.4 Inflation in labour costs

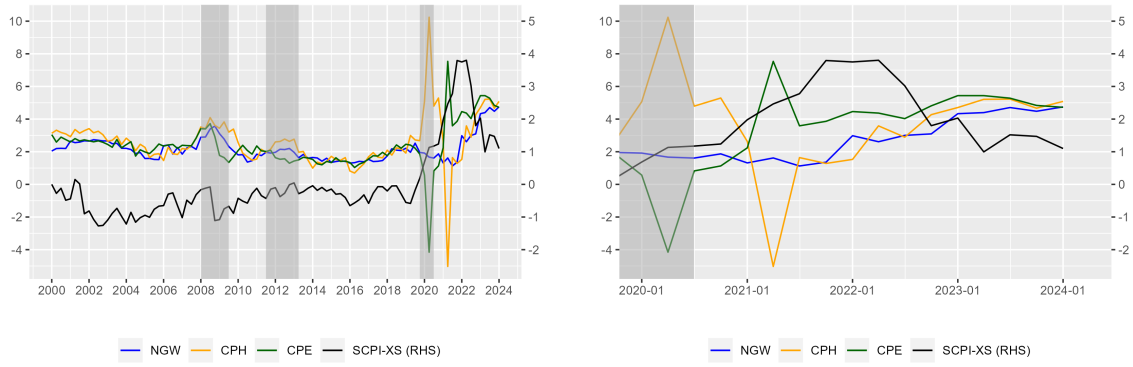
As a final check on the usefulness of the supply indices, this section considers the preferred SCPI-XS index alongside three measures of inflation in labour costs - negotiated wages (NGW), compensation per hour (CPH) and compensation per employee (CPE). The SCPI-XS has leading indicator properties also for inflation in labour costs, as illustrated in Figure 19.

As in the case of the applications discussed in the previous sections, it is important to bear in mind that those leading indicator properties would be expected to be most pronounced in

episodes of supply shocks as captured for example by the two supply-shock series shown in Figure 6.

Figure 19: Supply indices and labour cost inflation

(a) 2000-2024 (b) 2020-2024



Source: authors' calculations.
Notes: The figure shows negotiated wages ('NGW'), compensation per hour ('CPH') and compensation per employee ('CPE'). 'SCPI-XS' denotes the index with new types of data, with substitution for missing series. The units are standard deviations (for the SCPI, right-hand scale) and percentage changes year-on-year for the other series. The vertical shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

Overall, the applications in this section suggests that the supply indices in the suite may be very useful predictors for the supply component of inflation and therefore, in times in which supply shocks are dominating, also inflation as a whole. As noted above, the usefulness extends to both the change in the inflation rate as well as its turning point, which is particularly useful in the context of predicting inflation.

8 Conclusions

This paper has presented a novel suite of supply indices for the euro area and the results obtained when applying it to gauge the impact of the great supply shock implied by the pandemic and the invasion of Ukraine. The results suggest that supply conditions have been tighter for longer in the euro area than other areas, especially when measured with a broader data set, the automobile than other euro area industries, in services vs other euro area sectors, and in some countries than others.

The application not just to the total euro area economy but also the euro area industries,

sectors and countries constitutes a significant increase in scope of the index-based analysis of supply-side developments. This is further augmented by the breakdown into factors at origin/abroad, in transport/transit, and at destination/home, which enhances the understanding of the developments seen in the indices, which is crucial for policy purposes.

In addition to those innovations, the suite of supply indices provides a tool that serves to enhance supply-side surveillance and analytics. The broader the information set underlying the tool, the more robust the resulting supply indicators are going to be. For this reason, future work is going to focus on collection of more data, notably from novel datasets. Future work is also going to consider the forecasting of the supply indices and, using the supply-side indices as explanatory variables, other supply-side variables.

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Appendix A: Descriptive statistics

Table A.1: Descriptive statistics - indicators euro area **automobile**

	Full sample						Pandemic					
Variable	**Mean**	**SDev**	**Min**	**10th**	**90th**	**Max**	**Mean**	**SDev**	**Min**	**10th**	**90th**	**Max**
Origin												
Backlogs/m	50.5	8.3	12.8	39.3	58.5	69.5	63.8	14.5	29.5	46.8	81.7	84.0
Backlogs/s	47.0	5.3	20.2	40.7	53.9	57.7	63.8	14.5	29.5	46.8	81.7	84.0
SDT/m	55.5	8.9	29.3	45.7	65.2	84.0	7015.4	4661.4	1779.7	2025.4	13096.7	13879.0
SDT/s	54.8	7.8	35.0	46.3	63.7	81.5	7015.4	4661.4	1779.7	2025.4	13096.7	13879.0
Transport												
BDI†	2184.4	1890.3	306.9	794.8	4438.1	10542.7	1919.4	1119.0	460.6	700.7	3162.4	4820.0
EuropeIn†	142.9	22.1	100.0	119.8	173.1	229.7	177.1	21.4	132.4	158.0	204.2	229.7
EuropeOut†	151.6	21.2	100.0	126.3	172.2	210.1	177.4	15.9	145.4	161.2	196.8	210.1
FBX-MED†	4502.3	4288.9	1197.5	1448.3	12751.7	13879	7015.4	4661.4	1779.7	2025.4	13096.7	13879.0
FBX-NEU†	4301.3	4459.3	1076.9	1315.5	12195.9	14737	6805.6	4973.6	1172.0	1442.8	14172.3	14737.0
Harpex†	976.9	840.8	275.5	364.3	1649.2	4563.9	2106.2	1495.6	424.3	613.7	4392.8	4563.9
Destination												
ES/m	11.1	7.5	1.3	4.2	23.4	33.9	14.7	8.2	2.7	3.6	23.3	26.9
ES/s	3.5	2.3	0.9	1.4	6.2	12.7	14.7	8.2	2.7	3.6	23.3	26.9
LS/m	5.9	6.3	0.1	0.9	16.3	26.9	47.8	10.6	9.9	39.3	62.1	66.3
LS/s	19.5	13.1	2.7	5.5	41.9	50.4	47.8	10.6	9.9	39.3	62.1	66.3
PS/m	53.3	5.2	41.8	47.2	59.0	76.3	50.9	10.3	12.8	41.6	65.2	69.5
PS/s	52.0	3.0	42.7	48.7	55.2	64.5	50.9	10.3	12.8	41.6	65.2	69.5
Demand												
Orders/m	50.5	8.7	8.0	38.4	60.0	68.2	51.9	5.5	41.8	43.2	58.9	61.7
Orders/s	51.9	5.2	11.7	45.9	57.0	61.4	51.9	5.5	41.8	43.2	58.9	61.7
QP/m	50.4	8.8	9.9	39.3	60.1	68.5	47.6	11.2	8.0	37.8	61.7	68.2
QP/s	50.5	6.9	22.5	41.6	58.1	65.4	47.6	11.2	8.0	37.8	61.7	68.2

Source: data providers as linked in the table, authors' calculations.

Notes: 'Mean' is the arithmetic mean, 'SDev' the standard deviation, 'Min' the minimum, '10th' the 10th, '90th' the 90th percentile, 'Max' the maximum. The sample is 1997 Q1-2024 Q1 for 'Full sample', and 2020 Q1-2023 Q2 for 'Pandemic', for some series the effective samples may be marginally shorter. '*' denotes series that are approximated by the corresponding series for another sector, or a series that is not sector specific. The manufacturing and services components are marked '/m' and '/s', respectively.

Table A.2: Descriptive statistics - indicators euro area **digital**

	Full sample						Pandemic					
Variable	**Mean**	**SDev**	**Min**	**10th**	**90th**	**Max**	**Mean**	**SDev**	**Min**	**10th**	**90th**	**Max**
Origin												
Backlogs/m	51.4	7.6	29.9	41.9	60.4	74.3	65.4	16.7	25.2	43.1	85.0	88.4
Backlogs/s	50.4	4.3	29.5	44.8	55.5	69.2	63.1	13.4	35.0	45.6	79.9	81.5
SDT/m	56.6	10.6	25.2	44.3	70.6	88.4	7015.4	4661.4	1779.7	2025.4	13096.7	13879.0
SDT/s	54.8	7.8	35.0	46.3	63.7	81.5	7015.4	4661.4	1779.7	2025.4	13096.7	13879.0
Transport												
BDI†	2184.4	1890.3	306.9	794.8	4438.1	10542.7	1919.4	1119.0	460.6	700.7	3162.4	4820.0
EuropeIn†	142.9	22.1	100.0	119.8	173.1	229.7	177.1	21.4	132.4	158.0	204.2	229.7
EuropeOut†	151.6	21.2	100.0	126.3	172.2	210.1	177.4	15.9	145.4	161.2	196.8	210.1
FBX-MED†	4502.3	4288.9	1197.5	1448.3	12751.7	13879	7015.4	4661.4	1779.7	2025.4	13096.7	13879.0
FBX-NEU†	4301.3	4459.3	1076.9	1315.5	12195.9	14737	6805.6	4973.6	1172.0	1442.8	14172.3	14737.0
Harpex†	976.9	840.8	275.5	364.3	1649.2	4563.9	2106.2	1495.6	424.3	613.7	4392.8	4563.9
Destination												
ES/m	11.1	7.5	1.3	4.2	23.4	33.9	23.6	12.2	6.5	7.8	37.6	41.2
ES/s	1.3	0.9	0.1	0.5	2.5	4.8	35.1	13.6	11.5	15.2	48.6	55.0
LS/m	10.0	9.0	1.4	2.5	26.0	41.2	52.4	11.8	28.2	38.7	68.5	72.9
LS/s	22.3	11.7	2.7	9.5	38.7	55.0	50.4	9.8	22.5	40.5	62.8	65.4
PS/m	51.3	5.3	36.2	45.2	57.2	68.1	53.1	10.5	36.8	40.9	67.2	74.3
PS/s	52.0	3.0	42.7	48.7	55.2	64.5	53.2	6.0	29.5	47.6	58.1	69.2
Demand												
Orders/m	52.3	7.8	24.9	41.9	61.1	70.1	46.8	6.7	36.2	37.9	55.3	57.2
Orders/s	51.9	5.2	11.7	45.9	57.0	61.4	50.5	3.5	42.7	45.4	54.8	55.2
QP/m	51.0	8.7	24.1	39.8	61.2	72.9	51.2	10.9	24.9	38.1	67.2	70.1
QP/s	50.5	6.9	22.5	41.6	58.1	65.4	49.3	8.9	11.7	45.5	56.5	59.3

Source: data providers as linked in the table, authors' calculations.

Notes: 'Mean' is the arithmetic mean, 'SDev' the standard deviation, 'Min' the minimum, '10th' the 10th, '90th' the 90th percentile, 'Max' the maximum. The sample is 1997 Q1-2024 Q1 for 'Full sample', and 2020 Q1-2023 Q2 for 'Pandemic', for some series the effective samples may be marginally shorter. '*' denotes series that are approximated by the corresponding series for another sector, or a series that is not sector specific. The manufacturing and services components are marked '/m' and '/s', respectively.

Table A.3: Descriptive statistics - indicators euro area **food**

	Full sample						Pandemic					
Variable	**Mean**	**SDev**	**Min**	**10th**	**90th**	**Max**	**Mean**	**SDev**	**Min**	**10th**	**90th**	**Max**
Origin												
Backlogs/m	50.4	3.4	35.0	46.5	54.2	58.2	61.1	8.8	42.4	49.8	71.8	76.4
Backlogs/s	46.3	6.4	7.9	38.6	53.3	60.1	63.1	13.4	35.0	45.6	79.9	81.5
SDT/m	53.6	5.1	41.8	49.2	58.7	76.4	7015.4	4661.4	1779.7	2025.4	13096.7	13879.0
SDT/s	54.8	7.8	35.0	46.3	63.7	81.5	7015.4	4661.4	1779.7	2025.4	13096.7	13879.0
Transport												
BDI†	2184.4	1890.3	306.9	794.8	4438.1	10542.7	1919.4	1119.0	460.6	700.7	3162.4	4820.0
EuropeIn†	142.9	22.1	100.0	119.8	173.1	229.7	177.1	21.4	132.4	158.0	204.2	229.7
EuropeOut†	151.6	21.2	100.0	126.3	172.2	210.1	177.4	15.9	145.4	161.2	196.8	210.1
FBX-MED†	4502.3	4288.9	1197.5	1448.3	12751.7	13879	7015.4	4661.4	1779.7	2025.4	13096.7	13879.0
FBX-NEU†	4301.3	4459.3	1076.9	1315.5	12195.9	14737	6805.6	4973.6	1172.0	1442.8	14172.3	14737.0
Harpex†	976.9	840.8	275.5	364.3	1649.2	4563.9	2106.2	1495.6	424.3	613.7	4392.8	4563.9
Destination												
ES/m	11.1	7.5	1.3	4.2	23.4	33.9	18.6	7.3	7.2	8.0	25.2	31.1
ES/s	3.1	1.5	0.9	1.8	4.1	9.6	21.1	15.3	0.7	2.8	40.1	45.0
LS/m	7.2	6.8	1.0	1.7	18.4	31.1	51.1	5.8	35.0	46.2	57.6	58.9
LS/s	14.2	8.8	0.7	7.5	30.4	45.0	50.4	9.8	22.5	40.5	62.8	65.4
PS/m	50.5	2.3	43.5	47.7	53.2	58.5	49.6	4.6	35.0	45.2	55.0	56.6
PS/s	52.0	3.0	42.7	48.7	55.2	64.5	44.7	10.2	7.9	31.7	53.3	54.8
Demand												
Orders/m	53.4	4.3	27.1	48.1	57.9	60.7	49.6	2.6	43.5	46.0	52.9	56.4
Orders/s	51.9	5.2	11.7	45.9	57.0	61.4	50.5	3.5	42.7	45.4	54.8	55.2
QP/m	52.8	3.8	35.0	47.9	56.9	61.2	51.7	7.4	27.1	44.5	59.0	60.5
QP/s	50.5	6.9	22.5	41.6	58.1	65.4	49.3	8.9	11.7	45.5	56.5	59.3

Source: data providers as linked in the table, authors' calculations.

Notes: 'Mean' is the arithmetic mean, 'SDev' the standard deviation, 'Min' the minimum, '10th' the 10th, '90th' the 90th percentile, 'Max' the maximum. The sample is 1997 Q1-2024 Q1 for 'Full sample', and 2020 Q1-2023 Q2 for 'Pandemic', for some series the effective samples may be marginally shorter. '*' denotes series that are approximated by the corresponding series for another sector, or a series that is not sector specific. The manufacturing and services components are marked '/m' and '/s', respectively.

Table A.4: Descriptive statistics - indicators euro area **manufacturing**

	Full sample						Pandemic					
Variable	**Mean**	**SDev**	**Min**	**10th**	**90th**	**Max**	**Mean**	**SDev**	**Min**	**10th**	**90th**	**Max**
Origin												
Backlogs	49.8	5.9	29.2	42.8	56.4	63.8	50.7	8.3	30.5	41.8	60.4	63.8
SDT	54.8	7	35.0	46.3	63.7	81.5	63.1	13.4	35.0	45.6	79.9	81.5
Transport												
BDI†	2184.4	1890.3	306.9	794.8	4438.1	10542.7	1919.4	1119.0	460.6	700.7	3162.4	4820.0
EuropeIn†	142.9	22.1	100.0	119.8	173.1	229.7	177.1	21.4	132.4	158.0	204.2	229.7
EuropeOut†	151.6	21.2	100.0	126.3	172.2	210.1	177.4	15.9	145.4	161.2	196.8	210.1
FBX-MED†	4502.3	4288.9	1197.5	1448.3	12751.7	13879	7015.4	4661.4	1779.7	2025.4	13096.7	13879.0
FBX-NEU†	4301.3	4459.3	1076.9	1315.5	12195.9	14737	6805.6	4973.6	1172.0	1442.8	14172.3	14737.0
Harpex†	976.9	840.8	275.5	364.3	1649.2	4563.9	2106.2	1495.6	424.3	613.7	4392.8	4563.9
Destination												
ES	11.1	7.5	1.3	4.2	23.4	33.9	19.9	10.2	4.9	7.0	31.7	33.9
LS	8.3	6.6	1.3	2.8	20.0	29.0	18.3	8.5	6.3	7.3	28.1	29.0
PS	52.0	3.0	42.7	48.7	55.2	64.5	50.5	3.5	42.7	45.4	54.8	55.2
Demand												
Orders	51.3	6.7	18.8	43.4	58.5	64.3	50.2	9.8	18.8	40.2	63.1	64.3
QP	50.5	6.9	22.5	41.6	58.1	65.4	50.4	9.8	22.5	40.5	62.8	65.4

Source: data providers as linked in the table, authors' calculations.

Notes: 'Mean' is the arithmetic mean, 'SDev' the standard deviation, 'Min' the minimum, '10th' the 10th, '90th' the 90th percentile, 'Max' the maximum. 'BDI' is the Baltic Dry Index, 'BLS' refers to the Bureau of Labour Statistics' air freight price indices, 'Harpex' is the Harpex shipping index, 'PMI' is the Purchasing Managers Index, 'PMI' is the Purchasing Managers Index, 'FBX' is the Freightos Baltic Index, with 'to MED' denoting the China and Eastern Asia to Mediterranean index and 'to NEUR' denoting the China and Eastern Asia to Northern Europe index. The sample is 1997 Q1-2024 Q1 for 'Full sample', and 2020 Q1-2023 Q2 for 'Pandemic', for some series the effective samples may be marginally shorter. '*' denotes series that are approximated by the corresponding series for another sector, or a series that is not sector specific.

Table A.5: Descriptive statistics - indicators euro area **services**

	Full sample						Pandemic					
Variable	**Mean**	**SDev**	**Min**	**10th**	**90th**	**Max**	**Mean**	**SDev**	**Min**	**10th**	**90th**	**Max**
Origin												
Backlogs	49.6	3.6	24.2	45.3	53.3	55.5	49.4	5.9	24.2	45.5	54.6	55.5
SDT	54.8	7.8	35.0	46.3	63.7	81.5	63.1	13.4	35.0	45.6	79.9	81.5
Transport												
BDI†	2184.4	1890.3	306.9	794.8	4438.1	10542.7	1919.4	1119.0	460.6	700.7	3162.4	4820.0
EuropeIn†	142.9	22.1	100.0	119.8	173.1	229.7	177.1	21.4	132.4	158.0	204.2	229.7
EuropeOut†	151.6	21.2	100.0	126.3	172.2	210.1	177.4	15.9	145.4	161.2	196.8	210.1
FBX-MED†	4502.3	4288.9	1197.5	1448.3	12751.7	13879	7015.4	4661.4	1779.7	2025.4	13096.7	13879.0
FBX-NEU†	4301.3	4459.3	1076.9	1315.5	12195.9	14737	6805.6	4973.6	1172.0	1442.8	14172.3	14737.0
Harpex†	976.9	840.8	275.5	364.3	1649.2	4563.9	2106.2	1495.6	424.3	613.7	4392.8	4563.9
Destination												
ES	2.2	1.2	0.9	1.1	3.6	6.6	3.1	1.7	1.1	1.2	6.1	6.1
LS	12.6	7.8	4.1	5.7	26.4	35.2	21.3	10.1	6.2	8.0	33.6	35.2
PS	52.0	3.0	42.7	48.7	55.2	64.5	50.5	3.5	42.7	45.4	54.8	55.2
Demand												
Orders	51.9	5.2	11.7	45.9	57.0	61.4	49.3	8.9	11.7	45.5	56.5	59.3
QP	50.5	6.9	22.5	41.6	58.1	65.4	50.4	9.8	22.5	40.5	62.8	65.4

Source: data providers as linked in the table, authors' calculations.

Notes: 'Mean' is the arithmetic mean, 'SDev' the standard deviation, 'Min' the minimum, '10th' the 10th, '90th' the 90th percentile, 'Max' the maximum. The sample is 1997 Q1-2024 Q1 for 'Full sample', and 2020 Q1-2023 Q2 for 'Pandemic', for some series the effective samples may be marginally shorter. '*' denotes series that are approximated by the corresponding series for another sector, or a series that is not sector specific.

Table A.6: Descriptive statistics - indicators euro area **construction**

	Full sample						Pandemic					
Variable	**Mean**	**SDev**	**Min**	**10th**	**90th**	**Max**	**Mean**	**SDev**	**Min**	**10th**	**90th**	**Max**
Origin												
Backlogs	49.8	5.9	29.2	42.8	56.4	63.8	50.7 8.3	30.5	41.8	60.4	63.8	
SDT	55.4	6.9	42.6	49.7	61.9	84.5	66.3	10.3	45.3	54.9	78.8	84.5
Transport												
BDI†	2184.4	1890.3	306.9	794.8	4438.1	10542.7	1919.4	1119.0	460.6	700.7	3162.4	4820.0
EuropeIn†	142.9	22.1	100.0	119.8	173.1	229.7	177.1	21.4	132.4	158.0	204.2	229.7
EuropeOut†	151.6	21.2	100.0	126.3	172.2	210.1	177.4	15.9	145.4	161.2	196.8	210.1
FBX-MED†	4502.3	4288.9	1197.5	1448.3	12751.7	13879	7015.4	4661.4	1779.7	2025.4	13096.7	13879.0
FBX-NEU†	4301.3	4459.3	1076.9	1315.5	12195.9	14737	6805.6	4973.6	1172.0	1442.8	14172.3	14737.0
Harpex†	976.9	840.8	275.5	364.3	1649.2	4563.9	2106.2	1495.6	424.3	613.7	4392.8	4563.9
Destination												
ES	3.4	5.5	0.1	0.5	6.7	31.0	14.1	9.3	2.4	2.6	23.8	31.0
LS	12.2	7.4	1.2	4.4	23.6	31.2	23.0	6.6	11.1	13.1	29.6	31.2
PS	52.0	3.0	42.7	48.7	55.2	64.5	50.5	3.5	42.7	45.4	54.8	55.2
Demand												
Orders	46.0	5.5	16.0	39.5	52.6	57.2	45.3	7.2	16.0	40.5	52.5	57.2
QP	47.9	5.3	17.3	41.3	53.8	61.2	48.2	6.9	17.3	45.2	53.9	57.8

Source: data providers as linked in the table, authors' calculations.

Notes: 'Mean' is the arithmetic mean, 'SDev' the standard deviation, 'Min' the minimum, '10th' the 10th, '90th' the 90th percentile, 'Max' the maximum. The sample is 1997 Q1-2024 Q1 for 'Full sample', and 2020 Q1-2023 Q2 for 'Pandemic', for some series the effective samples may be marginally shorter. '*' denotes series that are approximated by the corresponding series for another sector, or a series that is not sector specific.

Table A.7: Descriptive statistics - indices euro area **automobile**

	Full sample						Pandemic					
Index	**Mean**	**SDev**	**Min**	**10th**	**90th**	**Max**	**Mean**	**SDev**	**Min**	**10th**	**90th**	**Max**
SCPI-R/RS	0.00	1.00	-2.2	-1.0	1.2	4.1	1.6	1.3	-1.4	-0.2	3.0	4.1
SCPI-D/DS	0.00	1.00	-2.4	-1.0	1.5	3.4	0.9	1.4	-2.4	-0.8	2.6	3.4
SCPI-X/XS	0.00	1.00	-2.1	-1.1	1.7	3.8	1.1	1.4	-2.0	-0.6	3.0	3.2

Source: authors' calculations.
Notes: 'Mean' is the arithmetic mean, 'SDev' the standard deviation, 'Min' the minimum, '10th' the 10th, '90th' the 90th percentile, 'Max' the maximum. The sample is 1997 Q1-2024 Q1 for 'Full sample', and 2020 Q1-2023 Q2 for 'Pandemic', for some series the effective samples may be marginally shorter.

Table A.8: Descriptive statistics - indices euro area **digital**

	Full sample						Pandemic					
Index	**Mean**	**SDev**	**Min**	**10th**	**90th**	**Max**	**Mean**	**SDev**	**Min**	**10th**	**90th**	**Max**
SCPI-R/RS	0.00	1.00	-2.0	-1.2	0.9	4.2	1.2	1.1	-1.9	0.0	2.4	4.2
SCPI-D/DS	0.00	1.00	-2.3	-1.2	1.2	3.4	1.2	1.4	-2.3	-0.3	3.0	3.4
SCPI-X/XS	0.00	1.00	-2.2	-1.2	1.1	4.1	1.5	1.4	-1.8	0.0	3.3	4.1

Source: authors' calculations.
Notes: 'Mean' is the arithmetic mean, 'SDev' the standard deviation, 'Min' the minimum, '10th' the 10th, '90th' the 90th percentile, 'Max' the maximum. The sample is 1997 Q1-2024 Q1 for 'Full sample', and 2020 Q1-2023 Q2 for 'Pandemic', for some series the effective samples may be marginally shorter.

Table A.9: Descriptive statistics - indices euro area **food**

	Full sample						Pandemic					
Index	**Mean**	**SDev**	**Min**	**10th**	**90th**	**Max**	**Mean**	**SDev**	**Min**	**10th**	**90th**	**Max**
SCPI-R/RS	0.00	1.00	-1.3	-0.8	1.0	3.6	1.3	1.1	-0.9	0.1	2.7	3.6
SCPI-D/DS	0.00	1.00	-1.3	-0.7	1.3	3.0	1.0	1.2	-1.3	-0.6	2.5	3.0
SCPI-X/XS	0.00	1.00	-1.2	-0.7	1.3	2.9	1.3	1.0	-0.5	0.0	2.5	2.9

Source: authors' calculations.
Notes: 'Mean' is the arithmetic mean, 'SDev' the standard deviation, 'Min' the minimum, '10th' the 10th, '90th' the 90th percentile, 'Max' the maximum. The sample is 1997 Q1-2024 Q1 for 'Full sample', and 2020 Q1-2023 Q2 for 'Pandemic', for some series the effective samples may be marginally shorter.

Table A.10: Descriptive statistics - indices euro area **manufacturing**

	Full sample						Pandemic					
Index	**Mean**	**SDev**	**Min**	**10th**	**90th**	**Max**	**Mean**	**SDev**	**Min**	**10th**	**90th**	**Max**
SCPI-R/RS	0.00	1.00	-1.8	-0.9	0.8	4.6	1.8	1.6	-1.4	-0.2	3.7	4.6
SCPI-D/DS	0.00	1.00	-2.6	-1.2	1.1	4.6	2.0	1.3	-0.4	0.8	4.0	4.6
SCPI-X/XS	0.00	1.00	-1.4	-0.9	0.8	4.4	2.4	1.5	-0.5	0.0	4.1	4.4

Source: authors' calculations.
Notes: 'Mean' is the arithmetic mean, 'SDev' the standard deviation, 'Min' the minimum, '10th' the 10th, '90th' the 90th percentile, 'Max' the maximum. The sample is 1997 Q1-2024 Q1 for 'Full sample', and 2020 Q1-2023 Q2 for 'Pandemic', for some series the effective samples may be marginally shorter.

Table A.11: Descriptive statistics - indices euro area **services**

	Full sample						Pandemic					
Index	**Mean**	**SDev**	**Min**	**10th**	**90th**	**Max**	**Mean**	**SDev**	**Min**	**10th**	**90th**	**Max**
SCPI-R/RS	0.00	1.00	-2.8	-1.7	1.2	4.6	1.8	1.1	-0.5	0.6	3.3	4.6
SCPI-D/DS	0.00	1.00	-2.7	-1.4	1.9	4.2	2.0	1.3	-0.4	0.5	3.5	4.2
SCPI-X/XS	0.00	1.00	-3.2	-1.6	1.9	4.7	2.1	1.5	-0.7	0.3	3.9	4.7

Source: authors' calculations.
Notes: 'Mean' is the arithmetic mean, 'SDev' the standard deviation, 'Min' the minimum, '10th' the 10th, '90th' the 90th percentile, 'Max' the maximum. The sample is 1997 Q1-2024 Q1 for 'Full sample', and 2020 Q1-2023 Q2 for 'Pandemic', for some series the effective samples may be marginally shorter.

Table A.12: Descriptive statistics - indices euro area **construction**

	Full sample						Pandemic					
Index	**Mean**	**SDev**	**Min**	**10th**	**90th**	**Max**	**Mean**	**SDev**	**Min**	**10th**	**90th**	**Max**
SCPI-R/RS	0.00	1.00	-2.6	-1.6	1.1	2.9	1.5	0.8	0.3	0.5	2.8	2.9
SCPI-D/DS	0.00	1.00	-2.2	-1.2	1.3	4.4	1.7	1.8	-2.1	-0.8	3.7	4.4
SCPI-X/XS	0.00	1.00	-2.1	-1.3	1.3	4.4	1.9	1.8	-2.0	-1.0	3.9	4.4

Source: authors' calculations.
Notes: 'Mean' is the arithmetic mean, 'SDev' the standard deviation, 'Min' the minimum, '10th' the 10th, '90th' the 90th percentile, 'Max' the maximum. The sample is 1997 Q1-2024 Q1 for 'Full sample', and 2020 Q1-2023 Q2 for 'Pandemic', for some series the effective samples may be marginally shorter.

Table A.13: Descriptive statistics - indices euro area **total economy**

	Full sample						Pandemic					
Index	**Mean**	**SDev**	**Min**	**10th**	**90th**	**Max**	**Mean**	**SDev**	**Min**	**10th**	**90th**	**Max**
SCPI-R/RS	0.00	1.00	-1.7	-1.2	1.1	4.0	1.7	1.1	0.0	0.4.	3.3	4.0
SCPI-D/DS	0.00	1.00	-1.6	-0.9	1.6	4.1	2.0	1.2	0.2	0.5	3.7	4.1
SCPI-X/XS	0.00	1.00	-1.7	-1.0	1.5	4.1	2.2	1.1	0.2	1.0	3.8	4.1

Source: authors' calculations.
Notes: 'Mean' is the arithmetic mean, 'SDev' the standard deviation, 'Min' the minimum, '10th' the 10th, '90th' the 90th percentile, 'Max' the maximum. The sample is 1997 Q1-2024 Q1 for 'Full sample', and 2020 Q1-2023 Q2 for 'Pandemic', for some series the effective samples may be marginally shorter.

Table A.14: Correlation/covariance matrix - indices euro area **automobile**

	Full sample						Pandemic					
Index	**-R**	**-RS**	**-D**	**-DS**	**-X**	**-XS**	**-R**	**-RS**	**-D**	**-DS**	**-X**	**-XS**
SCPI-R/RS	.	1.00	.	0.04	.	0.19	.	1.00	.	-0.57	.	-0.31
SCPI-D/DS	.	0.04	.	1.00	.	1.10	.	-0.30	.	1.00	.	2.04
SCPI-X/XS	.	0.18	.	0.99	.	1.00	.	-0.17	.	0.99	.	1.00

Source: authors' calculations.
Notes: Table entries in the lower left are correlations, those in the upper right are covariances. The sample is 1997 Q1-2024 Q1 for 'Full sample', and 2020 Q1-2023 Q2 for 'Pandemic', for some series the effective samples may be marginally shorter.

Table A.15: Correlation/covariance matrix - indices euro area **digital**

	Full sample						Pandemic					
Index	**-R**	**-RS**	**-D**	**-DS**	**-X**	**-XS**	**-R**	**-RS**	**-D**	**-DS**	**-X**	**-XS**
SCPI-R/RS	.	1.00	.	0.87	.	0.94	.	1.00	.	1.45	.	1.50
SCPI-D/DS	.	0.93	.	1.00	.	1.08	.	0.92	.	1.00	.	1.98
SCPI-X/XS	.	0.94	.	0.98	.	1.00	.	0.94	.	0.98	.	1.00

Source: authors' calculations.
Notes: Table entries in the lower left are correlations, those in the upper right are covariances. The sample is 1997 Q1-2024 Q1 for 'Full sample', and 2020 Q1-2023 Q2 for 'Pandemic', for some series the effective samples may be marginally shorter.

Table A.16: Correlation/covariance matrix - indices euro area **food**

	Full sample						Pandemic					
Index	**-R**	**-RS**	**-D**	**-DS**	**-X**	**-XS**	**-R**	**-RS**	**-D**	**-DS**	**-X**	**-XS**
SCPI-R/RS	.	1.00	.	0.59	.	0.63	.	1.00	.	1.18	.	1.01
SCPI-D/DS	.	0.88	.	1.00	.	0.65	.	0.88	.	1.00	.	1.17
SCPI-X/XS	.	0.94	.	0.96	.	1.00	.	0.94	.	0.97	.	1.00

Source: authors' calculations.
Notes: Table entries in the lower left are correlations, those in the upper right are covariances. The sample is 1997 Q1-2024 Q1 for 'Full sample', and 2020 Q1-2023 Q2 for 'Pandemic', for some series the effective samples may be marginally shorter.

Table A.17: Correlation/covariance matrix - indices euro area **manufacturing**

	Full sample						Pandemic					
Index	**-R**	**-RS**	**-D**	**-DS**	**-X**	**-XS**	**-R**	**-RS**	**-D**	**-DS**	**-X**	**-XS**
SCPI-R/RS	1.00	.	0.91	.	1.02	.	1.00	.	1.40	.	1.67	.
SCPI-D/DS	0.78	.	1.00	.	1.20	.	0.70	.	1.00	.	1.37	.
SCPI-X/XS	0.85	.	0.89	.	1.00	.	0.72	.	0.70	.	1.00	.

Source: authors' calculations.
Notes: Table entries in the lower left are correlations, those in the upper right are covariances. The sample is 1997 Q1-2024 Q1 for 'Full sample', and 2020 Q1-2023 Q2 for 'Pandemic', for some series the effective samples may be marginally shorter.

Table A.18: Correlation/covariance matrix - indices euro area **services**

	Full sample						Pandemic					
Index	**-R**	**-RS**	**-D**	**-DS**	**-X**	**-XS**	**-R**	**-RS**	**-D**	**-DS**	**-X**	**-XS**
SCPI-R/RS	.	1.00	.	1.33	.	1.44	.	1.00	.	1.16	.	1.34
SCPI-D/DS	.	0.88	.	1.00	.	1.65	.	0.84	.	1.00	.	1.84
SCPI-X/XS	.	0.89	.	0.99	.	1.00	.	0.83	.	0.99	.	1.00

Source: authors' calculations.
Notes: Table entries in the lower left are correlations, those in the upper right are covariances. The sample is 1997 Q1-2024 Q1 for 'Full sample', and 2020 Q1-2023 Q2 for 'Pandemic', for some series the effective samples may be marginally shorter.

Table A.19: Correlation/covariance matrix - indices euro area **construction**

	Full sample						Pandemic					
Index	**-R**	**-RS**	**-D**	**-DS**	**-X**	**-XS**	**-R**	**-RS**	**-D**	**-DS**	**-X**	**-XS**
SCPI-R/RS	.	1.00	.	0.36	.	0.41	.	1.00	.	0.76	.	0.59
SCPI-D/DS	.	0.27	.	1.00	.	1.52	.	0.52	.	1.00	.	3.16
SCPI-X/XS	.	0.30	.	0.99	.	1.00	.	0.40	.	0.97	.	1.00

Source: authors' calculations.
Notes: Table entries in the lower left are correlations, those in the upper right are covariances. The sample is 1997 Q1-2024 Q1 for 'Full sample', and 2020 Q1-2023 Q2 for 'Pandemic', for some series the effective samples may be marginally shorter.

Table A.20: Correlation/covariance matrix - indices euro area **total economy**

	Full sample						Pandemic					
Index	**-R**	**-RS**	**-D**	**-DS**	**-X**	**-XS**	**-R**	**-RS**	**-D**	**-DS**	**-X**	**-XS**
SCPI-R/RS	.	1.00	.	0.97	.	1.06	.	1.00	.	1.11	.	1.16
SCPI-D/DS	.	0.89	.	1.00	.	1.17	.	0.86	.	1.00	.	1.23
SCPI-X/XS	.	0.94	.	0.99	.	1.00	.	0.95	.	0.96	.	1.00

Source: authors' calculations.
Notes: Table entries in the lower left are correlations, those in the upper right are covariances. The sample is 1997 Q1-2024 Q1 for 'Full sample', and 2020 Q1-2023 Q2 for 'Pandemic', for some series the effective samples may be marginally shorter.

Table A.21: Weights

	EA	AT	BE	HR	CY	EE	FI	FR	DE	GR	IE
Full sample											
Manufacturing in Automobile	12.80	09.04	07.13	01.62	00.52	03.56	03.12	07.23	26.70	00.48	01.25
Services in Automobile	87.20	90.60	92.87	98.38	99.48	96.44	96.88	92.77	73.30	99.52	98.75
Manufacturing in Digital	15.96	25.34	10.61	11.13	01.79	13.41	41.17	12.46	22.73	04.73	19.46
Services in Digital	84.04	74.66	89.39	88.87	98.21	86.59	58.83	87.54	77.27	95.27	80.54
Manufacturing in Food	42.41	29.89	56.01	45.96	26.70	57.54	50.12	47.73	53.45	33.94	63.54
Services in Food	57.59	70.11	43.99	54.04	73.30	42.46	49.88	52.27	46.55	66.06	36.46
Total economy in Euro Area	*100.0*	*03.19*	*03.77*	*00.44*	*00.18*	*00.18*	*02.01*	*20.53*	*28.02*	*01.95*	*02.26*
Pandemic											
Manufacturing in Automobile	12.15	07.99	04.03	03.59	01.72	03.51	03.48	03.82	26.59	00.30	00.85
Services in Automobile	87.85	92.01	95.97	96.41	98.28	96.49	96.52	96.18	73.41	99.70	99.15
Manufacturing in Digital	10.97	24.53	06.58	06.22	04.04	12.37	26.23	09.19	21.10	04.03	03.66
Services in Digital	89.03	75.47	93.42	93.78	95.96	87.63	73.77	90.81	78.90	95.97	96.34
Manufacturing in Food	45.82	32.75	57.32	38.22	32.11	55.84	48.05	49.94	57.08	38.40	66.17
Services in Food	54.18	67.25	42.68	61.78	67.89	44.16	51.95	50.06	42.92	61.60	33.83
Total economy in Euro Area	*100.0*	*03.23*	*03.70*	*00.44*	*00.20*	*00.22*	*01.90*	*20.33*	*28.25*	*01.50*	*03.65*

Source: authors' calculations.

Notes: Table entries are weights, rounded to two digits. Due to this rounding, weights do not necessarily add to 100 along any dimension. The sample is 1997 Q1-2024 Q1 for 'Full sample', and 2020 Q1-2023 Q2 for 'Pandemic', for some series the effective samples may be marginally shorter. The countries are listed in protocol order and denoted by the ISO 3166-1 alpha-2 country code.

Table A.22: Weights (ctd.)

	EA	IT	LV	LT	LU	MT	NL	PT	SK	SI	ES
Full sample											
Manufacturing in Automobile	12.80	06.62	01.26	01.93	00.00	00.00	02.86	06.47	19.56	11.29	09.01
Services in Automobile	87.20	93.38	98.74	98.07	100.0	100.0	97.14	93.53	80.44	88.71	90.99
Manufacturing in Digital	15.96	12.93	07.20	13.91	00.00	00.00	14.68	09.54	14.75	19.55	06.09
Services in Digital	84.04	87.07	92.80	86.09	100.0	100.0	85.32	90.46	85.25	80.45	93.91
Manufacturing in Food	42.41	34.13	65.91	72.71	22.62	26.79	56.64	32.06	55.25	44.56	28.55
Services in Food	57.59	65.87	34.09	27.29	77.38	73.21	43.36	67.94	44.75	55.44	71.45
Total economy in Euro Area	*100.0*	*16.71*	*00.21*	*00.32*	*00.47*	*00.08*	*06.46*	*01.79*	*00.65*	*00.36*	*10.21*
Pandemic											
Manufacturing in Automobile	12.15	06.49	02.81	02.58	00.00	00.00	02.34	06.81	30.63	11.44	07.05
Services in Automobile	87.85	93.51	97.19	97.42	100.0	100.0	97.66	93.19	69.37	88.56	92.95
Manufacturing in Digital	10.97	14.41	11.53	15.46	00.00	00.00	10.07	05.49	10.26	16.97	04.30
Services in Digital	89.03	85.59	88.47	84.54	100.0	100.0	89.93	94.51	89.74	83.03	95.70
Manufacturing in Food	45.82	37.57	59.57	67.76	00.00	30.37	58.72	31.89	60.45	43.32	33.36
Services in Food	54.18	62.43	40.43	32.24	100.0	69.63	41.28	68.11	39.55	56.68	66.64
Total economy in Euro Area	*100.0*	*14.95*	*00.25*	*00.40*	*00.52*	*00.11*	*06.38*	*01.62*	*00.74*	*00.38*	*10.06*

Source: authors' calculations.

Notes: Table entries are weights, rounded to two digits. Due to this rounding, weights do not necessarily add to 100 along any dimension. The sample is 1997 Q1-2024 Q1 for 'Full sample', and 2020 Q1-2023 Q2 for 'Pandemic', for some series the effective samples may be marginally shorter. The countries are listed in protocol order and denoted by the ISO 3166-1 alpha-2 country code.

Table A.23: Weights (ctd.)

	EA	AT	BE	HR	CY	EE	FI	FR	DE	GR	IE
Full sample											
Automobile in total economy	19.95	19.39	19.43	18.39	18.06	17.58	15.85	19.69	20.93	22.72	12.35
Digital in total economy	08.26	06.70	06.95	08.27	08.11	08.63	15.27	10.12	09.20	06.45	15.86
Food in total economy	07.39	09.19	05.83	12.88	13.42	05.14	05.12	08.08	04.63	14.69	07.38
Manufacturing in total economy	33.18	33.66	27.44	34.75	15.65	31.34	38.98	26.32	40.04	27.05	48.39
Services in total economy	57.30	55.02	64.68	55.96	73.11	58.00	49.25	62.70	51.92	65.73	46.80
Construction in total economy	09.52	11.32	07.88	09.28	11.24	10.66	11.77	10.99	08.04	07.22	04.81
Total economy in Euro Area	*100.0*	*03.19*	*03.77*	*00.44*	*00.18*	*00.18*	*02.01*	*20.53*	*28.02*	*01.95*	*02.26*
Pandemic											
utomobile in total economy	16.70	16.75	15.49	12.54	15.94	10.80	13.20	17.44	17.01	22.77	11.26
Digital in total economy	09.82	08.84	08.88	11.66	17.11	16.12	17.35	12.12	11.17	07.48	28.30
Food in total economy	06.53	09.88	06.45	14.24	09.82	06.30	05.58	08.20	04.03	18.60	05.01
Manufacturing in total economy	33.81	36.62	25.64	31.91	13.59	30.62	37.70	24.50	41.68	31.70	64.18
Services in total economy	58.28	54.35	66.09	58.56	76.62	56.71	50.85	66.24	51.38	63.88	33.43
Construction in total economy	07.90	09.03	08.28	09.53	09.79	12.66	11.44	09.25	06.94	04.41	02.39
Total economy in Euro Area	*100.0*	*03.23*	*03.70*	*00.44*	*00.20*	*00.22*	*01.90*	*20.33*	*28.25*	*01.50*	*03.65*

Source: authors' calculations.

Notes: Table entries are weights, rounded to two digits. Due to this rounding, weights do not necessarily add to 100 along any dimension. The sample is 1997 Q1-2024 Q1 for 'Full sample', and 2020 Q1-2023 Q2 for 'Pandemic', for some series the effective samples may be marginally shorter. The countries are listed in protocol order and denoted by the ISO 3166-1 alpha-2 country code.

Table A.24: Weights (ctd.)

	EA	IT	LV	LT	LU	MT	NL	PT	SK	SI	ES
Full sample											
Automobile in total economy	19.95	19.51	21.62	22.84	11.33	71.77	20.48	22.94	21.22	18.83	21.00
Digital in total economy	08.26	06.99	07.72	05.79	07.24	47.37	08.43	06.53	07.44	06.93	06.64
Food in total economy	07.39	08.23	06.32	07.03	03.04	97.54	06.07	11.20	04.30	05.67	13.13
Manufacturing in total economy	33.18	33.08	29.58	32.37	11.18	21.35	25.95	30.60	34.97	40.14	29.21
Services in total economy	57.30	57.72	59.34	56.88	81.34	69.86	66.28	58.98	52.80	49.51	57.90
Construction in total economy	09.52	09.19	11.08	10.75	07.47	08.80	07.78	10.42	12.22	10.35	12.89
Total economy in Euro Area	*100.0*	*16.71*	*00.21*	*00.32*	*00.47*	*00.08*	*06.46*	*01.79*	*00.65*	*00.36*	*10.21*
Pandemic											
Automobile in total economy	16.70	17.13	15.53	17.18	07.51	48.18	17.09	19.27	12.42	14.07	15.19
Digital in total economy	09.82	07.75	13.95	08.32	08.85	53.11	10.39	08.98	10.57	08.59	07.71
Food in total economy	06.53	08.65	06.01	06.38	01.93	107.92	06.77	11.80	04.84	05.78	11.56
Manufacturing in total economy	33.81	31.81	28.24	31.82	09.44	16.59	24.94	30.32	41.96	40.79	27.68
Services in total economy	58.28	59.95	62.59	58.19	83.57	75.42	67.08	61.99	48.70	50.30	63.04
Construction in total economy	07.90	09.03	08.28	09.53	09.79	12.66	11.44	09.25	06.94	04.41	02.39
Total economy in Euro Area	*100.0*	*14.95*	*00.25*	*00.40*	*00.52*	*00.11*	*06.38*	*01.62*	*00.74*	*00.38*	*10.06*

Source: authors' calculations.

Notes: Table entries are weights, rounded to two digits. Due to this rounding, weights do not necessarily add to 100 along any dimension. The sample is 1997 Q1-2024 Q1 for 'Full sample', and 2020 Q1-2023 Q2 for 'Pandemic', for some series the effective samples may be marginally shorter. The countries are listed in protocol order and denoted by the ISO 3166-1 alpha-2 country code.

Appendix B: Substitutions

Table B.1: Index 'S' substitutions - **automobile**

Variable	EA	AT	BE	HR	CY	EE	FI	FR	DE	GR	IE	IT	LV	LT	LU	MT	NL	PT	SK	SI	ES
Origin																					
Backlogs/m	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Backlogs/s	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
SDT/m	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
SDT/s	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Transport																					
BDI	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
EuropeIn	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
EuropeOut	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
FBX-MED	..	†	†	..	..	†	†	..	†	..	†	..	†	†	†	..	†	..	†	..	..
FBX-NEU	..	..	..	†	†	..	..	†	..	†	..	†	..	..	..	†	..	†	..	†	†
Harpex	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Destination																					
ES/m	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
ES/s	..	..	..	..	..	..	..	..	..	..	..	..	..	..	**	..	..	..	..	..	..
LS/m	..	..	..	..	..	*	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
LS/s	..	..	..	..	..	..	..	..	..	..	..	..	..	..	**	..	..	..	..	..	..
PS/m	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
PS/s	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Demand																					
Orders/m	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Orders/s	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
QP/m	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
QP/s	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**

Source: authors' calculations.

Notes: '†' denotes series not used, '*' denotes substitution of corresponding EA index, '**' denotes substitution of EA manufacturing index, .. denotes no substitution. The manufacturing and services components are marked '/m' and '/s', respectively. The countries are listed in protocol order and denoted by the ISO 3166-1 alpha-2 country code.

Table B.2: Index 'S' substitutions - **digital**

Variable	EA	AT	BE	HR	CY	EE	FI	FR	DE	GR	IE	IT	LV	LT	LU	MT	NL	PT	SK	SI	ES
Origin																					
Backlogs/m	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Backlogs/s	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
SDT/m	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
SDT/s	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Transport																					
BDI	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
EuropeIn	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
EuropeOut	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
FBX-MED	..	†	†	..	..	†	†	..	†	..	†	..	†	†	†	..	†	..	†	..	..
FBX-NEU	..	..	..	†	†	..	..	†	..	†	..	†	..	..	..	†	..	†	..	†	†
Harpex	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Destination																					
ES/m	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
ES/s	..	..	..	..	..	..	..	..	..	..	..	..	..	..	*	..	..	..	..	..	..
LS/m	..	..	..	..	*	..	*	..	..	..	..	..	..	..	*	..	..	..	..	..	..
LS/s	..	..	..	..	..	..	..	..	..	..	..	..	..	..	*	..	..	..	..	..	..
PS/m	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
PS/s	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Demand																					
Orders/m	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Orders/s	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
QP/m	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
QP/s	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**

Source: authors' calculations.

Notes: '†' denotes series not used, '*' denotes substitution of corresponding EA index, '**' denotes substitution of EA manufacturing index, ¨ denotes no substitution. The manufacturing and services components are marked '/m' and '/s', respectively. The countries are listed in protocol order and denoted by the ISO 3166-1 alpha-2 country code.

Table B.3: Index 'S' substitutions - **food**

Variable	EA	AT	BE	HR	CY	EE	FI	FR	DE	GR	IE	IT	LV	LT	LU	MT	NL	PT	SK	SI	ES
Origin																					
Backlogs/m	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Backlogs/m	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
SDT/m	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
SDT/s	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Transport																					
BDI	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
EuropeIn	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
EuropeOut	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
FBX-MED	..	†	†	..	..	†	†	..	†	..	†	..	†	†	†	..	†	..	†	..	..
FBX-NEU	..	..	..	†	†	..	..	†	..	†	..	†	..	..	..	†	..	†	..	†	†
Harpex	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Destination																					
ES/m	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
ES/s	..	..	..	..	..	..	..	..	..	..	..	..	..	..	*	..	..	..	..	..	..
LS/m	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
LS/s	..	..	..	..	..	..	..	..	..	..	..	..	..	..	*	..	..	..	..	..	..
PS/m	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
PS/s	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Demand																					
Orders/m	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Orders/s	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
QP/m	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
QP/s	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**

Source: authors' calculations.

Notes: '†' denotes series not used, '*' denotes substitution of corresponding EA index, '**' denotes substitution of EA manufacturing index, ¨ denotes no substitution. The manufacturing and services components are marked '/m' and '/s', respectively. The countries are listed in protocol order and denoted by the ISO 3166-1 alpha-2 country code.

Table B.4: Index 'S' substitutions - **manufacturing**

Variable	EA	AT	BE	HR	CY	EE	FI	FR	DE	GR	IE	IT	LV	LT	LU	MT	NL	PT	SK	SI	ES
Origin																					
Backlogs	..	..	*	*	*	*	*	..	..	..	..	..	*	*	*	*	..	*	*	*	..
SDT	..	..	*	*	*	*	*	..	..	..	..	..	*	*	*	*	..	*	*	*	..
Transport																					
BDI	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
EuropeIn	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
EuropeOut	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
FBX-MED	..	†	†	..	..	†	†	..	†	..	†	..	†	†	†	..	†	..	†	..	..
FBX-NEU	..	..	..	†	†	..	..	†	..	†	..	†	..	..	..	†	..	†	..	†	†
Harpex	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Destination																					
ES	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
LS	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
PS	..	..	*	*	*	*	*	..	..	..	..	..	*	*	*	*	..	*	*	*	..
Demand																					
Orders	..	..	*	*	*	*	*	..	..	..	..	..	*	*	*	*	..	*	*	*	..
QP	..	..	*	*	*	*	*	..	..	..	..	..	*	*	*	*	..	*	*	*	..

Source: authors' calculations.

Notes: '†' denotes series not used, '*' denotes substitution of corresponding EA index, '**' denotes substitution of EA manufacturing index, ¨ denotes no substitution. The countries are listed in protocol order and denoted by the ISO 3166-1 alpha-2 country code.

Table B.5: Index 'S' substitutions - **services**

Variable	EA	AT	BE	HR	CY	EE	FI	FR	DE	GR	IE	IT	LV	LT	LU	MT	NL	PT	SK	SI	ES
Origin																					
Backlogs	..	*	*	*	*	*	*	..	..	*	..	..	*	*	*	*	*	*	*	*	..
SDT	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Transport																					
BDI	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
EuropeIn	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
EuropeOut	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
FBX-MED	..	†	†	..	..	†	†	..	†	..	†	..	†	†	†	..	†	..	†	..	..
FBX-NEU	..	..	..	†	†	..	..	†	..	†	..	†	..	..	..	†	..	†	..	†	†
Harpex	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Destination																					
ES	..	..	..	..	..	..	..	..	..	..	..	..	..	..	*	..	..	..	..	..	..
LS	..	..	..	..	..	..	..	..	..	..	..	..	..	..	*	..	..	..	..	..	..
PS	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
Demand																					
Orders	..	*	*	*	*	*	*	..	..	*	..	..	*	*	*	*	*	*	*	*	..
QP	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**

Source: authors' calculations.
Notes: '†' denotes series not used, '*' denotes substitution of corresponding EA index, '**' denotes substitution of EA manufacturing index, ¨ denotes no substitution. The countries are listed in protocol order and denoted by the ISO 3166-1 alpha-2 country code.

Table B.6: Index 'S' substitutions - **construction**

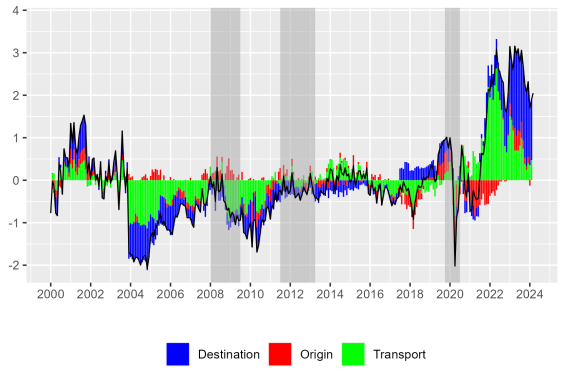
Variable	EA	AT	BE	HR	CY	EE	FI	FR	DE	GR	IE	IT	LV	LT	LU	MT	NL	PT	SK	SI	ES
Origin																					
Backlogs	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**	**
SDT	..	*	*	*	*	*	*	..	..	*	..	..	*	*	*	*	*	*	*	*	*
Transport																					
BDI	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
EuropeIn	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
EuropeOut	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
FBX-MED	..	†	†	..	..	†	†	..	†	..	†	..	†	†	†	..	†	..	†	..	..
FBX-NEU	..	..	..	†	†	..	..	†	..	†	..	†	..	..	..	†	..	†	..	†	†
Harpex	..	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Destination																					
ES	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
LS	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
PS	..	..	*	*	*	*	*	..	..	..	..	..	*	*	*	*	..	*	*	*	..
Demand																					
Orders	..	*	*	*	*	*	*	..	..	*	..	..	*	*	*	*	*	*	*	*	*
QP	..	*	*	*	*	*	*	..	..	*	..	..	*	*	*	*	*	*	*	*	*

Source: authors' calculations.
Notes: '†' denotes series not used, '*' denotes substitution of corresponding EA index, '**' denotes substitution of EA manufacturing index, ¨ denotes no substitution. The countries are listed in protocol order and denoted by the ISO 3166-1 alpha-2 country code.

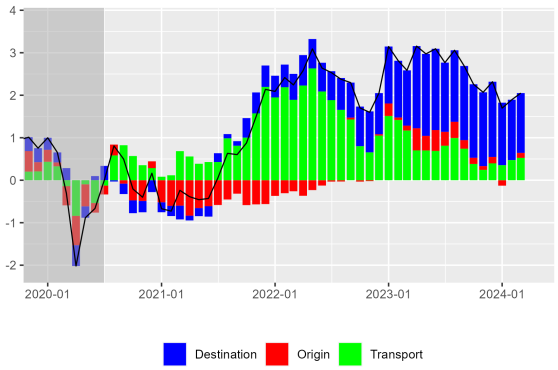
Appendix C: Supply drivers for the euro area industries

Figure C.1: Automobile

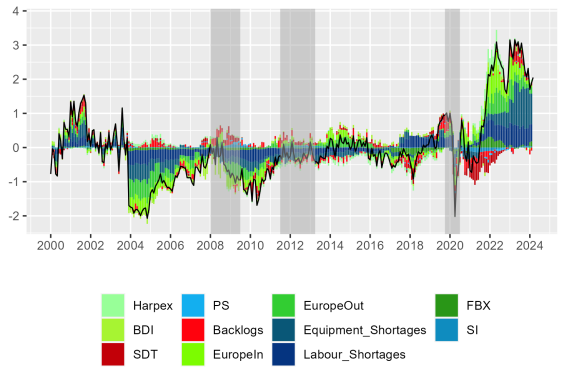
(a) 2000-2024, groups



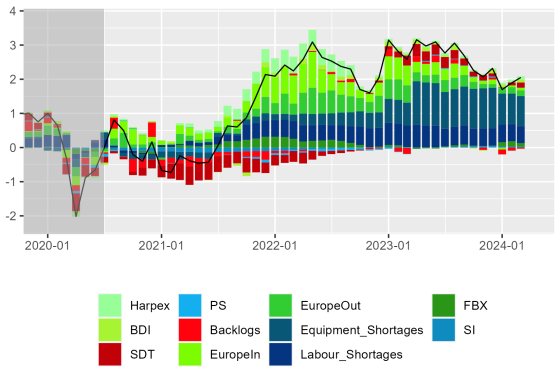
(b) 2020-2024, groups



(c) 2000-2024, indicators



(d) 2020-2024, indicators

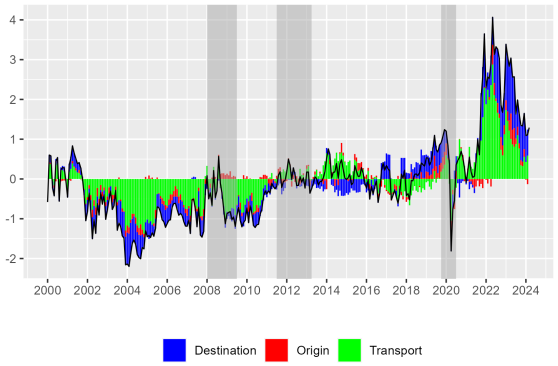


Source: authors' calculations.

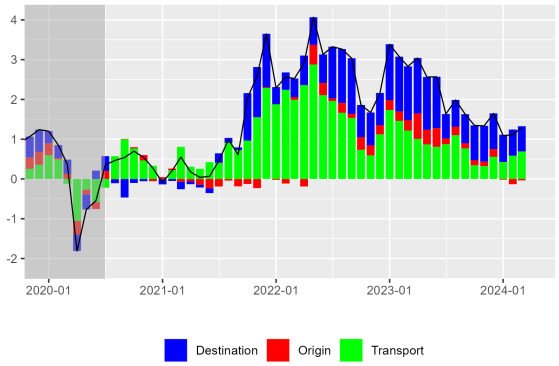
Notes: The bars show the contributions of the indicators (in panels (c) and (d)) or groups of indicators (in panels (a) and (b)) to the 'SCPI-XS' index. The indicators are denoted as detailed in Table 1. The units are standard deviations. The shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

Figure C.2: Digital

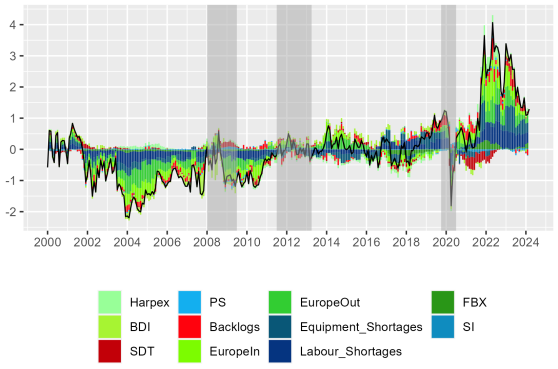
(a) 2000-2024, groups



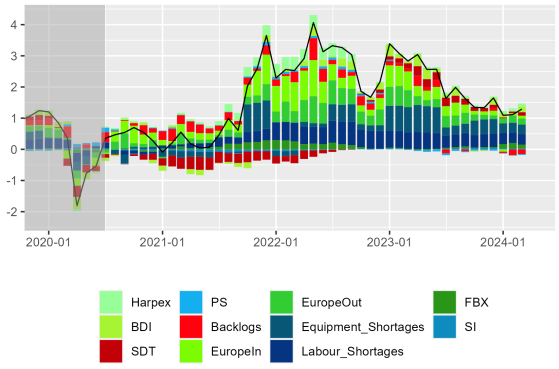
(b) 2020-2024, groups



(c) 2000-2024, indicators



(d) 2020-2024, indicators

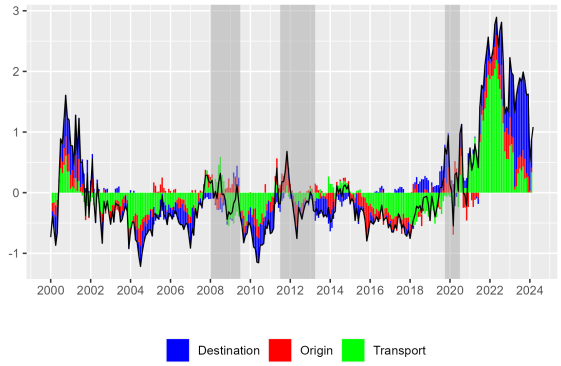


Source: authors' calculations.

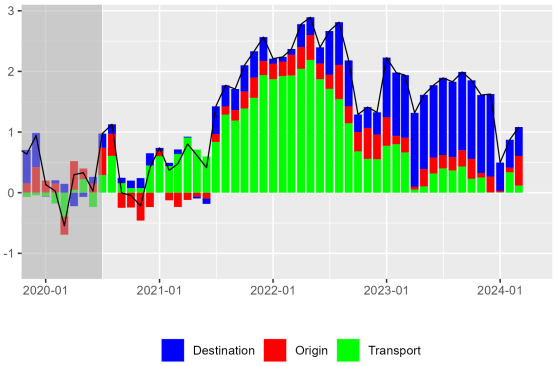
Notes: The bars show the contributions of the indicators (in panels (c) and (d)) or groups of indicators (in panels (a) and (b)) to the 'SCPI-XS' index. The units are standard deviations. The shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

Figure C.3: Food

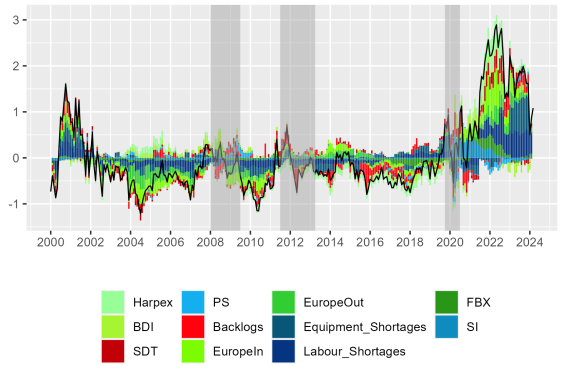
(a) 2000-2024, groups



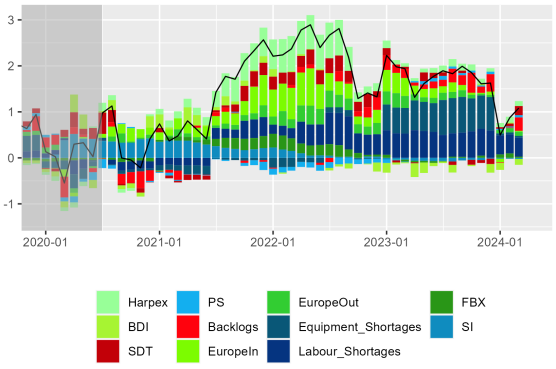
(b) 2020-2024, groups



(c) 2000-2024, indicators



(d) 2020-2024, indicators



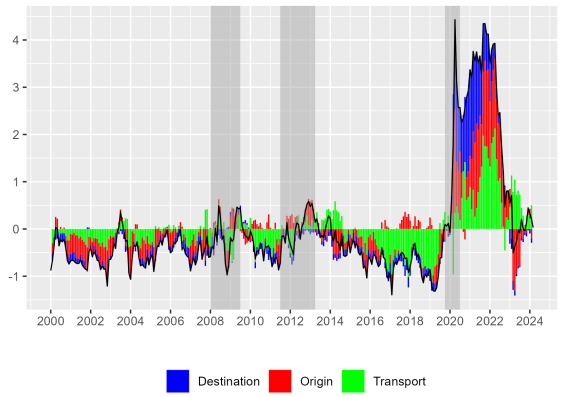
Source: authors' calculations.

Notes: The bars show the contributions of the indicators (in panels (c) and (d)) or groups of indicators (in panels (a) and (b)) to the 'SCPI-XS' index. The indicators are denoted as detailed in Table 1. The units are standard deviations. The shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

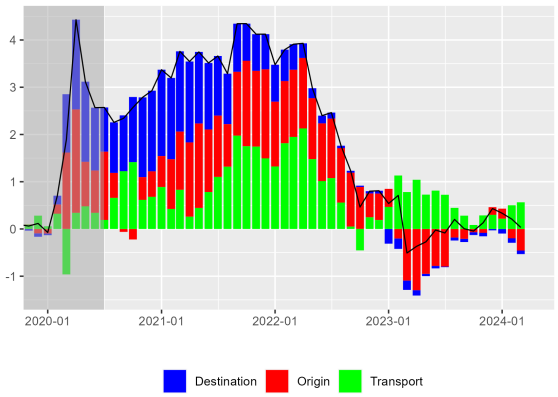
Appendix D: Supply drivers for the euro area sectors

Figure D.1: Manufacturing

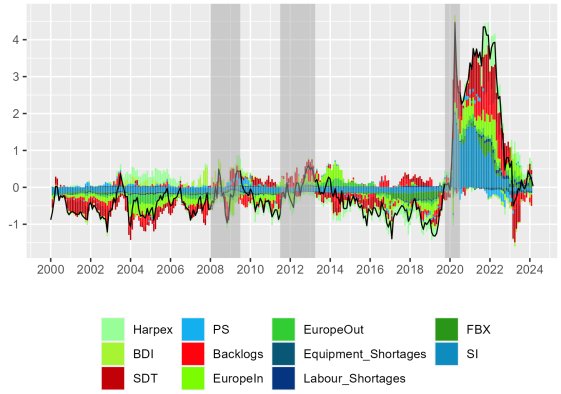
(a) 2000-2024, groups



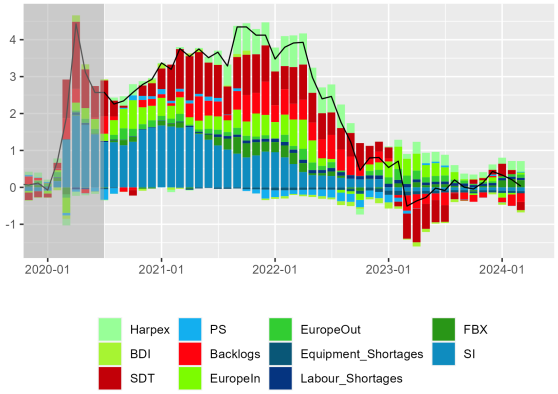
(b) 2020-2024, groups



(c) 2000-2024, indicators



(d) 2020-2024, indicators

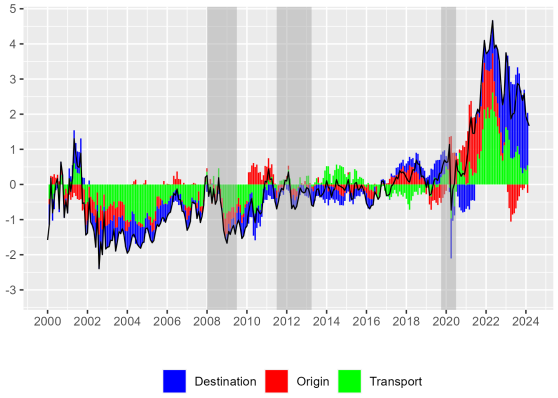


Source: authors' calculations.

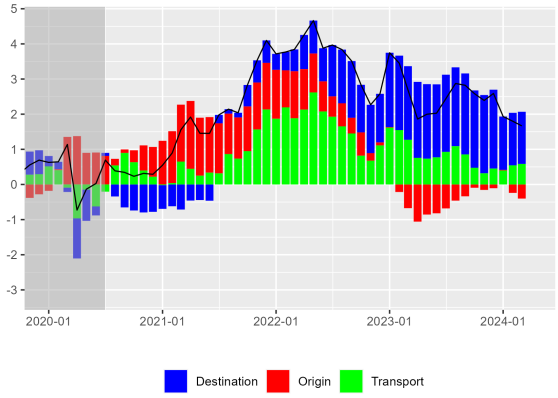
Notes: The bars show the contributions of the indicators (in panels (c) and (d)) or groups of indicators (in panels (a) and (b)) to the 'SCPI-XS' index. The indicators are denoted as detailed in Table 1. The units are standard deviations. The shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

Figure D.2: Services

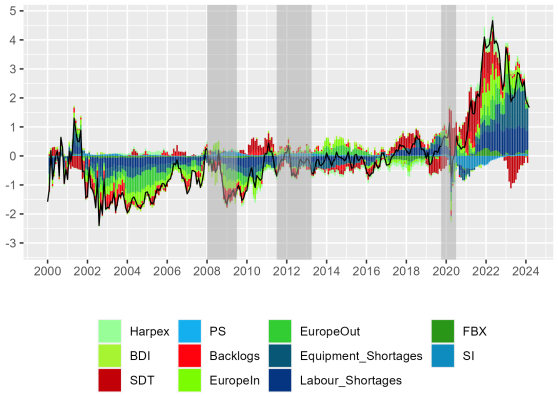
(a) 2000-2024, groups



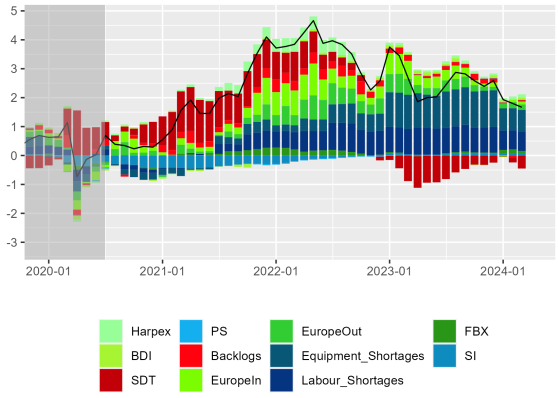
(b) 2020-2024, groups



(c) 2000-2024, indicators



(d) 2020-2024, indicators

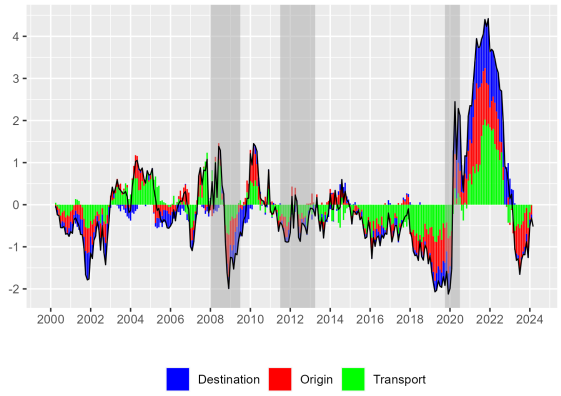


Source: authors' calculations.

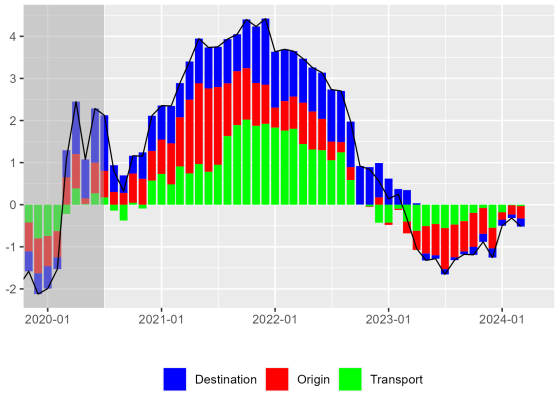
Notes: The bars show the contributions of the indicators (in panels (c) and (d)) or groups of indicators (in panels (a) and (b)) to the 'SCPI-XS' index. The indicators are denoted as detailed in Table 1. The units are standard deviations. The shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

Figure D.3: Construction

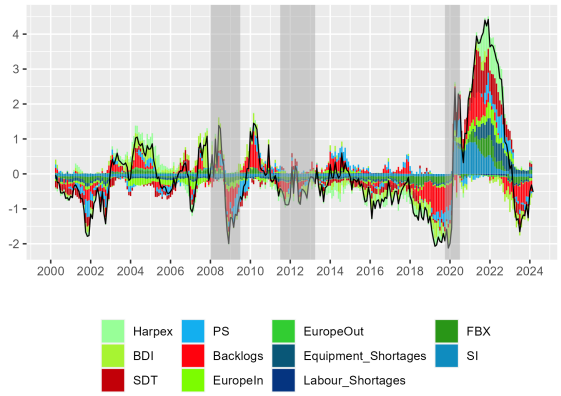
(a) 2000-2024, groups



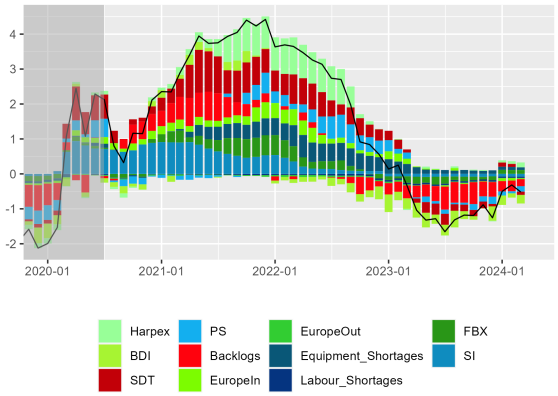
(b) 2020-2024, groups



(c) 2000-2024, indicators



(d) 2020-2024, indicators



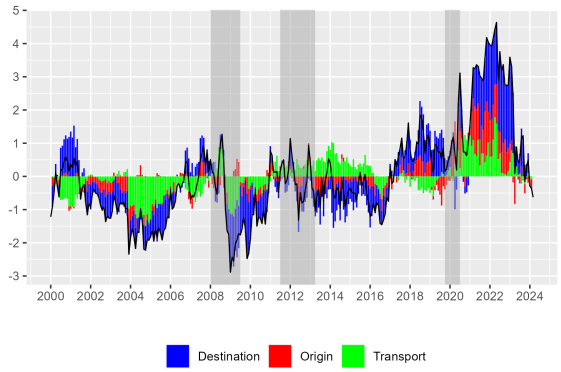
Source: authors' calculations.

Notes: The bars show the contributions of the indicators (in panels (c) and (d)) or groups of panels (in Figures (a) and (b)) to the 'SCPI-XS' index. The indicators are denoted as detailed in Table 1. The units are standard deviations. The shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

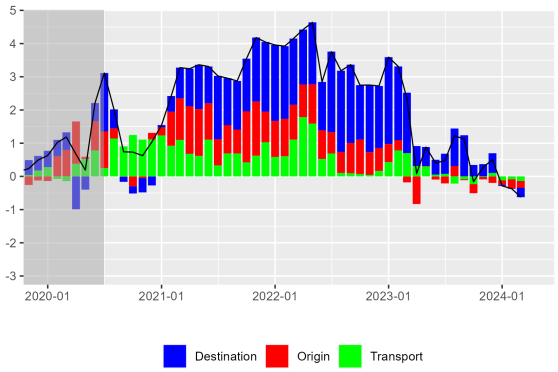
Appendix E: Supply drivers for the euro area countries

Figure E.1: Austria

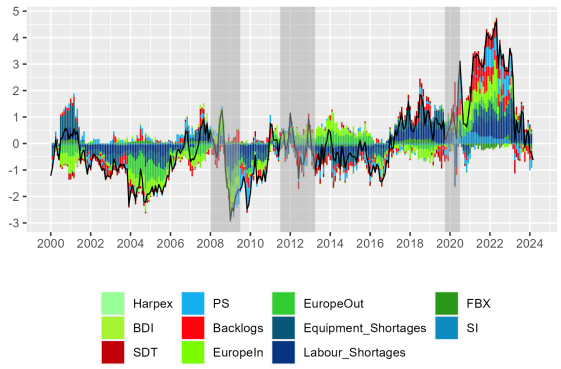
(a) 2000-2024, groups



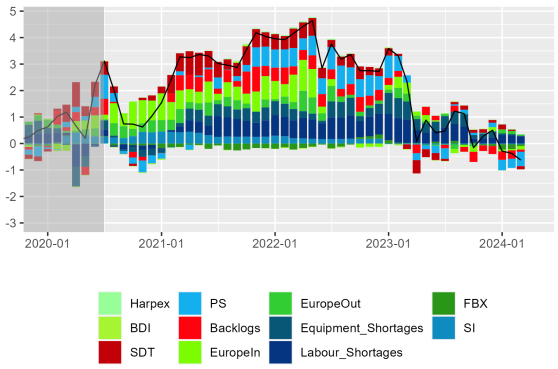
(b) 2020-2024, groups



(c) 2000-2024, indicators



(d) 2020-2024, indicators

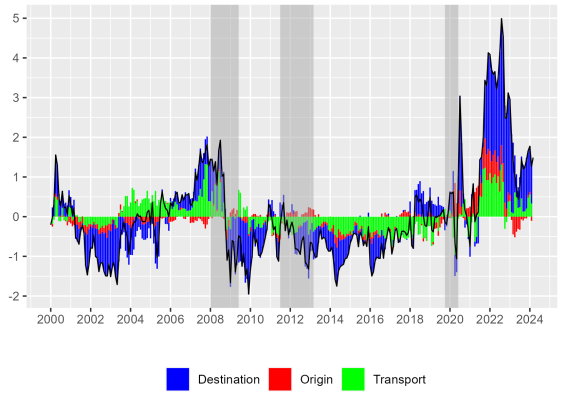


Source: authors' calculations.

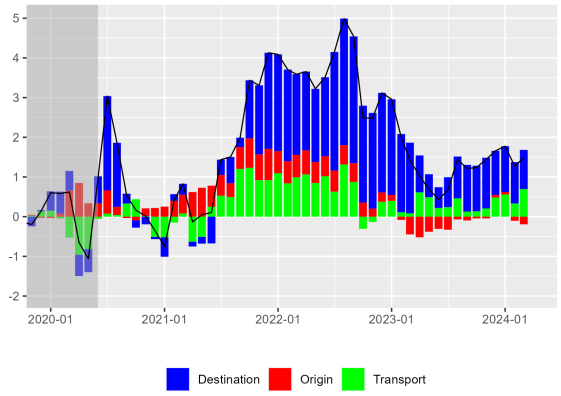
Notes: The bars show the contributions of the indicators (in panels (c) and (d)) or groups of indicators (in panels (a) and (b)) to the 'SCPI-XS' index. The indicators are denoted as detailed in Table 1. The units are standard deviations. The shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

Figure E.2: Belgium

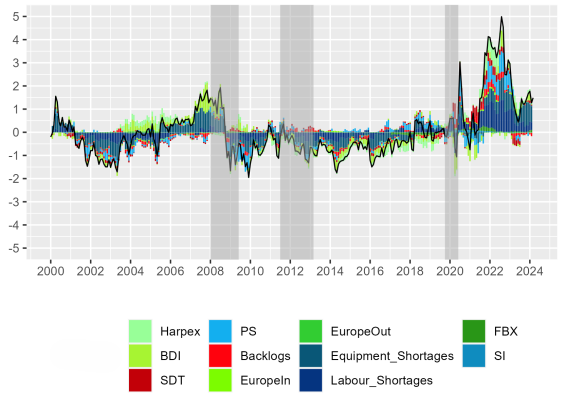
(a) 2000-2024, groups



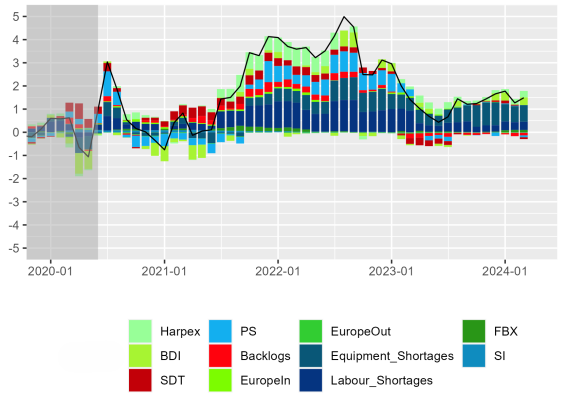
(b) 2020-2024, groups



(c) 2000-2024, indicators



(d) 2020-2024, indicators

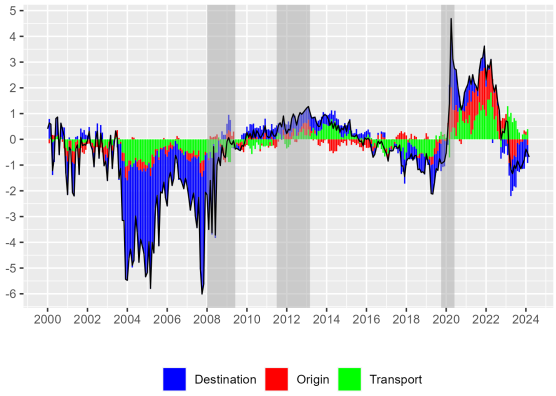


Source: authors' calculations.

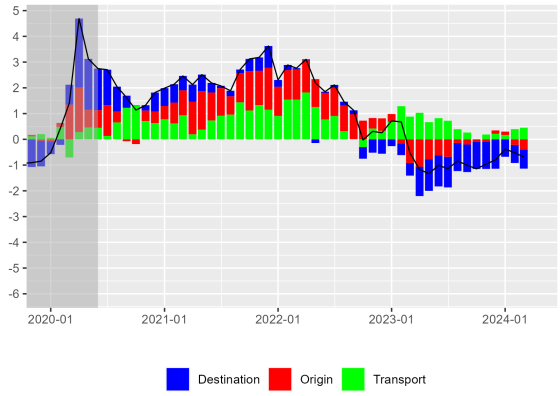
Notes: The bars show the contributions of the indicators (in panels (c) and (d)) or groups of panels (in Figures (a) and (b)) to the 'SCPI-XS' index. The indicators are denoted as detailed in Table 1. The units are standard deviations. The shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

Figure E.3: Croatia

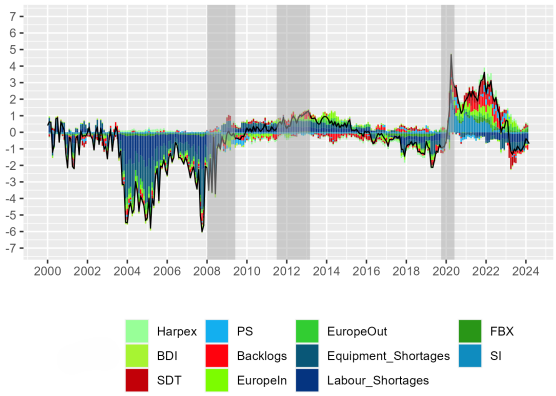
(a) 2000-2024, groups



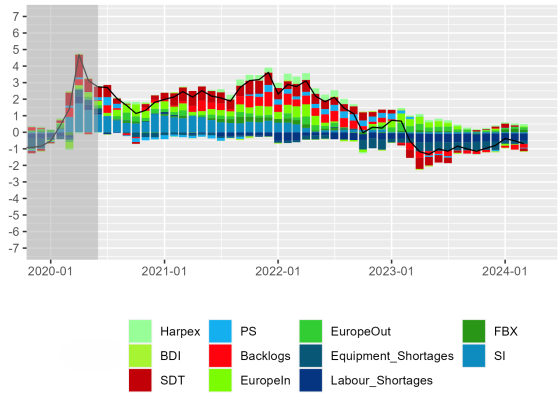
(b) 2020-2024, groups



(c) 2000-2024, indicators



(d) 2020-2024, indicators

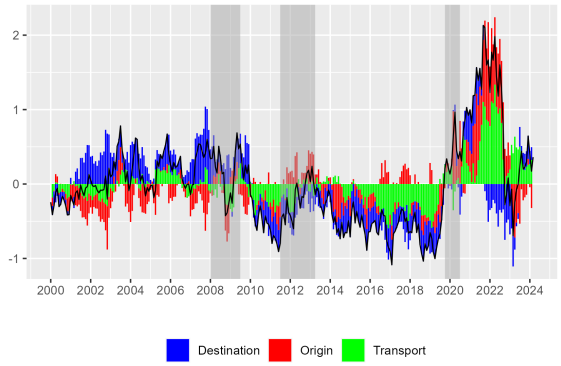


Source: authors' calculations.

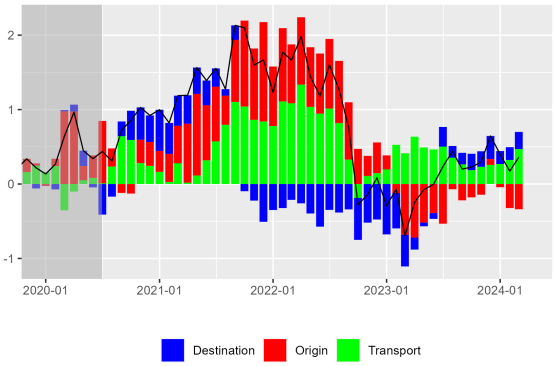
Notes: The bars show the contributions of the indicators (in panels (c) and (d)) or groups of indicators (in panels (a) and (b)) to the 'SCPI-XS' index. The indicators are denoted as detailed in Table 1. The units are standard deviations. The shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

Figure E.4: Cyprus

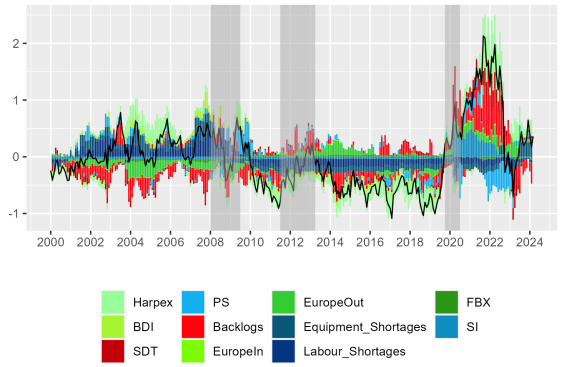
(a) 2000-2024, groups



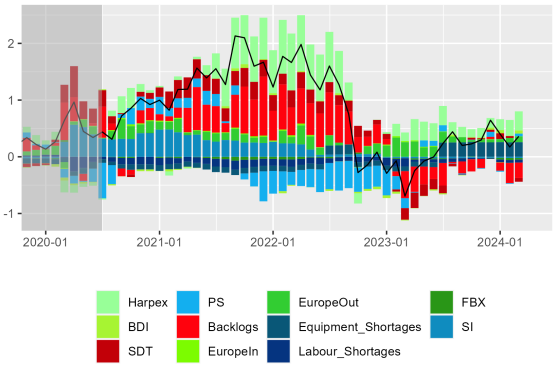
(b) 2020-2024, groups



(c) 2000-2024, indicators



(d) 2020-2024, indicators

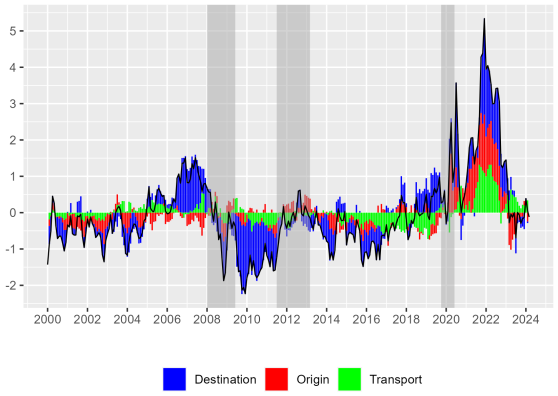


Source: authors' calculations.

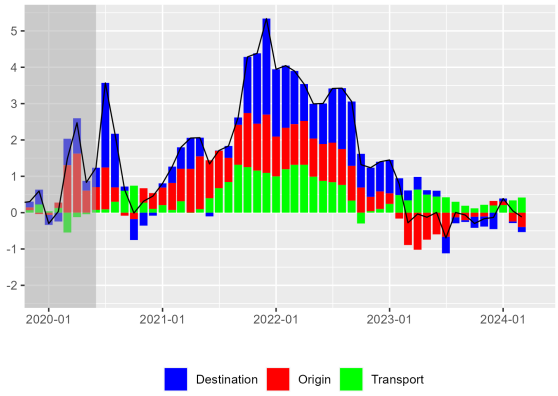
Notes: The bars show the contributions of the indicators (in panels (c) and (d)) or groups of indicators (in panels (a) and (b)) to the 'SCPI-XS' index. The indicators are denoted as detailed in Table 1. The units are standard deviations. The shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

Figure E.5: Estonia

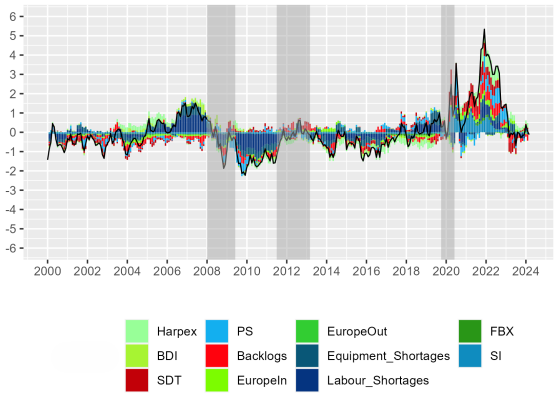
(a) 2000-2024, groups



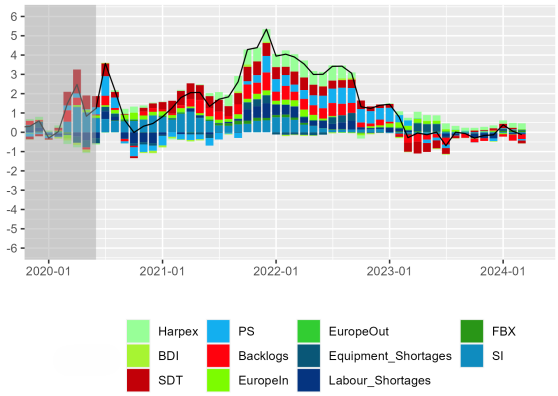
(b) 2020-2024, groups



(c) 2000-2024



(d) 2020-2024

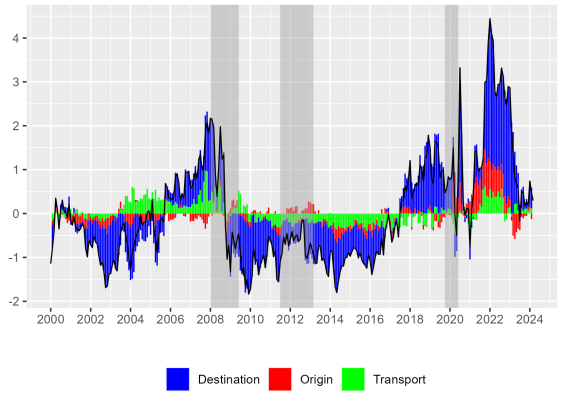


Source: authors' calculations.

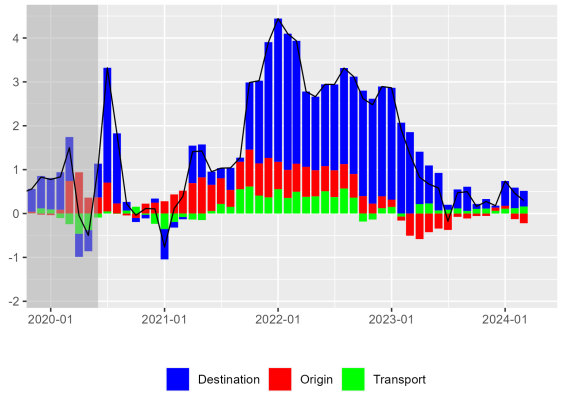
Notes: The bars show the contributions of the indicators (in panels (c) and (d)) or groups of indicators (in panels (a) and (b)) to the 'SCPI-XS' index. The indicators are denoted as detailed in Table 1. The units are standard deviations. The shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

Figure E.6: Finland

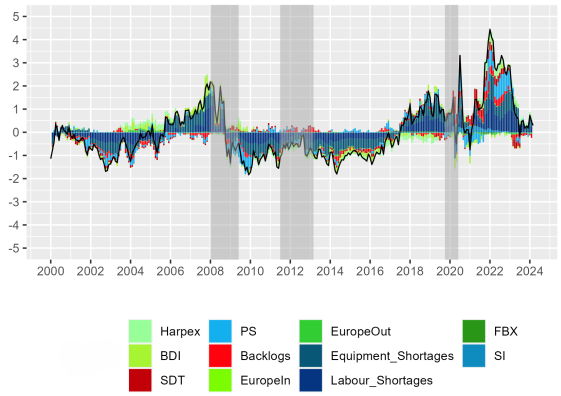
(a) 2000-2024, groups



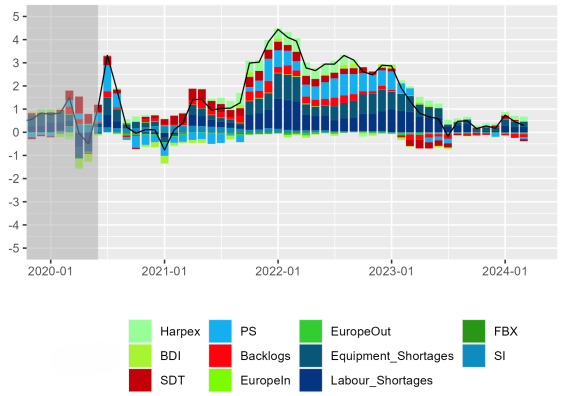
(b) 2020-2024, groups



(c) 2000-2024, indicators



(d) 2020-2024, indicators

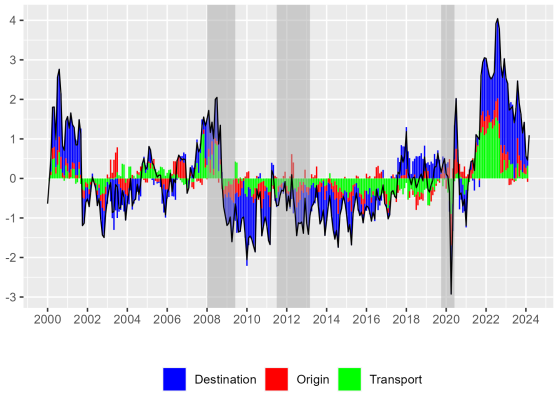


Source: authors' calculations.

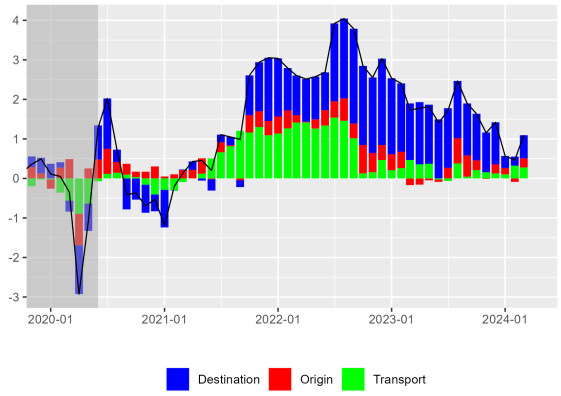
Notes: The bars show the contributions of the indicators (in panels (c) and (d)) or groups of indicators (in panels (a) and (b)) to the 'SCPI-XS' index. The indicators are denoted as detailed in Table 1. The units are standard deviations. The shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

Figure E.7: France

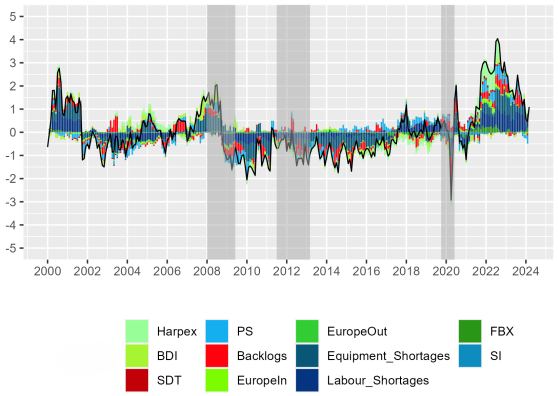
(a) 2000-2024, groups



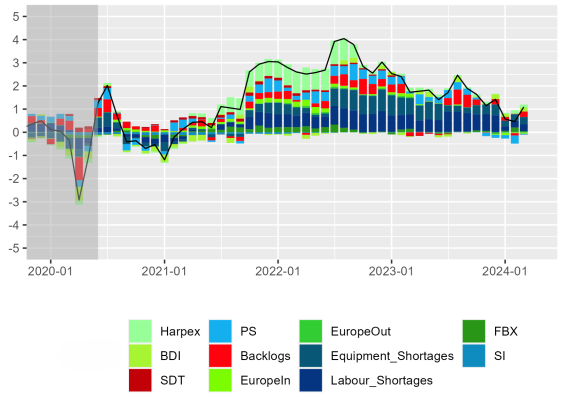
(b) 2020-2024, groups



(c) 2000-2024, indicators



(d) 2020-2024, indicators

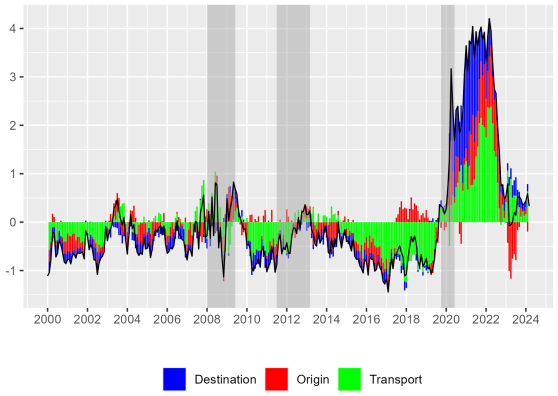


Source: authors' calculations.

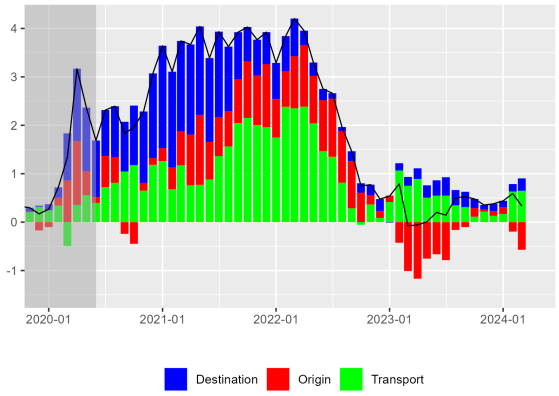
Notes: The bars show the contributions of the indicators (in panels (c) and (d)) or groups of indicators (in panels (a) and (b)) to the 'SCPI-XS' index. The indicators are denoted as detailed in Table 1. The units are standard deviations. The shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

Figure E.8: Germany

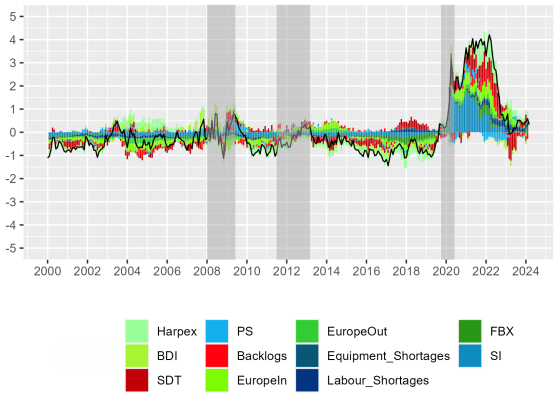
(a) 2000-2024, groups



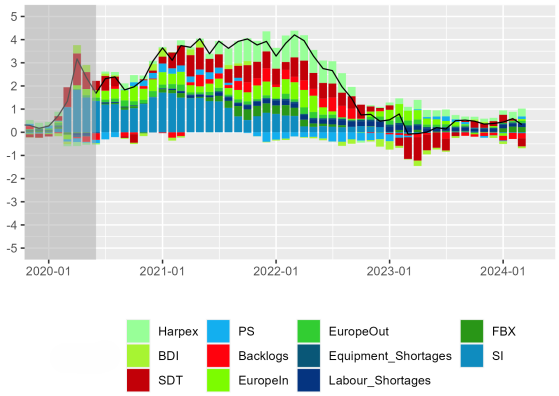
(b) 2020-2024, groups



(c) 2000-2024, indicators



(d) 2020-2024, indicators

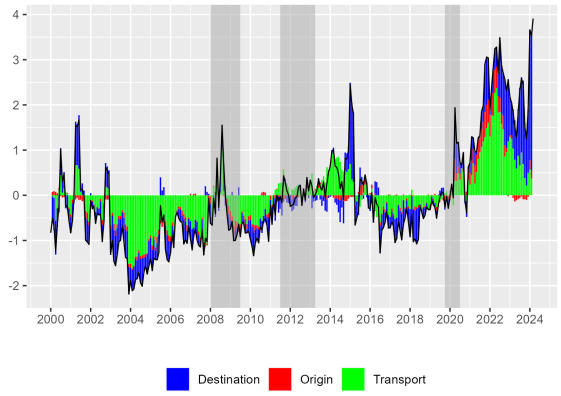


Source: authors' calculations.

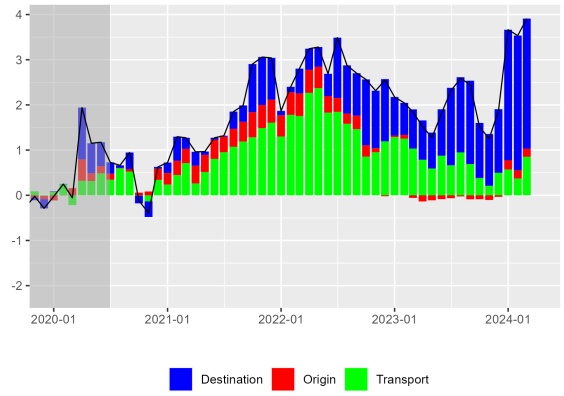
Notes: The bars show the contributions of the indicators (in panels (c) and (d)) or groups of indicators (in panels (a) and (b)) to the 'SCPI-XS' index. The indicators are denoted as detailed in Table 1. The units are standard deviations. The shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

Figure E.9: Greece

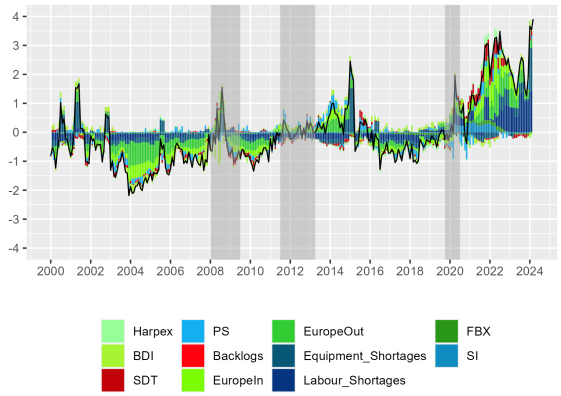
(a) 2000-2024, groups



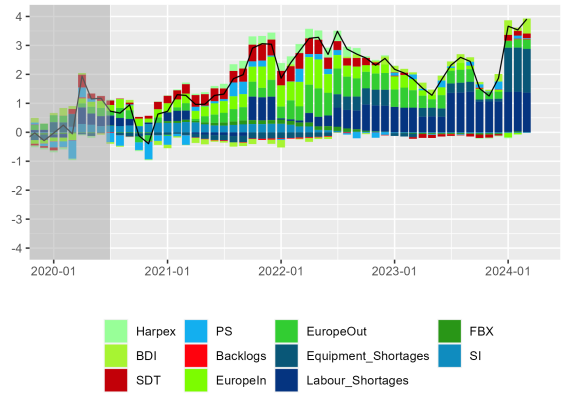
(b) 2020-2024, groups



(c) 2000-2024, indicators



(d) 2020-2024, indicators



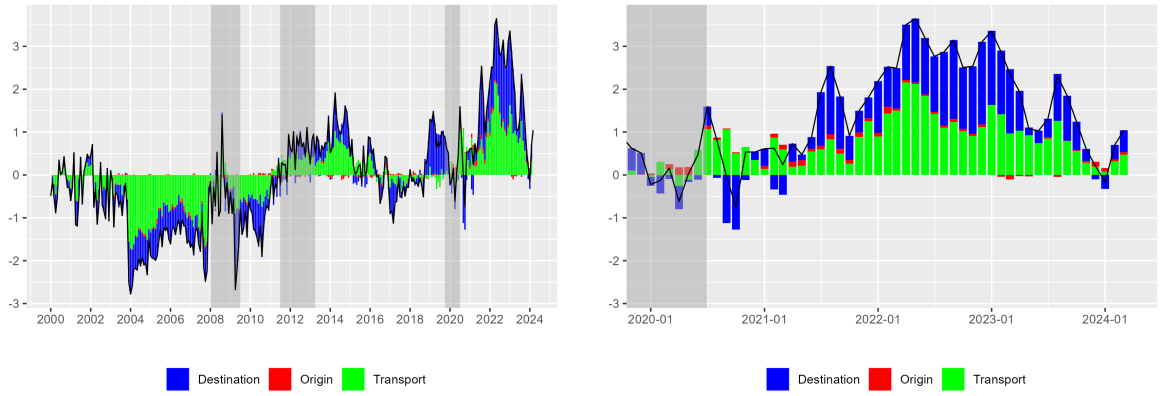
Source: authors' calculations.

Notes: The bars show the contributions of the indicators (in panels (c) and (d)) or groups of indicators (in panels (a) and (b)) to the 'SCPI-XS' index. The indicators are denoted as detailed in Table 1. The units are standard deviations. The shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

Figure E.10: Ireland

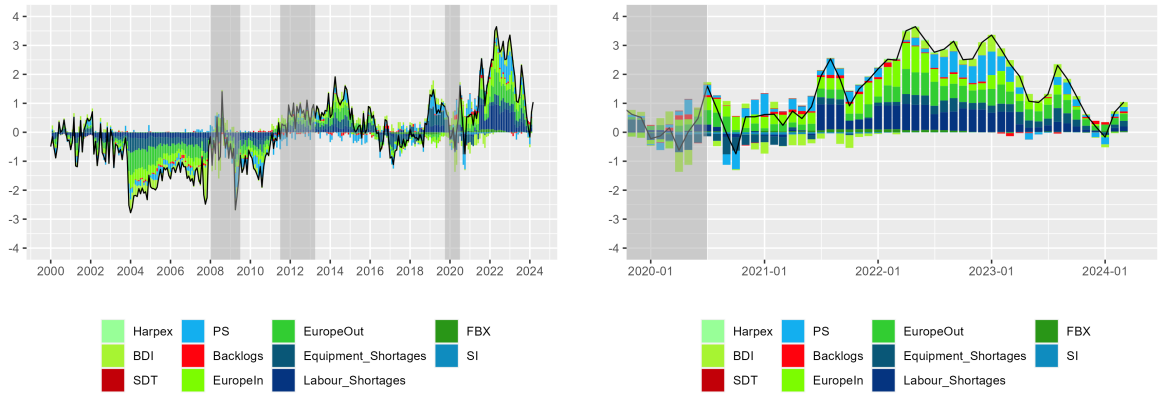
(a) 2000-2024, groups

(b) 2020-2024, groups



(c) 2000-2024, indicators

(d) 2020-2024, indicators

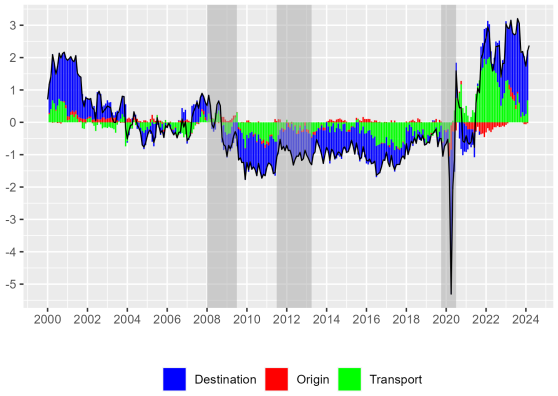


Source: authors' calculations.

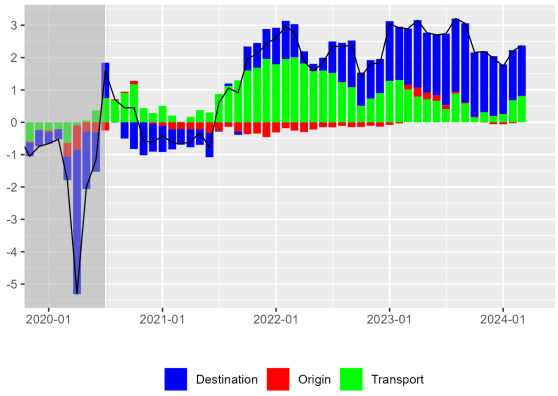
Notes: The bars show the contributions of the indicators (in panels (c) and (d)) or groups of indicators (in panels (a) and (b)) to the 'SCPI-XS' index. The indicators are denoted as detailed in Table 1. The units are standard deviations. The shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

Figure E.11: Italy

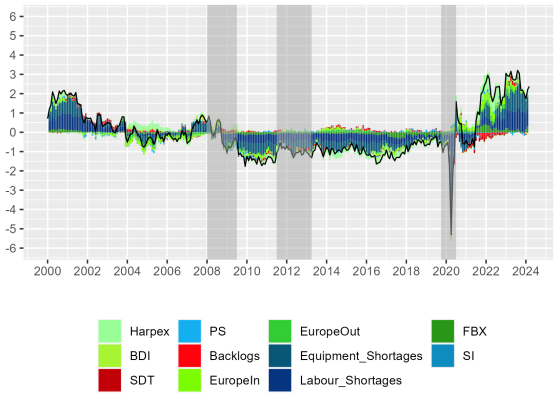
(a) 2000-2024, groups



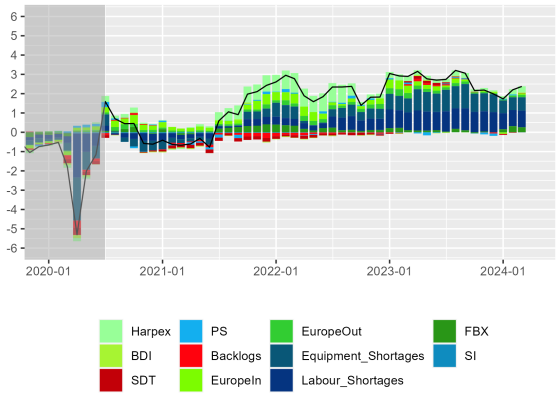
(b) 2020-2024, groups



(c) 2000-2024, indicators



(d) 2020-2024, indicators

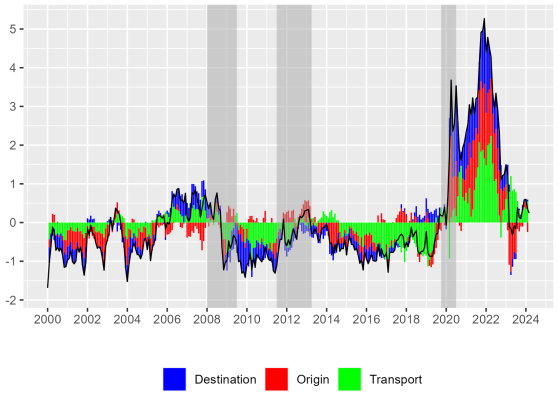


Source: authors' calculations.

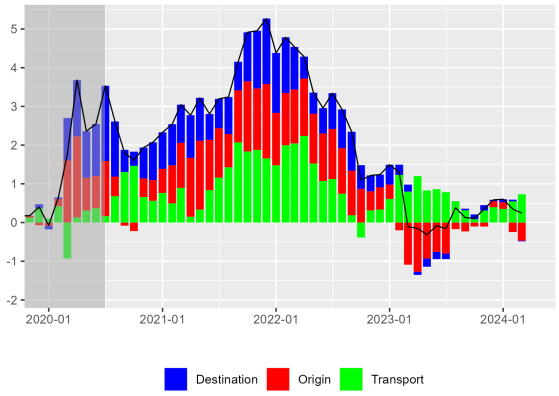
Notes: The bars show the contributions of the indicators (in panels (c) and (d)) or groups of indicators (in panels (a) and (b)) to the 'SCPI-XS' index. The indicators are denoted as detailed in Table 1. The units are standard deviations. The shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

Figure E.12: Latvia

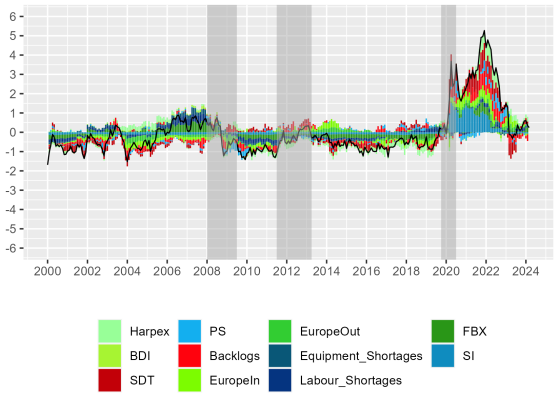
(a) 2000-2024, groups



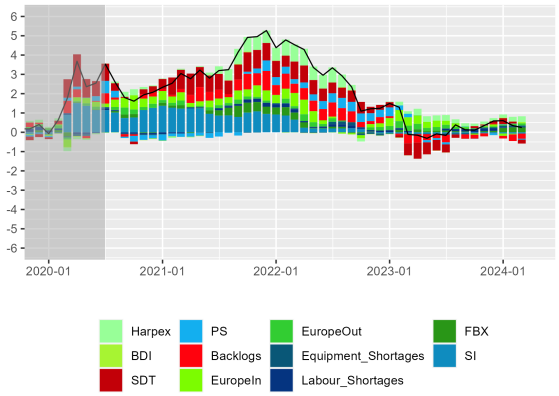
(b) 2020-2024, groups



(c) 2000-2024, indicators



(d) 2020-2024, indicators

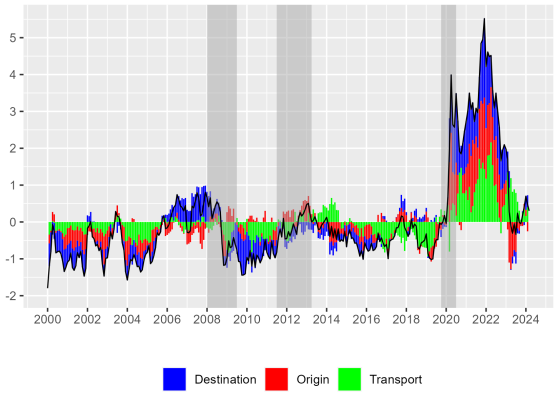


Source: authors' calculations.

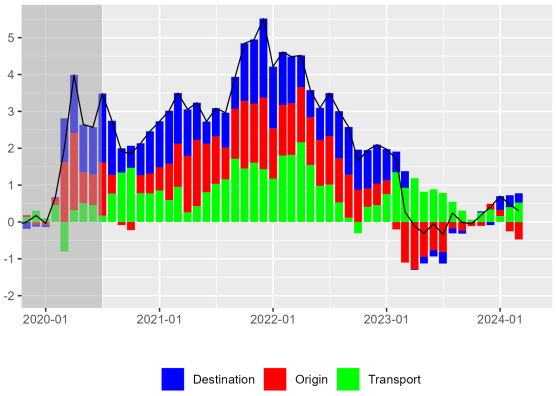
Notes: The bars show the contributions of the indicators (in panels (c) and (d)) or groups of indicators (in panels (a) and (b)) to the 'SCPI-XS' index. The indicators are denoted as detailed in Table 1. The units are standard deviations. The shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

Figure E.13: Lithuania

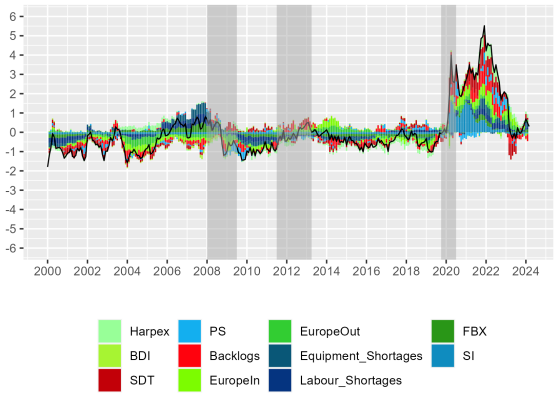
(a) 2000-2024, groups



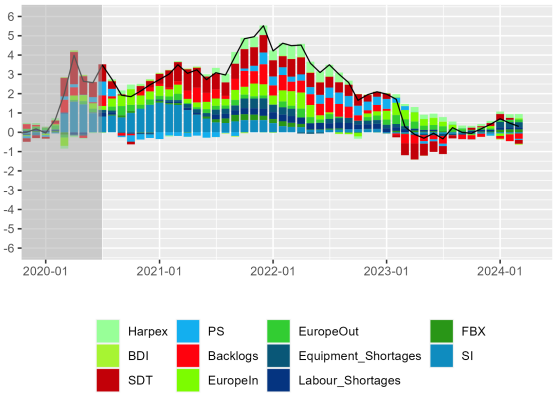
(b) 2020-2024, groups



(c) 2000-2024, indicators



(d) 2020-2024, indicators

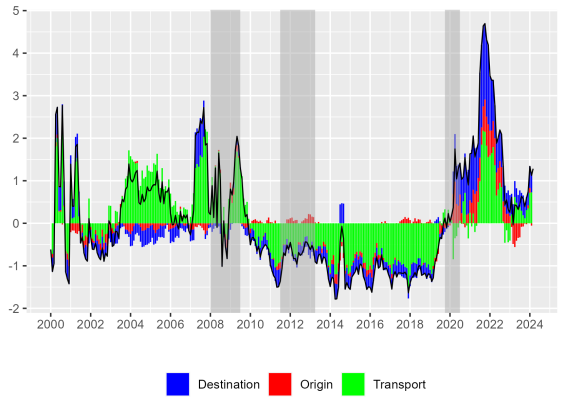


Source: authors' calculations.

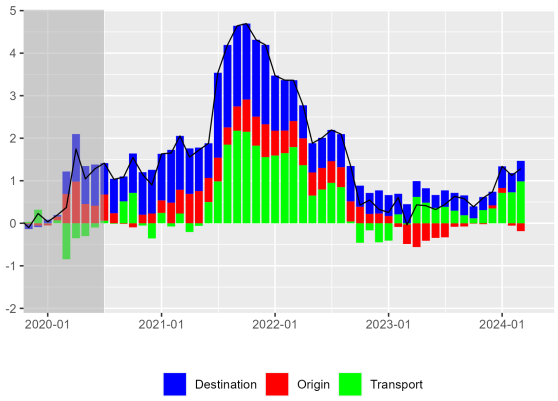
Notes: The bars show the contributions of the indicators (in panels (c) and (d)) or groups of indicators (in panels (a) and (b)) to the 'SCPI-XS' index. The indicators are denoted as detailed in Table 1. The units are standard deviations. The shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

Figure E.14: Luxembourg

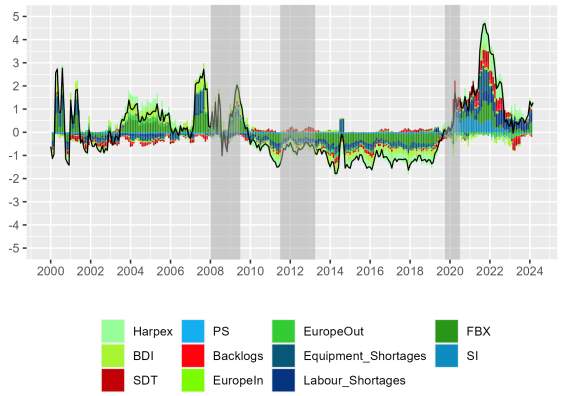
(a) 2000-2024, groups



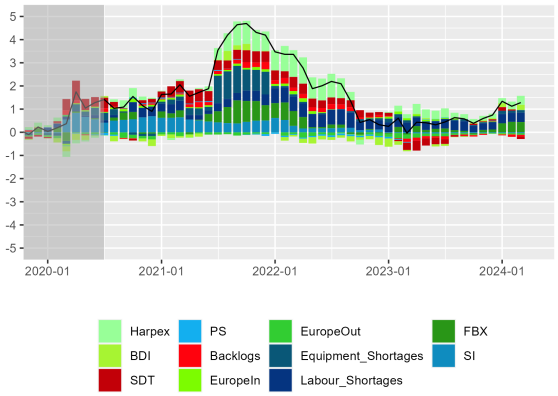
(b) 2020-2024, groups



(c) 2000-2024, indicators



(d) 2020-2024, indicators

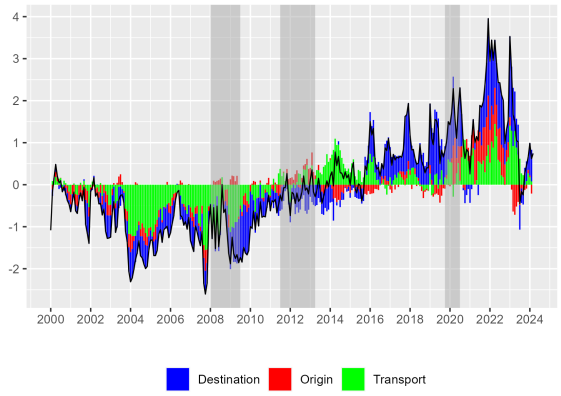


Source: authors' calculations.

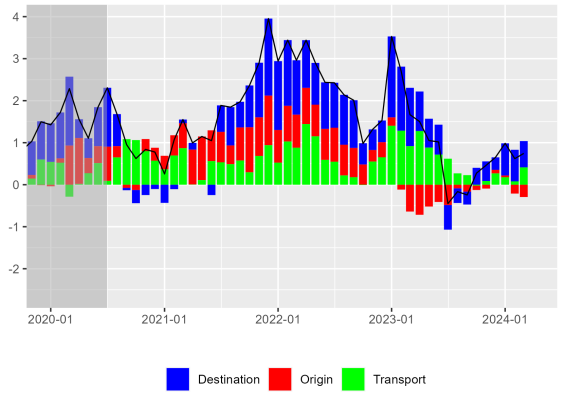
Notes: The bars show the contributions of the indicators (in panels (c) and (d)) or groups of indicators (in panels (a) and (b)) to the 'SCPI-XS' index. The indicators are denoted as detailed in Table 1. The units are standard deviations. The shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

Figure E.15: Malta

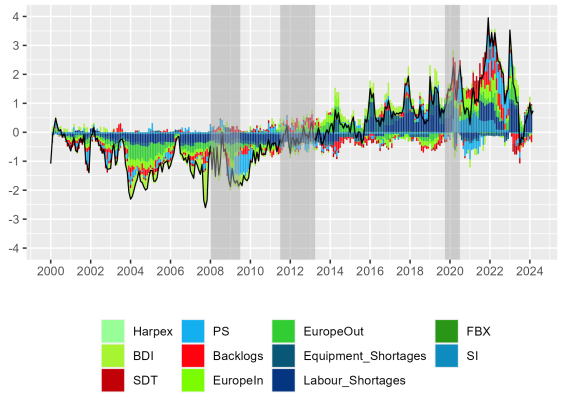
(a) 2000-2024, groups



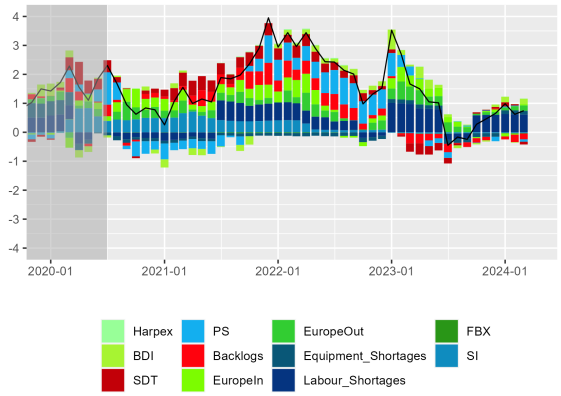
(b) 2020-2024, groups



(c) 2000-2024, indicators



(d) 2020-2024, indicators

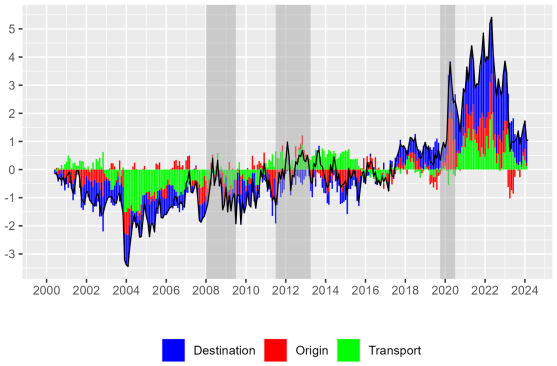


Source: authors' calculations.

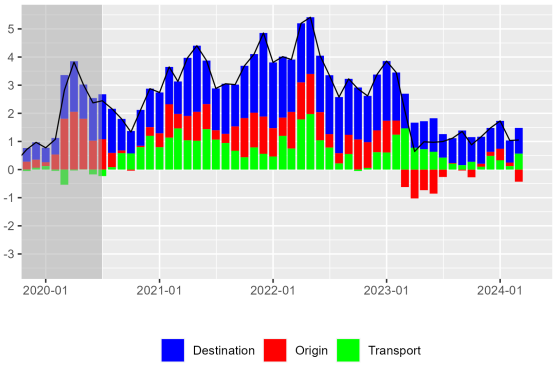
Notes: The bars show the contributions of the indicators (in panels (c) and (d)) or groups of indicators (in panels (a) and (b)) to the 'SCPI-XS' index. The indicators are denoted as detailed in Table 1. The units are standard deviations. The shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

Figure E.16: Netherlands

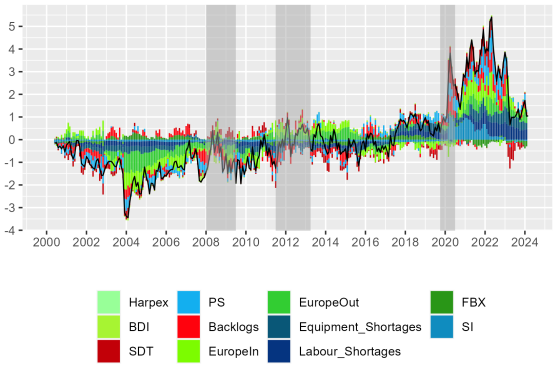
(a) 2000-2024, groups



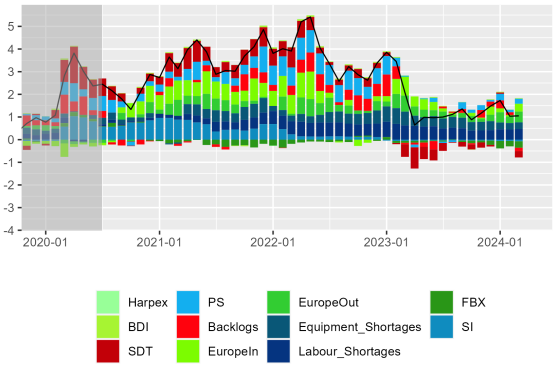
(b) 2020-2024, groups



(c) 2000-2024, indicators



(d) 2020-2024, indicators

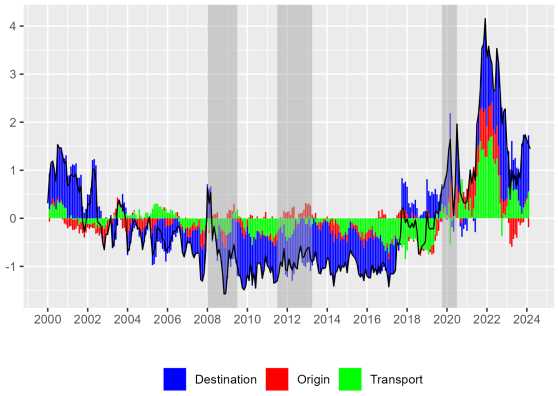


Source: authors' calculations.

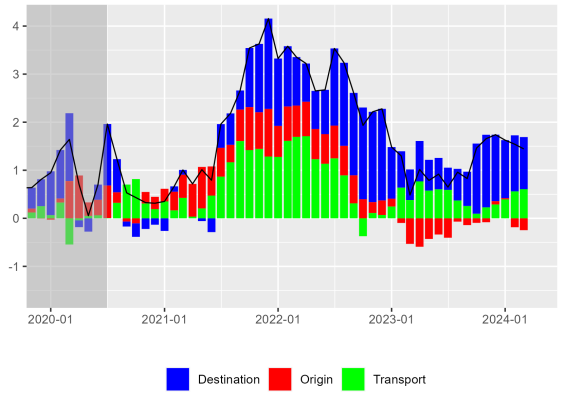
Notes: The bars show the contributions of the indicators (in panels (c) and (d)) or groups of indicators (in panels (a) and (b)) to the 'SCPI-XS' index. The indicators are denoted as detailed in Table 1. The units are standard deviations. The shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

Figure E.17: Portugal

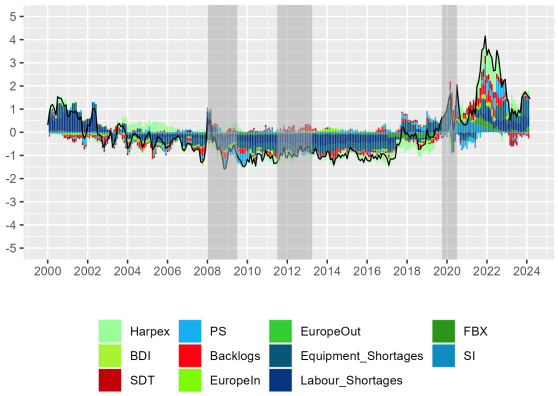
(a) 2000-2024, groups



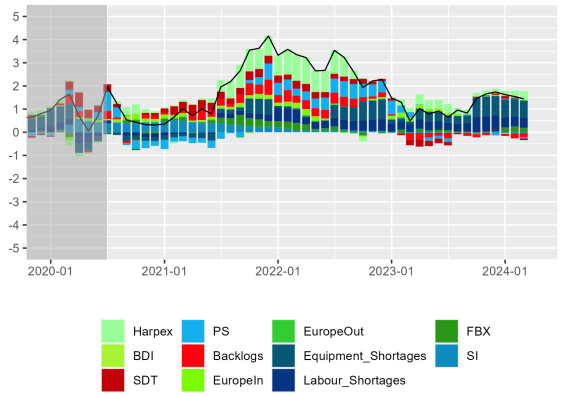
(b) 2020-2024, groups



(c) 2000-2024, indicators



(d) 2020-2024, indicators

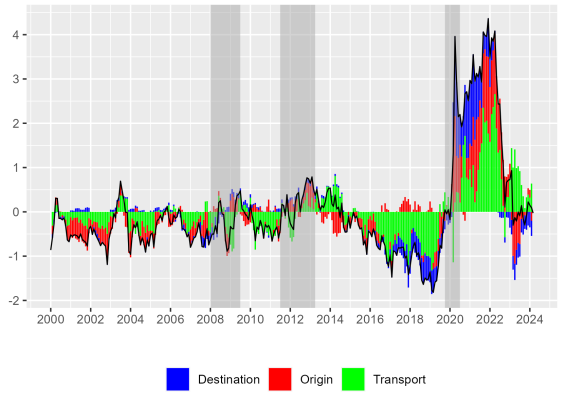


Source: authors' calculations.

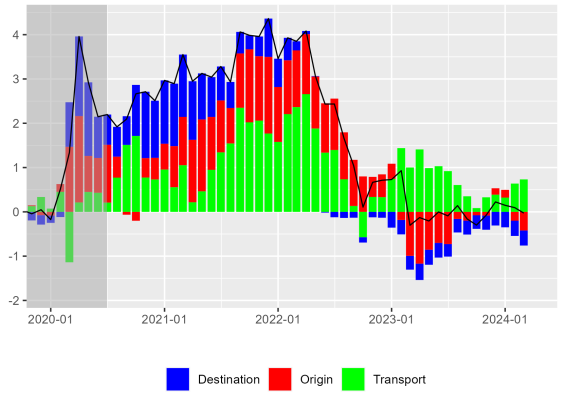
Notes: The bars show the contributions of the indicators (in panels (c) and (d)) or groups of indicators (in panels (a) and (b)) to the 'SCPI-XS' index. The indicators are denoted as detailed in Table 1. The units are standard deviations. The shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

Figure E.18: Slovakia

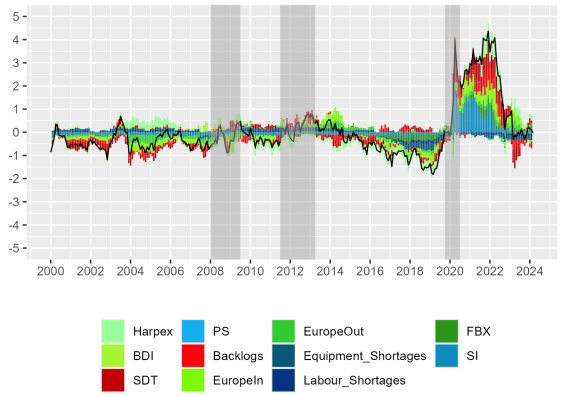
(a) 2000-2024, groups



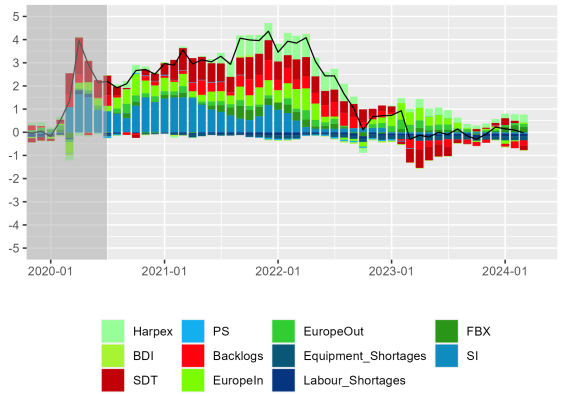
(b) 2020-2024, groups



(c) 2000-2024, indicators



(d) 2020-2024, indicators

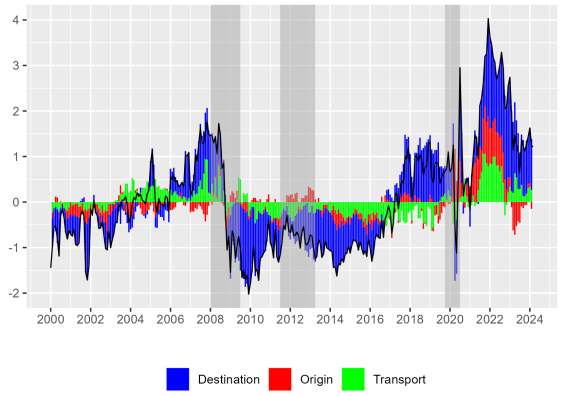


Source: authors' calculations.

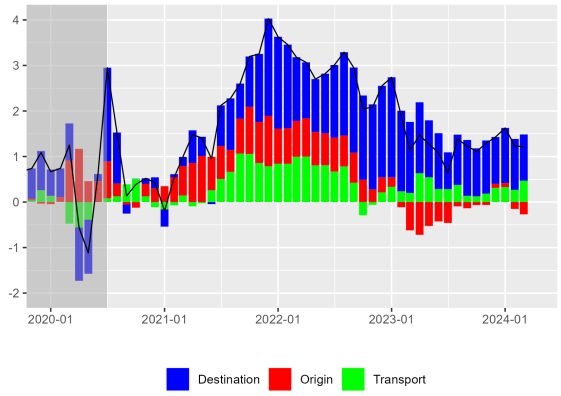
Notes: The bars show the contributions of the indicators (in panels (c) and (d)) or groups of indicators (in panels (a) and (b)) to the 'SCPI-XS' index. The indicators are denoted as detailed in Table 1. The units are standard deviations. The shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

Figure E.19: Slovenia

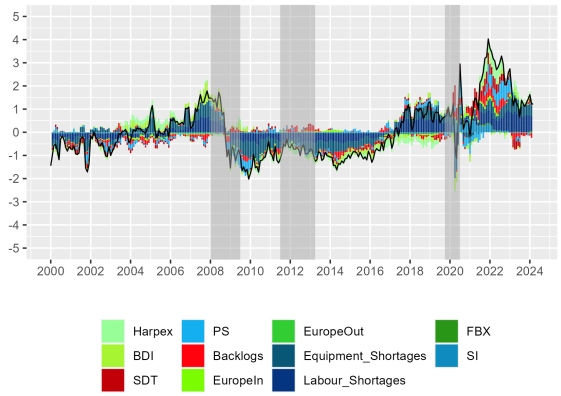
(a) 2000-2024, groups



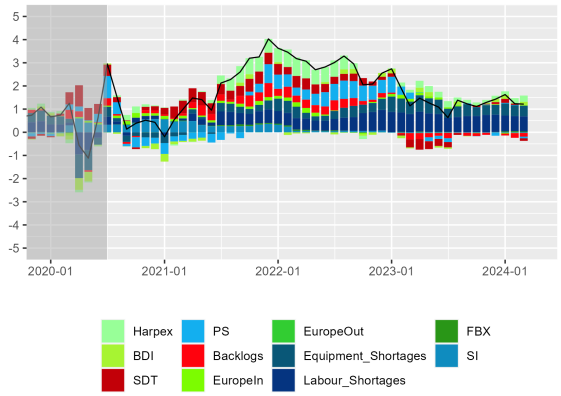
(b) 2020-2024, groups



(c) 2000-2024, indicators



(d) 2020-2024, indicators

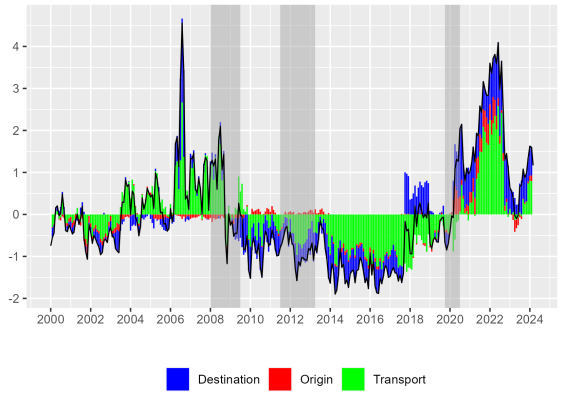


Source: authors' calculations.

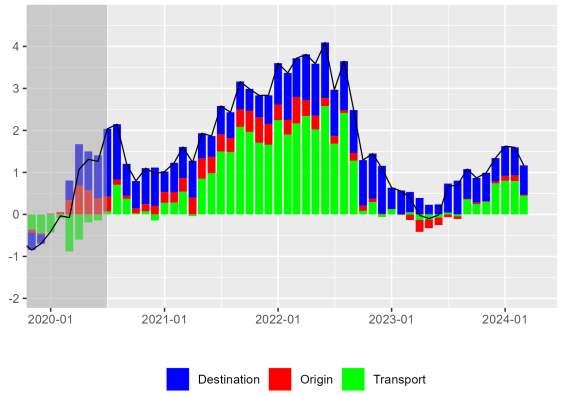
Notes: The bars show the contributions of the indicators (in panels (c) and (d)) or groups of indicators (in panels (a) and (b)) to the 'SCPI-XS' index. The indicators are denoted as detailed in Table 1. The units are standard deviations. The shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

Figure E.20: Spain

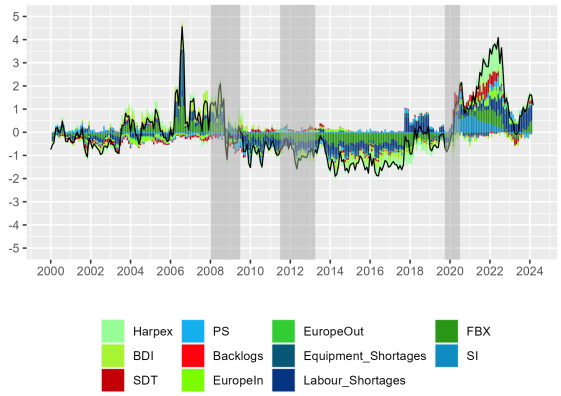
(a) 2000-2024, groups



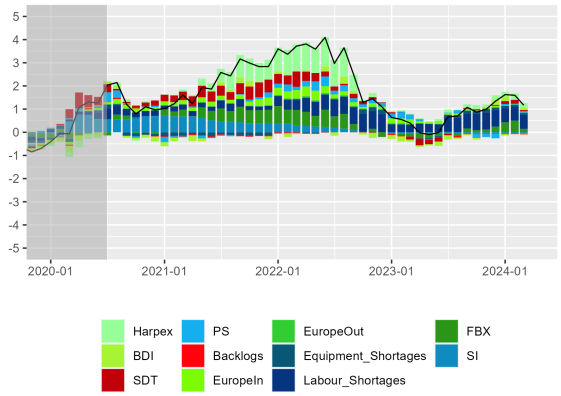
(b) 2020-2024, groups



(c) 2000-2024, indicators



(d) 2020-2024, indicators



Source: authors' calculations.

Notes: The bars show the contributions of the indicators (in panels (c) and (d)) or groups of indicators (in panels (a) and (b)) to the 'SCPI-XS' index. The indicators are denoted as detailed in Table 1. The units are standard deviations. The shaded areas highlight the recessions as identified by the dating committee of the Euro Area Business Cycle Network (EABCN).

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