

# WIFO ■ REPORTS ON AUSTRIA 4/2022

**Fourth COVID-19 Wave Dampens Economic Sentiment.** Results of the WIFO-Konjunkturtest Quarterly Survey of January 2022

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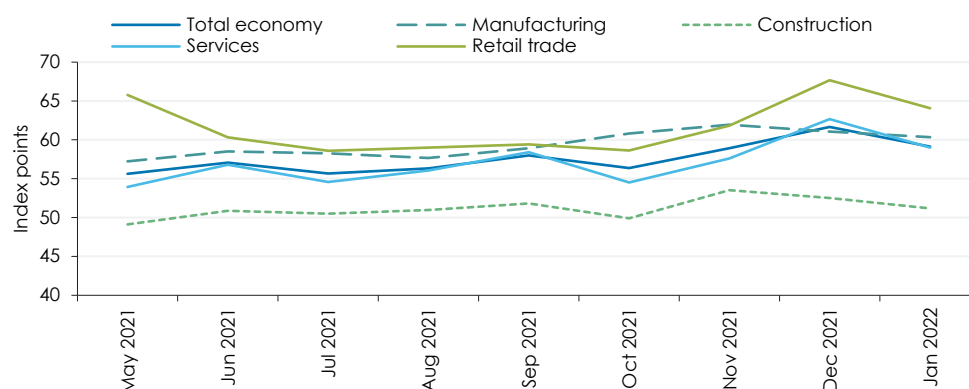
# Fourth COVID-19 Wave Dampens Economic Sentiment

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- Due to the COVID-19 restrictions and supply bottlenecks, Austrian enterprises assessed their economic situation in January less confidently than in October. However, the WIFO-Konjunkturampel (economic traffic light) – an early indicator for turning points – recently jumped to green, a consequence of the easing of COVID-19 restrictions.
- The business expectations index recently rose again slightly on a month-on-month comparison. Its level still points to a continuation of the recovery, albeit at a slower pace.
- Business uncertainty has increased noticeably over the last quarters. Compared to December, however, there is a slight reduction in economic uncertainty.
- Capacity utilisation in January was higher than in October in all sectors except the service sector.
- As in the previous quarter, most companies reported constraints in their business activities. Overall, the "shortage of labour force" continued to be the most important obstacle. In the services and retail sector, "insufficient demand" gained importance.
- Supply bottlenecks are likely to have eased slightly. However, in manufacturing, construction and retail trade, "shortage of materials and/or equipment" continued to be a major constraint on business activity.

### Indicator of business uncertainty for the total economy and the sectors



**"Business uncertainty increased in autumn and reached a peak in December 2021 as a result of the acceleration of infection and regulatory restrictions. Uncertainty decreased slightly with the easing of measures in mid-December."**

Business uncertainty increased in the wake of the rise in COVID-19 infections in autumn and winter, peaking in December 2021. The increase was particularly strong in retail trade and services. Uncertainty declined again for the first time at the beginning of 2022 (Source: WIFO-Konjunkturtest (business cycle survey), not seasonally adjusted).

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February 2022

### Fourth COVID-19 Wave Dampens Economic Sentiment. Results of the WIFO-Konjunkturtest Quarterly Survey of January 2022

The results of the January WIFO-Konjunkturtest (business cycle survey) show a decline in economic momentum on a quarterly basis. However, in all sectors except retail trade, economic indicators remained at confident levels. Due to the easing of health policy restrictions in January, the WIFO-Konjunkturampel (economic traffic light) jumped to green. Business uncertainty remains high. Capacity utilisation fell in the service sectors but remained high overall. As in the previous quarter, the "shortage of labour force" was mentioned as the most important obstacle to business activity. In manufacturing, construction and retailing, shortages of materials and inputs continue to hamper business activity.

**JEL-Codes:** E32, E66 • **Keywords:** WIFO-Konjunkturtest, quarterly data, business cycle

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**Imprint:** Publisher: Gabriel Felbermayr • Editor-in-Chief: Hans Pitlik ([hans.pitlik@wifo.ac.at](mailto:hans.pitlik@wifo.ac.at)) • Editorial team: Tamara Fellingner, Christoph Lorenz, Tatjana Weber • Media owner (publisher), producer: Austrian Institute of Economic Research • 1030 Vienna, Arsenal, Objekt 20 • Tel. (+43 1) 798 26 01-0, <https://reportsonaustria.wifo.ac.at/> • Place of publishing and production: Vienna • 2022/RoA/7496

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As a result of the COVID-19 restrictions and supply bottlenecks, economic sentiment deteriorated compared to the previous quarter.

The results of the WIFO-Konjunkturtest (business cycle survey)<sup>1</sup> of January 2022 (beginning of the first quarter) show a weakening of business cycle dynamics compared to autumn. The WIFO Business Climate Index declined by 6.2 points compared to October (Table 1). However, at 12.9 points, it was around 26 points higher than in January 2021. At the monthly frequency, the decline was most pronounced in December, followed by a slight recovery, which can be attributed to the withdrawal of the official COVID-19 restrictions in mid-December. This picture is also reflected in the two sub-indices: the current situation assessments deteriorated compared to October (-6.5 points), but the corresponding index remained at 14.2 points (January 2022) noticeably above the zero line separating negative from

<sup>1</sup> The WIFO-Konjunkturtest (business cycle survey) is a monthly survey of Austrian companies on their current economic situation and the development in the coming months. Once a quarter, the questionnaire of the WIFO-Konjunkturtest (business cycle survey) is extended by additional questions ("quarterly questions") which provide relevant information on the business cycle but are not included in the monthly indices of the WIFO-Konjunkturtest (business cycle survey). The current results of the WIFO-Konjunkturtest (business cycle survey) are available on the WIFO website

positive assessments. The index of business expectations was 11.7 points in January and thus also noticeably below the autumn level (October 2021: 17.6 points).

There are differences in the development by sector: in manufacturing, the WIFO Business Climate Index decreased by 3.8 points compared to the previous quarter but was still clearly above the zero line at 16.9 points. The index of the current business situation deteriorated by 4.6 points compared to October and stood at 18.8 points. The index of business expectations lost 2.9 points and stood at 15.0 points. Both sub-indices were still clearly in positive territory.

By contrast, considering the construction industry, the WIFO Business Climate Index

(<https://www.wifo.ac.at/en/publications/wifo-konjunkturtest>) and on the Business Cycle Analyses topic page at WIFO [https://www.wifo.ac.at/en/topics/business\\_cycle](https://www.wifo.ac.at/en/topics/business_cycle) or [www.konjunkturtest.at](http://www.konjunkturtest.at)). Hölzl and Schwarz (2014) provide an overview of the WIFO-Konjunkturtest (business cycle survey). Detailed results on the subsectors of manufacturing and services can be downloaded as a graphical appendix (in German) from the project homepage [https://www.wifo.ac.at/en/research\\_priorities/wifo-konjunkturtest/publications](https://www.wifo.ac.at/en/research_priorities/wifo-konjunkturtest/publications)).

improved compared to October (+3.2 points to 38.7 points). While the index of the current business situation increased markedly (+9.4 points to 41.2 points), the index of

business expectations declined by 2.9 points to 36.4 points. However, both indices continue to reflect the optimistic mood in the domestic construction industry.

Figure 1: WIFO Business Climate Indices

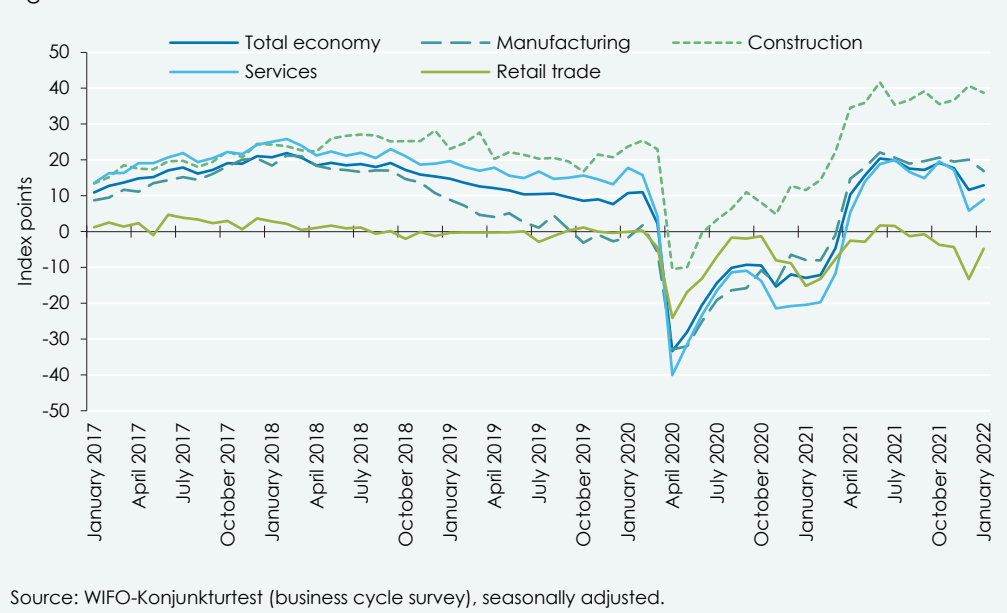


Table 1: Indices of the WIFO-Konjunkturtest (business cycle survey)

	2021						2022	
	January	April	July	October Index points	November	December	January	January Change compared to October (previous quarter)
<b>Total economy</b>								
WIFO Business Climate Index	- 13.0	10.3	19.9	19.2	17.7	11.6	12.9	- 6.2
Index of current business situation	- 13.4	8.7	22.9	20.7	19.1	11.7	14.2	- 6.5
Index of business expectations	- 12.5	12.0	16.9	17.6	16.3	11.5	11.7	- 6.0
<b>Manufacturing</b>								
WIFO Business Climate Index	- 7.9	14.8	20.6	20.6	19.5	20.1	16.9	- 3.8
Index of current business situation	- 8.2	13.7	24.4	23.4	19.4	21.9	18.8	- 4.6
Index of business expectations	- 7.6	15.9	16.8	17.9	19.7	18.2	15.0	- 2.9
<b>Construction</b>								
WIFO Business Climate Index	11.6	34.6	35.4	35.5	36.7	40.6	38.7	+ 3.2
Index of current business situation	18.7	40.9	35.6	31.8	33.5	37.1	41.2	+ 9.4
Index of business expectations	4.5	28.7	35.3	39.4	39.8	44.2	36.4	- 2.9
<b>Services sector</b>								
WIFO Business Climate Index	- 20.4	5.4	20.0	19.6	17.2	5.8	9.0	- 10.6
Index of current business situation	- 26.1	- 0.1	22.2	21.3	20.4	4.3	9.5	- 11.8
Index of business expectations	- 14.8	10.9	17.8	17.9	14.0	7.4	8.4	- 9.4
<b>Retail trade</b>								
WIFO Business Climate Index	- 15.2	- 2.6	1.6	- 3.7	- 4.3	- 13.3	- 4.8	- 1.1
Index of current business situation	2.2	5.4	9.0	- 1.7	- 2.9	- 6.3	- 3.1	- 1.4
Index of business expectations	- 32.6	- 10.5	- 5.9	- 5.7	- 5.8	- 20.3	- 6.5	- 0.8

Source: WIFO-Konjunkturtest (business cycle survey).

## Indices of the WIFO-Konjunkturtest (business cycle survey)

The indices of the WIFO-Konjunkturtest (business cycle survey) are calculated monthly at the sector level for manufacturing, construction, services and retail trade. The surveys are conducted monthly by WIFO (manufacturing, construction and services) and Austrian Institute for SME Research (retail trade). The sector indices are weighted (services 0.5, manufacturing 0.3, construction and retail trade 0.1 each) to calculate the "macroeconomic indices". The WIFO Business Climate Index aggregates two sub-indices that are reported separately:

- The Index of the current business situation is based on the monthly surveys on the assessment of the current situation and the development over the past three months. It is designed as a concurrent index that is ahead of the official short-term statistics simply because it is available at an early stage (around two months before the current data in the official statistics).
- The index of business expectations summarises those monthly questions that relate to developments in the months following the survey. It is designed as a leading indicator.

Details on the indices are provided by Hölzl and Schwarz (2014).

In the services sector, which is more strongly affected by COVID-19 restrictions, assessments deteriorated noticeably in the winter months: The WIFO Business Climate Index in January was 10.6 points below the level of October 2021 and with 9.0 points only in the average range, but still clearly above the zero line<sup>2</sup>. The index of the current business situation declined by 11.8 points to 9.5 points compared to October. The index of business expectations also deteriorated in January (-9.4 points compared to October), but was still in positive territory (8.4 points).

The economic indices for the retail trade, which WIFO calculates on the basis of surveys by Austrian Institute for SME Research, also show a deterioration compared to the previous quarter: the corresponding business

climate index in January was 1.1 points below the value of October and recorded -4.8 points below the zero line. The index of the current business situation declined slightly (-1.4 points compared to October) and at -3.1 points was most recently still in negative territory. The index of business expectations also deteriorated (-0.8 points) and, at -6.5 points, continues to signal a predominance of sceptical assessments.

A longer-term view of the WIFO Business Climate Indices shows the extent of the decline as a result of the COVID-19 crisis, but also a significant increase in the course of 2021. Also, the differences in the sectoral development compared to the previous quarters become visible (Figure 1).

## 1. Economic traffic light turns green after end of fourth lockdown

With the help of a Markov regime switching model, the probability with which the current values of the indicators of the WIFO-Konjunkturtest (business cycle survey) correspond to an improvement or deterioration of the business cycle estimates compared to the previous period is calculated in the WIFO-Konjunkturampel (economic traffic light) model (Glocker & Hölzl, 2015)<sup>3</sup>. The determined probability can correspond to one of three categories, which are collectively referred to as the "economic traffic light":

- In the "green area" (improvement), the probability is over two-thirds that the change in the current index values compared with the previous measuring point reflects an improvement in economic assessments.

- In the "red area" (deterioration), the probability is less than one third that the current index value represents an improvement over the previous measurement point.
- The indifference area lies between the "green" and "red" areas. In this case, the development of the economic assessments cannot be clearly assigned.

The probability of being in an improvement regime was assessed by the model as very high in January 2022 at 0.9. The WIFO-Konjunkturampel (economic traffic light) thus jumped back to green in January, after having shown red from September to December 2021. This change largely reflects the recovery of the economic indices in

<sup>2</sup> In December 2021, the business activity indices in the services sector declined sharply. As the detailed results by sector show, this decline was driven in particular by the particularly restricted sectors of accommodation and food services and transport, where the indices were clearly in negative territory. In January, the indices in accommodation and food services

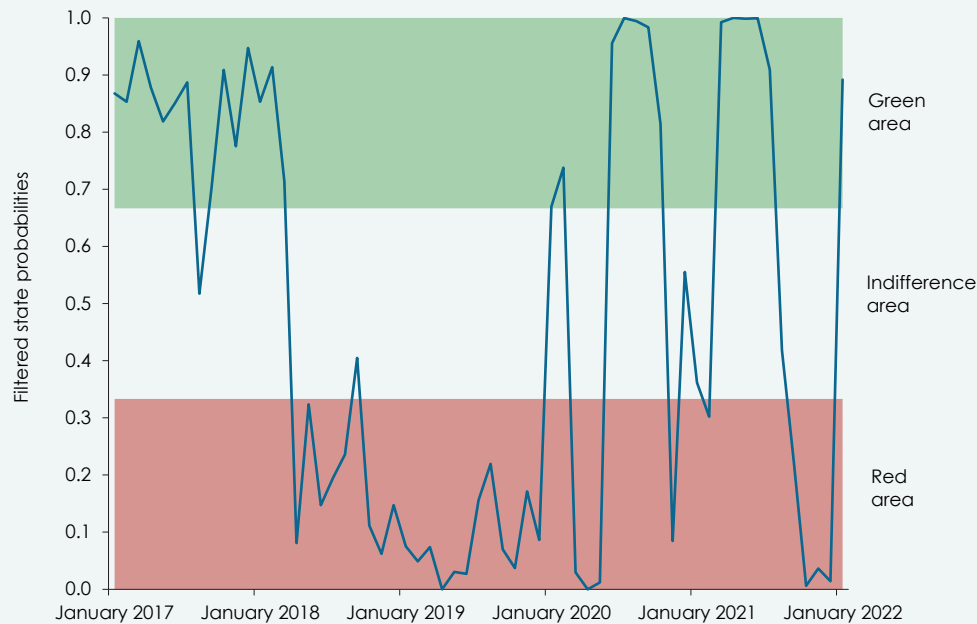
deteriorated further, while they recovered in the other segments.

<sup>3</sup> Deterioration is defined as the opposite state of the "improvement" state: the probability of being in the "improvement" state ( $q$ ) is 1 minus the probability of being in the "deterioration" state ( $p = 1 - q$ ).

January, which followed the lifting of the official measures in mid-December. However, whether this snapshot indicates a turnaround is questionable, even though the majority of domestic companies still expect their business situation to improve. The

imponderable effects of the Omikron wave, the resulting expected loss of labour due to quarantine, as well as supply bottlenecks are likely to pose challenges for companies and have the potential to dampen economic dynamics in the short term.

Figure 2: WIFO-Konjunkturampel (economic traffic light)



Source: WIFO-Konjunkturtest (business cycle survey). The WIFO-Konjunkturampel (economic traffic light) for Austria shows the monthly probability for the phases "improvement of business cycle assessments" ("green area") and "deterioration of business cycle assessments" ("red area"). In the indifference range, the development of business cycle assessments cannot be clearly classified.

## 2. Business uncertainty remains above average

Since the 1980s, the WIFO-Konjunkturtest (business cycle survey) has surveyed companies' assessment of the uncertainty of the future business situation, which has an influence on companies' investment and employment decisions (Glocker & Hölzl, 2022). In May 2021, the wording of the corresponding question was changed in the course of its inclusion in the Joint Harmonised EU Programme of Business and Consumer Surveys. In addition, since May the question on uncertainty has been asked monthly instead of quarterly as before. Due to these changes, comparisons over time to date are only possible to a limited extent (Figure 3).

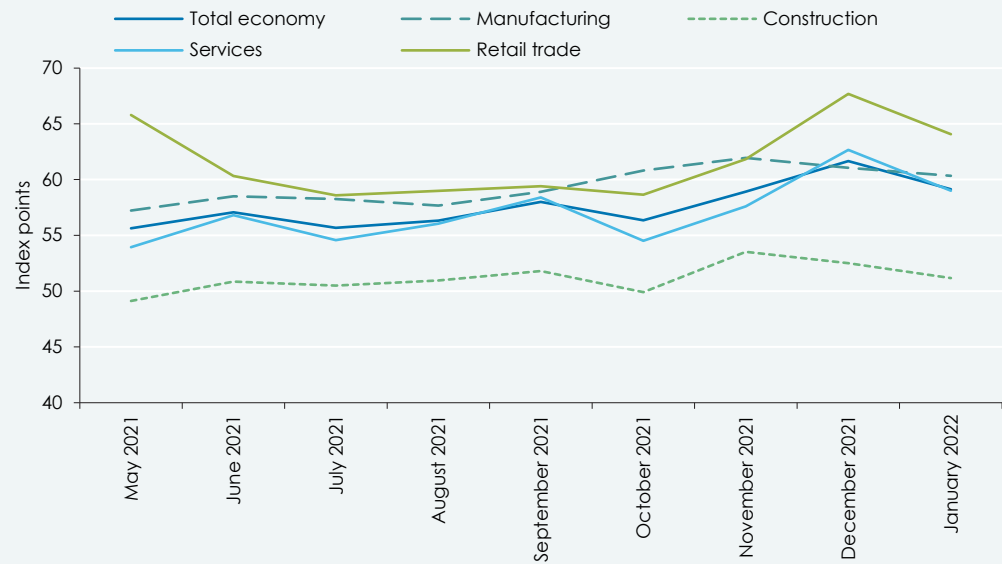
The indicator of uncertainty about the future business situation ranges from the value of 0 (no uncertainty) to 100 (highest uncertainty).

For the economy as a whole, the value in January (first quarter of 2022) was 59.1 points. The indicator was thus 2.8 points higher than in October (56.3 points), but lower than in December 2021 (61.7 points). According to the available monthly data, uncertainty was higher in December 2021 than in January 2022 during the fourth lockdown. However, uncertainty was still noticeably higher in January than in the summer. The COVID-19 pandemic and the winter 2021-22 curtailment measures caused uncertainty to rise in all sectors. In manufacturing (60.3 points) and retail trade (64.1 points) it was recently above average. In the services sector (59.0 points), uncertainty in January was similar to the overall economic average; it was lowest in the construction industry with 51.2 points.

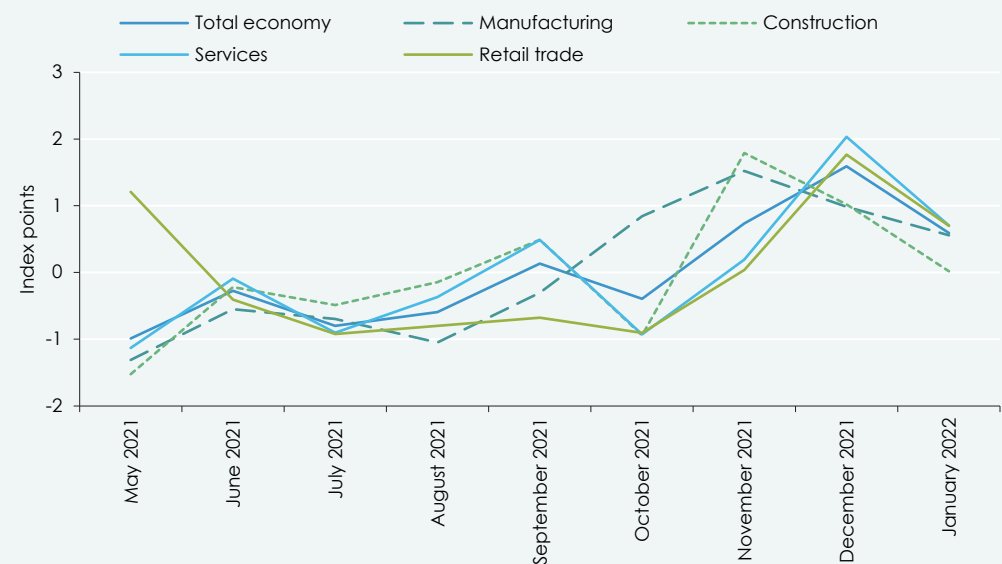
**Business uncertainty increased considerably compared to October. Compared to the previous month, however, there was a slight decline in January.**

Figure 3: **Aggregate and sectoral economic uncertainty indicators**

Indicator values



Standardised time series



Source: WIFO-Konjunkturtest (business cycle survey), not seasonally adjusted. 0 . . . no uncertainty, 100 . . . highest uncertainty. Standardised representation: normalisation of all indicators to a mean of 0 and a standard deviation of 1. This facilitates the comparison of the uncertainty indicator across sectors.

### 3. Capacity utilisation and order backlogs remain high

#### 3.1 Slight decline in capacity utilisation in the services sector

**Compared to October 2021, capacity utilisation increased in all sectors except services. In manufacturing, capacity utilisation improved despite supply bottlenecks.**

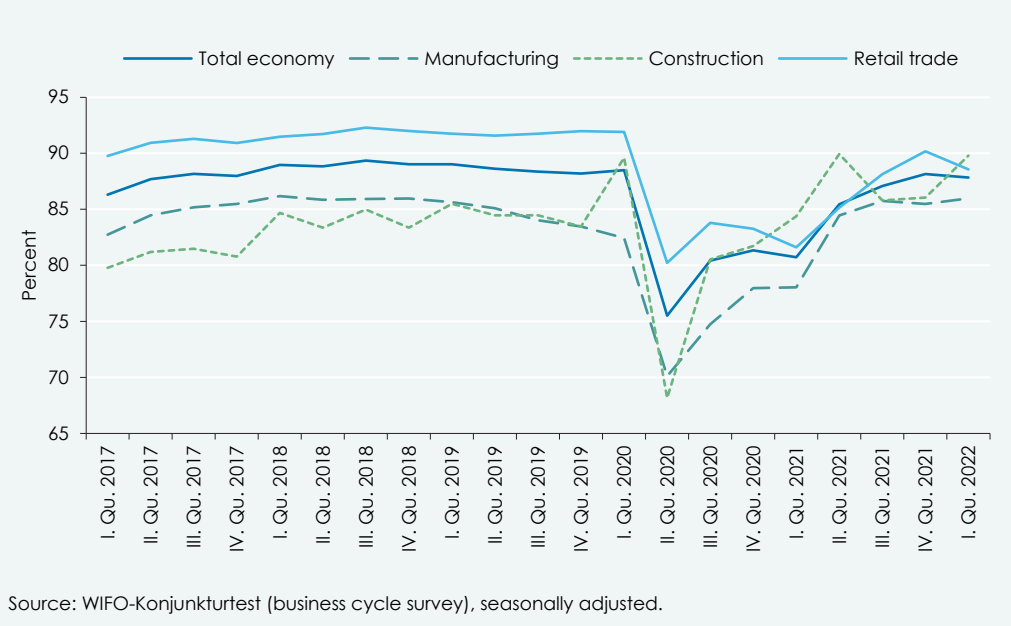
Especially in sectors with high capital intensity and high capacity adjustment costs, capacity utilisation is an important business cycle indicator (Hölzl et al., 2019). It is therefore surveyed as part of the WIFO-Konjunkturtest (business cycle survey) in all sectors except retail trade, where it has only limited informative value. Overall economic capacity utilisation fell by 0.3 percentage points to 87.8 percent in January compared to October 2021. In contrast to the other sectors,

capacity utilisation in the services sector recently declined (-1.6 percentage points) and was 88.6 percent, slightly below the long-term average. Especially in accommodation and food services, capacity utilisation suffered from the recent COVID-19 measures. In construction, capacity utilisation increased most recently (+3.8 percentage points compared to October 2021) and was above the long-term average at 89.8 percent. A slight increase was also recorded in manufacturing (+0.5 percentage points): at 86.0 points, capacity utilisation here was again more clearly above the

long-term average before the COVID-19 crisis. This shows that supply bottlenecks did restrict production, but not to the extent that capacity utilisation would have fallen as a

result. In their outlook for investment activity in 2022, domestic manufacturers of tangible goods also recently expressed confidence (Friesenbichler & Hölzl, 2021).

Figure 4: Capacity utilisation by sectors



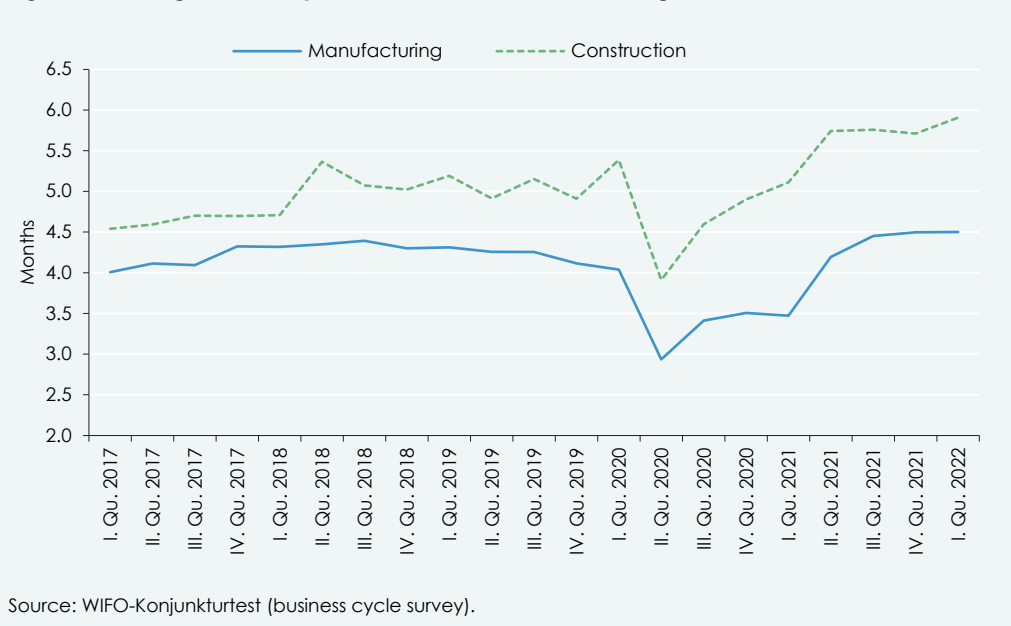
Source: WIFO-Konjunkturtest (business cycle survey), seasonally adjusted.

### 3.2 Assured production duration remains high

The assured production duration – measured in months – is surveyed in the framework of the quarterly survey of the WIFO-Konjunkturtest (business cycle survey) in manufacturing and construction (Figure 5). In January, the average values in both sectors were higher than in the previous quarter.

In the construction industry, companies reported that their production activity is secure for the next 5.9 months. This corresponds to an increase of 0.2 months compared to October 2021 and marks a new long-term high. In manufacturing, the average assured production duration remained almost unchanged at 4.5 months and was thus above the long-term average, as in the previous quarter.

Figure 5: Average secured production time in manufacturing and construction



Source: WIFO-Konjunkturtest (business cycle survey).



Figure 6: **Development of overall orders and expected export orders in manufacturing**



**In manufacturing, order books and expectations for foreign order books improved, but momentum weakened further.**

### 3.3 Order situation in manufacturing less dynamic recently

In manufacturing, questions about new orders and expectations of incoming foreign orders are asked once a quarter in order to generate relevant indicators. The answers to these questions are aggregated into balances between the share of positive and the share of negative answers. As Figure 6 shows, order books in January (first quarter)

no longer developed as dynamically as in the previous quarters, but the corresponding indicator remained clearly in positive territory with a balance of 19.8 points. Expectations regarding foreign order books also remained mostly optimistic. However, the share of voices expecting an increase in foreign orders in the coming months declined compared to October, the positive reports outweighed the negative ones by only about 4.0 percentage points.

## 4. Barriers to business activity: insufficient demand gains some importance, labour and material shortages remain most important barriers

In the WIFO-Konjunkturtest (business cycle survey), the most important obstacles to the business activity of the companies surveyed are collected on a quarterly basis. The companies have the option to report no constraint of their economic activity or to choose the most important obstacle from a given list:

- insufficient demand (services and manufacturing) or lack of orders (construction),
- shortage of labour force,
- shortage of space or capacity (services) or shortage of materials and/or capacity (manufacturing and construction),
- financing constraints and
- other reasons – this category mainly reflects the impact of the COVID-19 crisis and the public health restrictions to contain it, in addition to the weather impact.

In the construction industry, the additional obstacle "unfavourable weather conditions" is raised<sup>4</sup>.

Across all sectors, business activity continues to be subject to constraints despite positive trends. In January 2022, only around 31 percent of companies in manufacturing (+6 percentage points compared to October), around 31 percent of construction companies (+10 percentage points), around 33 percent of companies in services (+2 percentage points) and around 33 percent of retail companies (+4 percentage points) reported no obstacle at all. In "normal" years, these values are over 50 percent.

In manufacturing, in January 2022, for the fourth time since the surveys began, "shortage of materials and/or equipment" was the most frequently reported most important obstacle to production activity (35.0 percent of

<sup>4</sup> In the calculation of macroeconomic barriers, "unfavourable weather conditions" is classified under "other barriers".

all companies), ahead of "shortage of labour force" (23.8 percent). Only 7.8 percent of tangible goods producers still reported "insufficient demand" as the most important obstacle, 2.2 percent "other obstacles" and less than 1 percent "financing problems" (Figure 7). Compared to spring and summer 2021, the share of tangible goods producers facing production obstacles increased significantly; here, "shortage of material and/or equipment" in particular gained in importance. The reason for this is the shortage of industrial intermediate products and raw materials due to problems in international freight traffic and a backlog of orders. In addition to the "shortage of material and/or

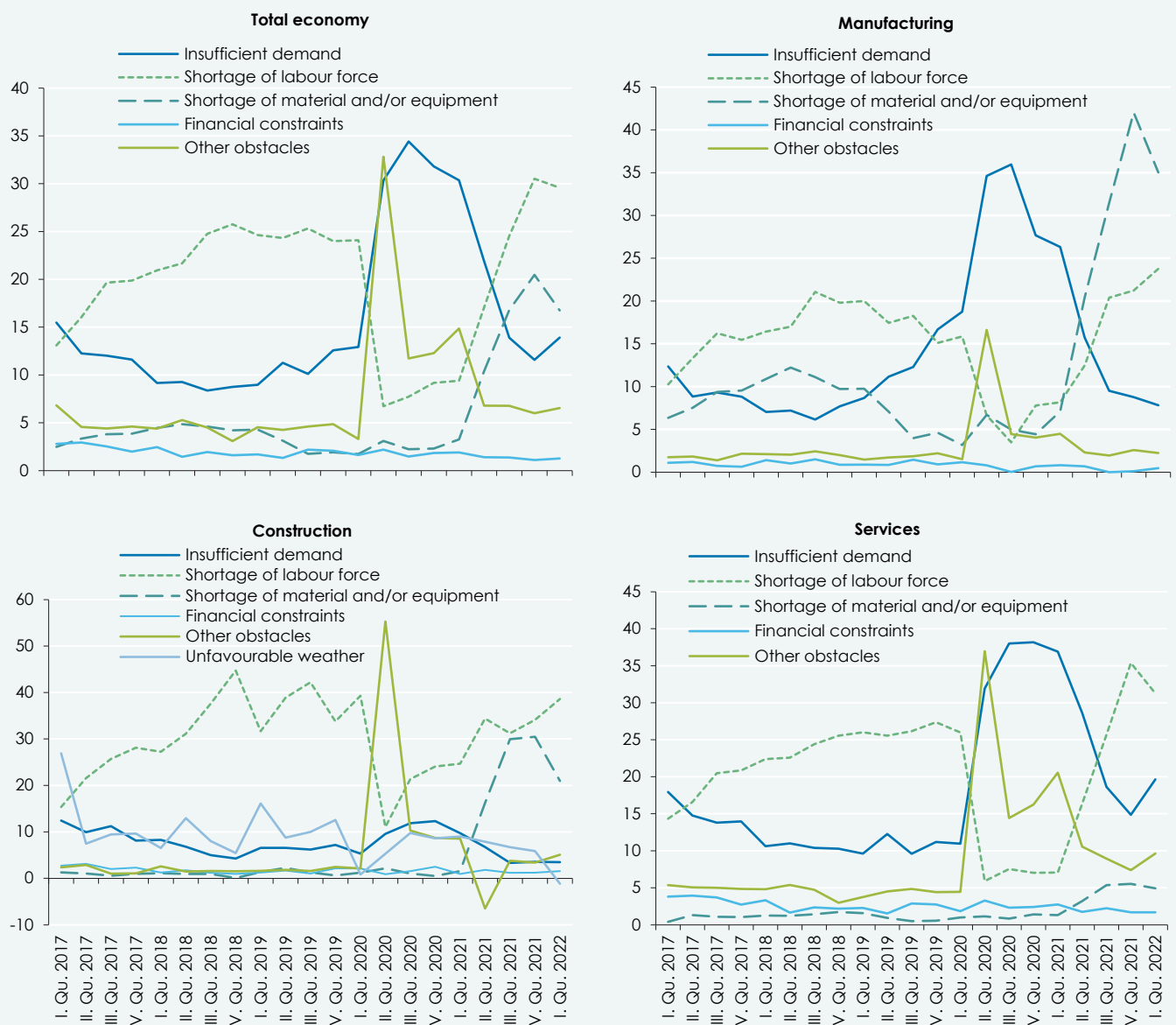
equipment", the "shortage of labour force" is an increasingly relevant obstacle to business activity in manufacturing.

In the construction industry, around 38.6 percent of the companies surveyed reported a "shortage of labour force" as the most important obstacle to construction activity in January, ahead of a "shortage of materials and/or equipment" (around 21.0 percent), "other obstacles" (around 5.1 percent) and a "insufficient demand" (around 3.5 percent). Thus, the importance of the shortage of materials in the construction industry declined quite significantly since the last report in October.

As in the previous quarters, "shortage of materials and/or equipment" was the most important constraint on manufacturing production in January 2022. Supply bottlenecks also continued to affect business activity in the construction and retail sectors.

Figure 7: Factors limiting economic activity

Percentage shares of all reporting enterprises



Source: WIFO-Konjunkturtest (business cycle survey), seasonally adjusted. In order to ensure the comparability of the time series during the year, seasonally adjusted values are shown. Negative values cannot be excluded due to the seasonal adjustment procedure "Dainties". These are statistical artefacts.

In the services sector, "shortage of labour force" (31.2 percent) was the most important constraint on business activity in January, ahead of "insufficient demand" (19.7 percent) and "other obstacles" (9.6 percent). The latter two obstacles have lost noticeably in importance since the spring. The "shortage of material and/or equipment" (4.9 percent) and "financing constraints" (1.7 percent) play only a minor role in the service sector.

In the retail sector, the obstacles to doing business have been surveyed since July 2021. 29.6 percent of retail respondents reported "supply shortages" as the most important constraint to their business activity in January, 27.1 percent an "insufficient demand" and around 8 percent a "shortage of labour force". This shows that the retail sector is not only suffering from the COVID-19 measures, but also continues to suffer from

international logistics problems and supply bottlenecks.

The aggregate indicator for the economy as a whole (excluding retail trade) shows a slight increase in the importance of "insufficient demand" in January. The share of companies that named it as the most important obstacle to production rose to 13.9 percent. As in the past, the most frequently cited obstacle was the "shortage of labour force" (January 2022: 29.6 percent of companies). For around 16.7 percent of the companies, the "shortage of materials and/or equipment" was the main constraint on their business activity. Although there is a slight easing here, this is the third highest value since the survey began. This reflects the continuing importance of the supply crisis, which particularly affects manufacturing, construction and retail.

## 5. Summary

The results of the WIFO-Konjunkturtest (business cycle survey) of January 2022 show a weakening of economic dynamics in a quarterly comparison for all sectors with the exception of the construction industry. The renewed COVID-19 restrictions (fourth general lockdown and lockdown for the unvaccinated) led to losses in the services sector, especially in accommodation and food services. Industrial activity also lost momentum. In the retail sector, economic assessments remained rather negative. Due to the fourth wave of COVID-19 and the resulting need for retrenchment measures, business uncertainty increased markedly quarter-on-quarter in all sectors. However, capacity utilisation also increased in most sectors compared to October 2021. Only in the services sector was utilisation down, which was mainly due to the regulatory restrictions and depressed overall economic capacity utilisation. New orders in manufacturing remained rather favourable despite a slowdown in momentum. Expectations for the

future development of foreign orders remained mostly optimistic, albeit only just.

As in the previous quarters, the shortage of labour force was the most frequently cited obstacle to business activity in January, ahead of the shortage of materials or capacity and insufficient demand. The insufficient demand recently gained in importance again, especially in the service and retail sectors. On the one hand, the results are an expression of the continued favourable economic situation, but on the other hand, they reflect the effects of supply bottlenecks, international logistics problems as well as the COVID-19 restrictions, in addition to structural demographic problems. Shortages of materials and inputs have eased somewhat recently, but continue to hamper business activity in manufacturing, retail and construction. The service and retail sectors were particularly affected by the measures to contain the pandemic.

## 6. References

- European Commission (2021). *The Joint Harmonised EU Programme of Business and Consumer Surveys: User Guide*. [https://ec.europa.eu/info/sites/info/files/bcs\\_user\\_guide\\_en\\_0.pdf](https://ec.europa.eu/info/sites/info/files/bcs_user_guide_en_0.pdf).
- Friesenbichler, K.S., & Hölzl, W. (2022). Unternehmen wollen Investitionen 2022 ausweiten. Ergebnisse der WIFO-Investitionsbefragung vom Herbst 2021. *WIFO-Monatsberichte*, 95(1), 31-39. <https://monatsberichte.wifo.ac.at/69338>.
- Glocker, C., & Hölzl, W. (2015). Bestimmung einer Konjunkturampel für Österreich auf Basis des WIFO-Konjunkturtests. *WIFO-Monatsberichte*, 88(3), 175-183. <https://monatsberichte.wifo.ac.at/57854>.
- Glocker, C., & Hölzl, W. (2022). A direct measure of subjective business uncertainty. *German Economic Review*, 23(1), 121-155. <https://doi.org/10.1515/ger-2021-0025>.
- Hölzl, W., & Schwarz, G. (2014). Der WIFO-Konjunkturtest: Methodik und Prognoseeigenschaften. *WIFO-Monatsberichte*, 87(12), 835-850. <https://monatsberichte.wifo.ac.at/50863>.
- Hölzl, W., Klien, M., & Kügler, A. (2019). Konjunktur schwächt sich weiter ab. Ergebnisse der Quartalsbefragung des WIFO-Konjunkturtests vom Oktober 2019. *WIFO-Monatsberichte*, 92(11), 807-819. <https://monatsberichte.wifo.ac.at/62094>.