BUREAU for ECONOMIC RESEARCH

SURVEY PUBLICATION | FIRST QUARTER 2025

# Manufacturing

## Quarterly analysis of manufacturing activity

Volume 40 Number 01

Stellenbosch UNIVERSITY IYUNIVESITHI UNIVERSITEIT

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Please refer to the glossary on the BER's website for explanations of technical terms.


ISSN 0258-9338

# Executive summary

According to the latest Absa Manufacturing Survey, business confidence in the factory sector declined by 2 points to reach a level of 34 in 2025Q1. This follows an 8-point increase in confidence in 2024Q4 after confidence was unchanged at 28 points in Q3 from Q2. Despite the slight decline in confidence in Q1, this remains one of the highest confidence levels in the last three years. The subsector results were mixed, with almost a half-half split in subsectors gaining or losing confidence.

**Domestic demand remains under pressure as domestic sales contracted significantly while global markets recovered strongly**. In the domestic market, sales of consumer goods were stable, while intermediate goods and capital goods sales deteriorated. The overall decline in domestic sales follows a solid Q4. On the global market, export volumes expanded, but export selling price inflation slowed further.

**Production volumes increased in most subsectors.** There were also improvements on the employment front, with fewer reported layoffs than before. However, the number of hours worked per worker decreased slightly. On the back of higher output, capacity underutilisation declined slightly. A stronger rand and a lower fuel price (relative to 2024Q1) helped lower production costs, with more production volumes pushing down the cost increase rate per unit produced.

**Following two quarters of growth, respondents reported no change in fixed investment from a year ago**. Furthermore, the political climate constraint ticked up after three consecutive declines. This could be driven by local factors (for example, the brief return of load-shedding or concerns about the stability of the Government of National Unity (GNU) or global factors, such as concerns about the souring of diplomatic relations between the US and South Africa.

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# Introduction

Gross value added by the South African (SA) manufacturing sector declined by -0.6% quarter-on-quarter (q-o-q) in the fourth quarter of 2024 (2024Q4), following 0.3% growth in Q3. The latest Absa Manufacturing Survey suggests that the sector may be turning the corner, as there are signs of recovery in the survey's output indicator after 10 quarters of contractions.

This report provides an overview of the situation in the manufacturing sector as it developed during 2025Q1 and expectations for 2025Q2 and 12 months hence. The main section of the report discusses the trends in the overall manufacturing industry with the assistance of graphs, followed by a brief outlook for the sector. After this section, separate tables and graphs of the survey data are provided for each sector and province.[1]

# An overview of the latest official data

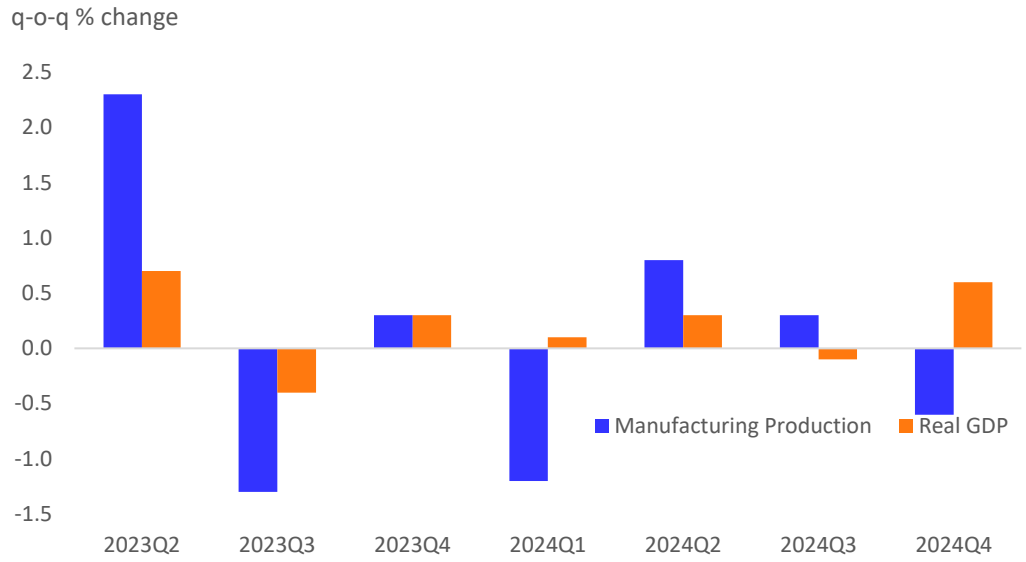
## SA REAL GDP EXPANDS IN 2024

**The SA economy grew by 0.6% in 2024 compared to 0.7% in 2023.** This means that the growth rate slowed from 2023 and generally came in below consensus forecasts formulated at the beginning of the year (and even the consensus ahead of the 2024Q4 GDP publication). Six of the ten industries in the economy expanded (most notably finance and utilities), but declines in agriculture, construction, trade and transport countered this. On a quarterly basis, the economy returned to growth in Q4 with a 0.6% q-o-q expansion on the back of a strong rebound in the agricultural industry (+17.2% q-o-q following a revised 19.7% drop in Q3). As illustrated in Figure 1, the manufacturing sector contracted in Q4 following two quarters of growth. The average Absa Purchasing Managers' Index (PMI) for 2024Q4 was 49 points, thus below 50 points and pre-empting that the manufacturing sector would likely contract. On an annual basis, value added by the manufacturing industry decreased by 0.5% in 2024, following 0.3% growth in 2023 and a 0.4% contraction in 2022.

**Looking at the manufacturing production as reported by the monthly Stats SA statistics, output in the sector decreased by 0.4% in 2024 compared to 2023.** The manufacturing sector has been under pressure for some time. The most significant contractions came from the motor vehicles and transport equipment subsector, which declined by 13.3% (-1.2%pts) and the metals subsector, which decreased by 2.9% (-0.6%pts). On the other hand, the food and beverages subsector experienced strong growth of 3.7% (0.9%pts), followed by the chemicals subsector (2.6%; 0.5%pts).

[1] The Manufacturing Survey separately covers eight of the main subsectors of the manufacturing industry as well as the three main provinces (Gauteng, KwaZulu-Natal and the Western Cape).

**Figure 1: The manufacturing sector subtracts from 2024Q4 GDP growth**




*Source: Stats SA*

**The latest Absa PMI suggests that the manufacturing sector remained under pressure at the beginning of 2025**. Following a loss of momentum towards the end of the year (later confirmed with the official data), the headline PMI index came in at 45.3 points in February, following 44.7 points in January – both below the 50-point mark, indicative of a contraction. According to Stats SA, seasonally adjusted manufacturing production increased slightly by 0.2% in January 2025 compared with December 2024. This followed a month-on-month contraction of -2.2% in December 2024 and -1.2% in November 2024. Indeed, output was still down by 3.3% y-o-y.

## GLOBAL MANUFACTURING IMPROVES FURTHER

**The latest J.P. Morgan global manufacturing PMI rose to an eight-month high of 50.6 in February, up from 50.1 points in January.** The global manufacturing sector moved further into expansionary territory as operating conditions improved for a second consecutive month. Three of the five PMI sub-indices reached levels consistent with improved operating performance as both output and new orders rose for a second consecutive month, and supplier delivery times were lengthened due to high orders. Employment and inventories (stock of purchases) registered further contractions. Business optimism rose to a nine-month high. However, price pressures continued rising, with input costs and selling prices rising faster. Expansions in output growth were registered in the consumer and intermediate goods sectors, with consumer goods accelerating much faster. At the same time, production stabilised in the investment goods space following an eight-month downturn. The US, India, Brazil and Indonesia registered the highest PMIs in February. China's operating conditions improved to a three-month high as output and new orders increased, and the PMI remained above the 50-point mark for a fifth consecutive month. Contractions were recorded in the Eurozone (EZ), the UK, and Japan, among others. Within the EZ, Spain contracted and fell below the 50-point mark for the first time in thirteen months. Ireland reached a 12-month high at 51.9 points, and other EZ countries experienced softer contractions.

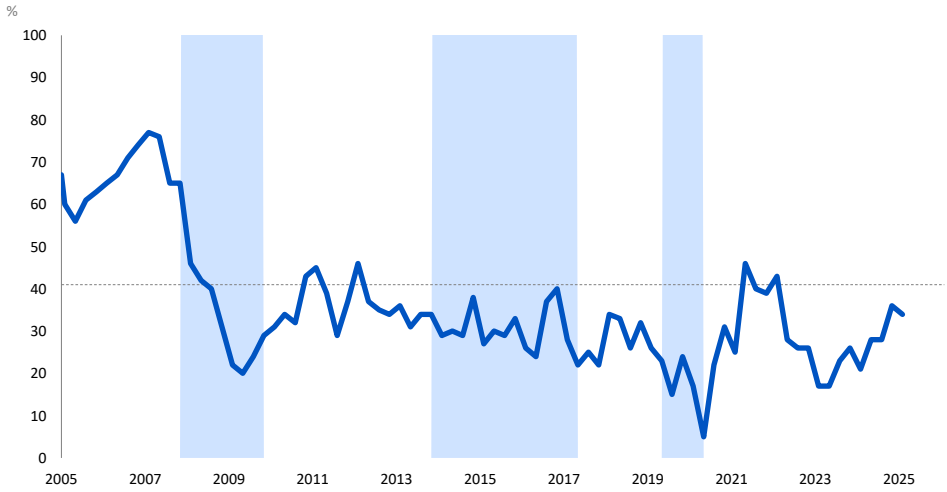
# The 2025Q1 Absa Manufacturing Survey results

## MANUFACTURING BUSINESS CONFIDENCE DECLINED IN Q1[2]

**Manufacturing business confidence decreased by 2 points to 34 index points in 2025Q1, following an 8-point rise in confidence in 2024Q4.** Confidence was at 28 points in both 2024Q3 and Q2. The confidence index edged slightly below the long-term average of 35 index points in 2025Q1. This is the first time the confidence level has declined since 2024Q1 when confidence fell from 26 to 21 points. The confidence level remained above 30 points for a second consecutive quarter, levels last seen in 2022Q1. Still, at the current level, over 6 out of 10 respondents are unsatisfied with current business conditions.

**Despite both losing 3 points in 2025Q1, confidence was highest in the consumer goods segment (42), followed by intermediate goods (31), while confidence went up by 3 points in the capital goods sector to 29 points.** The driver of confidence remains the consumer goods market. With strong support from sales and production volumes, confidence in consumer goods remains upbeat, and it is the only product segment where confidence is above its long-term average (42 vs 39). In contrast, capital goods confidence is 4 points below, and intermediate goods is 3 points below the long-term average.

**Figure 2: Over 6 of the 10 respondents are not satisfied with the current business conditions**




*Source: BER*

**The subsector results are mixed, of the eight major manufacturing subsectors whose results are separately published, four experienced a drop in confidence, three experienced a rise in confidence, and the furniture and other manufacturing subsector experienced no change (however, confidence remains low)**. The metals subsector confidence decreased by 12 points to 29, below the long-term average of 34 points. The underlying indicators in the subsector remain relatively strong, so sentiment may have soured due to concerns about the continuation of longs steel production of ArcelorMittal and the impact thereof in the broader

[2] The 2025Q1 Manufacturing Survey was conducted between 5-24 February.

sector. While the announcement of the permanent closure of its long business on 28 February was after the survey period, it was fairly certain for some time that it would close. Confidence in the chemicals subsector decreased by 11 points to 31 due to fluctuating raw material prices and depressed demand, among others, and electricity and water supply issues were mentioned as significant constraints on the production side. Other sectors with a decrease in confidence were textiles, losing 15 points, and the glass sector, losing 2 points.

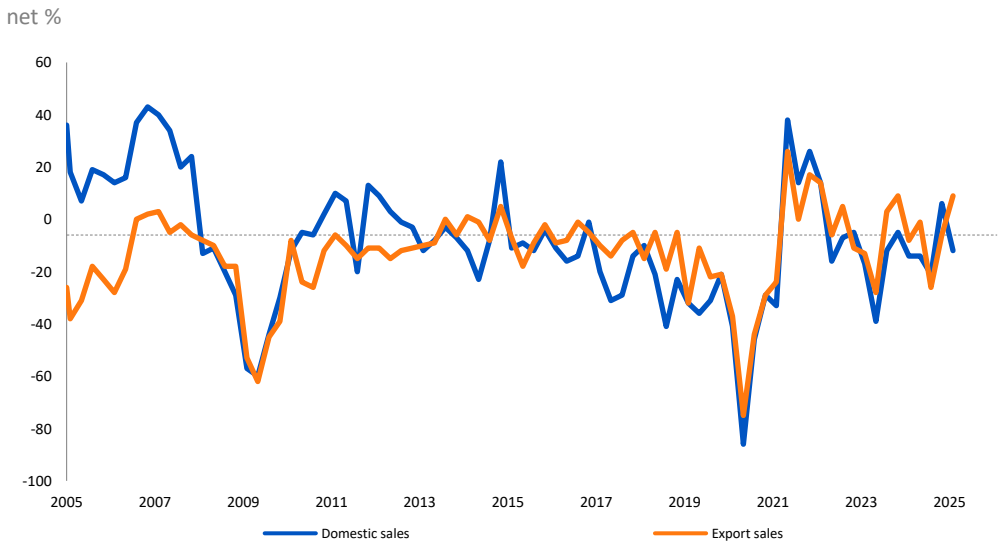
**On the positive side, the food and beverages subsector gained 6 points to the highest confidence level of the subsectors surveyed, at 58 points in Q1.** This was the second quarter confidence was in positive terrain. Higher sentiment was due to favourable market conditions as domestic and export sales grew significantly. Lower food inflation may allow manufacturers to push more sales volumes. Confidence in the transport subsector rose by 14 points, and the rise in confidence may be supported by the expectation of better domestic sales volumes from a somewhat stronger consumer and a reported recovery in export sales. The wood and wood products subsector saw an increase of 18 points to 43 points as export sales increased.

## DOMESTIC SALES DECLINE WHILE GLOBAL DEMAND RECOVERS

**Following a very positive Q4, a net majority of 12% reported a decrease in domestic sales volumes in 2025Q1, reverting to the levels of 2023Q3.** Domestic sales of consumer goods remained unchanged at 18 points. However, a large decline in the sales of intermediate goods (-28 points) and capital goods (-24 points) contributed to the overall decrease in sales.

**The indicator tracking domestic selling price inflation ticked down further, losing 8 points to 28 points.** This is the lowest rate of increase in over five years since the 19 points of 2020Q3. The selling price indicator edged below the 32-point long-term average, consistent with the downward inflation trend. The relatively stronger rand in this period reduced imported material costs, which contributed to a decline in production costs.

**Figure 3: Domestic and export sales volumes**




*Source: BER*

**Export sales continued the recovery trend we saw in 2024Q4 and gained 15 points to 9 points in 2025Q1, meaning that a net majority of 9% reported an increase in export sales.** This export sales level is the same as 2023Q3 and follows the 20-point gain of Q4. On a positive note, a net majority of 21% expects export volumes to increase in 12 months.

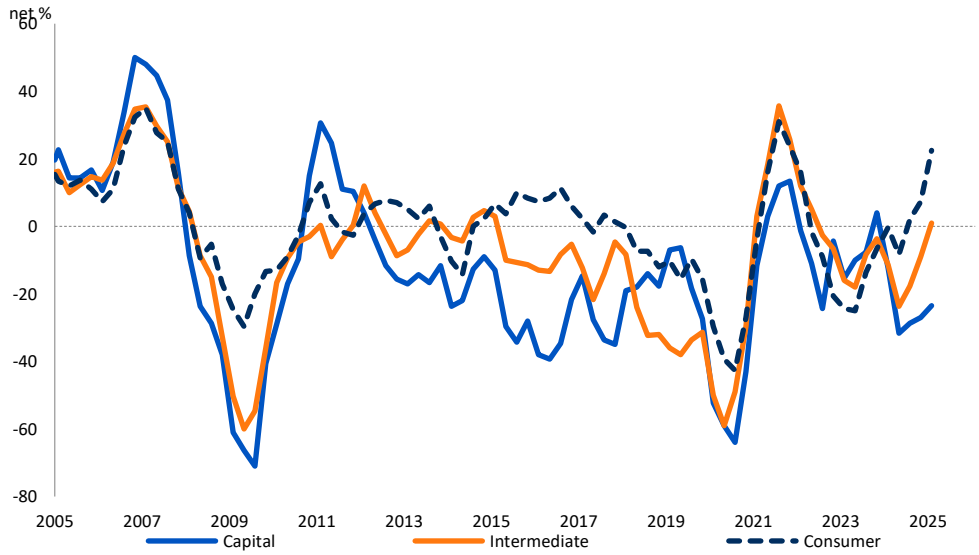
**However, export selling price inflation slowed down further.** At 17 points, this is the lowest level in exactly four years, where it stood at 17 points in 2021Q1, and in line with the global disinflation trend, with a stronger rand also influencing this trend. From a turnover perspective, growth in sales volumes helped improve revenue losses from slower price increases.

## PRODUCTION VOLUMES NORMALISE AMID FEWER DISRUPTIONS IN Q1

**The seasonally adjusted production indicator gained 7 points to 0.** This technically means that respondents reported no change in production relative to the same period last year. This is the first time since 2022Q2 that a net majority of respondents did not see a decline; thus, it is a relatively positive signal. At a provincial level, production growth was the strongest in the Western Cape, where a net majority of 27% experienced growth in production, followed by Gauteng (a 9-point gain). Meanwhile, in KwaZulu-Natal, a net majority of 28% reported production declines.

**From a subsector level, in the food and beverages subsector, a net majority of 41% recorded an increase in production – a 24-point gain from last quarter**. Despite struggling sales, a net majority of 25% of respondents in the chemicals subsector saw an increase in production, down from the 55% growth last year. In contrast to the decline in confidence in the metals subsector, there was a slight improvement in production volumes. As illustrated in Figure 4, significant production growth came from consumer goods (a 16-point gain, largely driven by food and beverages) amid strong demand. Intermediate goods saw gains of 10 points, while capital goods production gained only 3 points, and a net majority of 24% in the capital goods space still reported production declines.

**Figure 4: Production volumes by product segment**




*Source: BER*

**The indicator tracking the average rate of increase in per unit production costs decreased further by 3 points to a more than five-year low of 58 points in 2025Q1.** A significant decline in the hours worked may have also contributed to lower wage and overtime payments. The indicator tracking average labour cost per unit also decreased by 19 points despite a slight improvement in employment. Furthermore, a stronger rand exchange rand and a lower oil price (relative to 2024Q1) would have been positive for cost pressure. Indeed, the indicator tracking the average cost of raw materials per unit rose by 6 points but remained at the lowest levels in five years. As production volumes increased, the average cost per unit would have come down.

**In 2025Q1, the stock of finished goods relative to expected demand declined.** Inventory levels are relatively subdued, returning to the low levels seen in late 2023, but remain sufficient.

## FIXED INVESTMENT REMAINS SUBDUED

**The level of fixed investment showed no change in 2025Q1 compared to the same quarter last year.** While respondents generally rate the constraints surveyed as less serious than before, the political climate constraint rose notably following a decline in the second half of 2024. The second most serious constraint was insufficient demand.

**Indeed, while the constraints surveyed generally point to a less difficult trading environment, the seriousness of the political climate constraint on the ability to do business rose in Q1 following three declines.** While the reason for the increase in the constraint is not asked for specifically, it may be the concerns about the global environment, with US President Donald Trump's policies being erratic and generally not seen as conducive to a small open economy like SA. On the local front, more strained relations between the members of the Government of National Unity (GNU) could have contributed or the souring of relations between the US and S. At the same time, the brief return of load-shedding may have been negative. Still, the constraint index remains below the pre-GNU heights.

**On the positive side, a net majority of 8% of respondents plan to increase total fixed investment in 12 months**. A net majority of 9% plan to increase investments in machinery and equipment in 12 months. This suggests businesses are still seeing a business case to invest.

## OUTLOOK

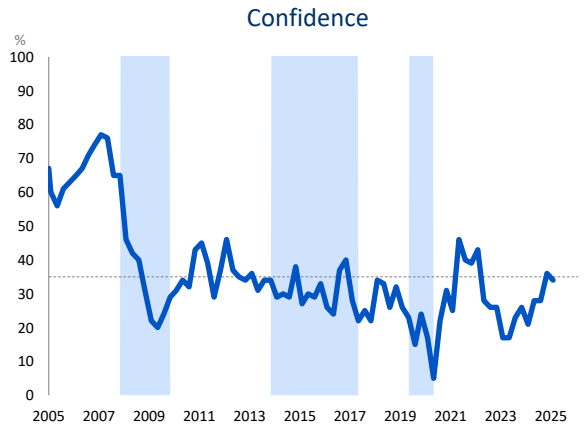
**The biggest hurdle to the manufacturing sector's recovery seems to be weak local demand.** However, forward-looking expectations are much better than the long-term averages. Production is expected to increase further, and domestic demand to improve. As much as the manufacturers are more downbeat about future business conditions compared to 2024Q4, the current level of -5 remains above the long-term average of -15 points. The subsector outlook is mixed. The food and beverages subsectors are doing quite well and will most likely continue to perform due to strong demand and production, with prospects for the linked agriculture sector to be positive for 2025. The pressures on the metals subsector are set to continue with the closure of the ArcelorMittal long steel factory, which will cause shortages and increase the reliance on imports, exposing the sector to many global shocks. This may filter through to the transport sector.

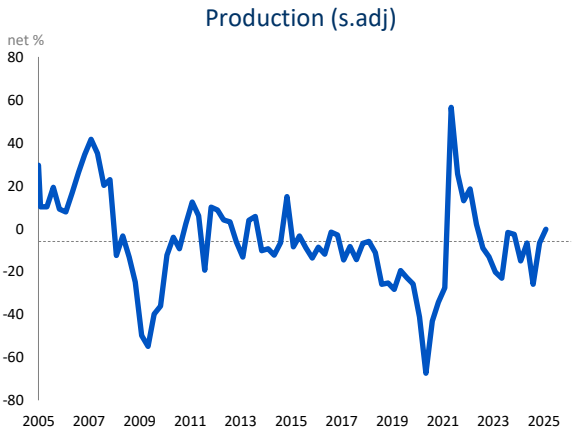
**The most positive takeaway from the survey results is that despite a downtick in confidence in Q1, manufacturers still plan to increase investment in 12 months' time.**

# Survey results

## MANUFACTURING: TOTAL[3]

| Indicator | Unit | μ-σ | μ | μ+σ | 23Q2 | 23Q3 | 23Q4 | 24Q1 | 24Q2 | 24Q3 | 24Q4 | 25Q1 | Δ | $\sigma_\Delta$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Confidence | % | 20 | 35 | 50 | 17 | 23 | 26 | 21 | 28 | 28 | 36 | **34** | -2 | 7 |
| **Activity & prices** | | | | | | | | | | | | | | |
| Production | Net % | -28 | -6 | 16 | -34 | -4 | 9 | -14 | -17 | -29 | 6 | **0** | -6 | 18 |
| Seasonally adjusted | Net % | -28 | -6 | 15 | -23 | -2 | -3 | -15 | -7 | -26 | -7 | **0** | 7 | 16 |
| Employment | Net % | -29 | -16 | -3 | -19 | -18 | -2 | -21 | -23 | -28 | -23 | **-12** | 11 | 10 |
| Average hours worked / worker | Net % | -29 | -14 | 2 | -32 | -16 | 5 | -5 | -27 | -24 | -13 | **-23** | -10 | 13 |
| Domestic sales | Net % | -33 | -9 | 14 | -39 | -12 | -5 | -14 | -14 | -21 | 6 | **-12** | -18 | 18 |
| Domestic selling prices | Net % | 17 | 32 | 47 | 31 | 45 | 33 | 38 | 39 | 37 | 30 | **22** | -8 | 12 |
| Export sales | Net % | -29 | -13 | 4 | -28 | 3 | 9 | -8 | -1 | -26 | -6 | **9** | 15 | 15 |
| Export selling prices | Net % | 2 | 20 | 37 | 29 | 30 | 30 | 21 | 24 | 36 | 26 | **17** | -9 | 13 |
| Production costs | Net % | 50 | 64 | 78 | 84 | 77 | 68 | 68 | 65 | 75 | 61 | **58** | -3 | 12 |
| **Stocks & investment** | | | | | | | | | | | | | | |
| Finished goods rel. to demand | Net % | 1 | 10 | 18 | -4 | 3 | 2 | -5 | 11 | 19 | 22 | **8** | -14 | 7 |
| Smoothed | Net % | 2 | 10 | 17 | -2 | 0 | 0 | 3 | 8 | 17 | 16 | **15** | -1 | 5 |
| Capacity underutilisation | % | 66 | 72 | 79 | 78 | 69 | 73 | 74 | 63 | 73 | 76 | **70** | -6 | 5 |
| Smoothed | % | 67 | 72 | 78 | 74 | 73 | 72 | 70 | 70 | 71 | 73 | **73** | 0 | 4 |
| Fixed investment | Net % | -15 | -1 | 14 | -20 | -12 | -13 | -17 | -5 | 5 | 11 | **0** | -11 | 10 |
| **Constraints** | | | | | | | | | | | | | | |
| Insufficient demand | Net % | 55 | 62 | 70 | 58 | 60 | 61 | 65 | 60 | 68 | 66 | **63** | -3 | 4 |
| Political climate | Net % | 48 | 66 | 83 | 86 | 84 | 82 | 85 | 84 | 63 | 60 | **77** | 17 | 6 |
| **Expected in 12 months** | | | | | | | | | | | | | | |
| Business conditions | Net % | -34 | -15 | 5 | -59 | -29 | -33 | -46 | -26 | 6 | -1 | **-5** | -4 | 16 |
| Smoothed | Net % | -31 | -15 | 2 | -44 | -40 | -36 | -35 | -22 | -7 | 0 | **-3** | -3 | 13 |
| Fixed investment | Net % | -16 | -1 | 13 | | -8 | | -20 | | 14 | | **8** | -6 | 14 |



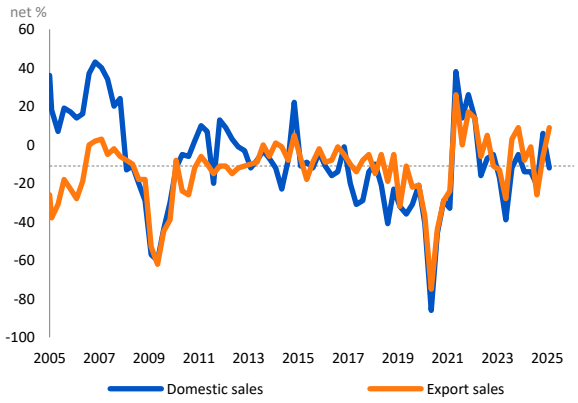




[3] The total consists of 1) food & beverages, 2) textiles, clothing, leather & footwear, 3) wood, paper, printing & publishing, 4) chemical products, rubber & plastics, 5) glass & non-metallic mineral products, 6) basic metals, metal products & machinery, 7) electrical machinery, radio, TV and professional equipment, 8) motor vehicles, parts & transport equipment and 9) furniture & other. Although the BER covers the electrical machinery etc. sector and includes it in the total, it does not publish the results of this sector separately. The BER does not cover petroleum refining (which is part of the chemical etc. sector) and scrap metal (which is part of "other") and they are therefore not included in the total.

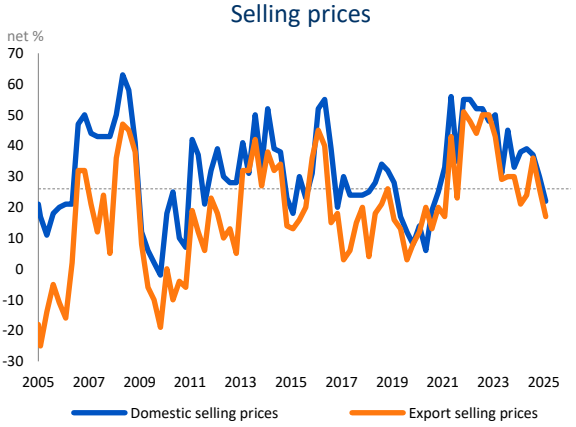
*μ – average*
*σ – standard deviation*
*Δ – change from previous period*
*$\sigma_\Delta$ – volatility (standard deviation of the changes)*
*All of the above calculated over the last 20 years*
*See technical note for further details*

# MANUFACTURING: TOTAL

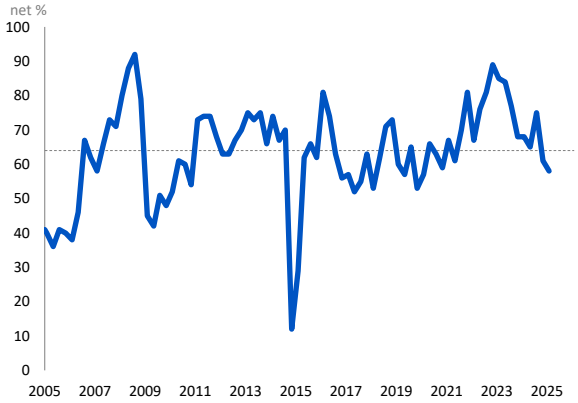
## Sales



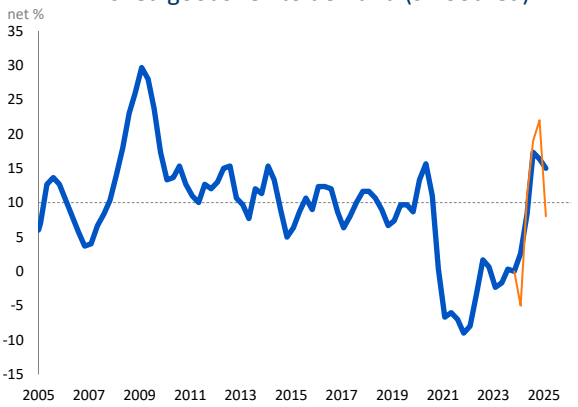

## Selling prices



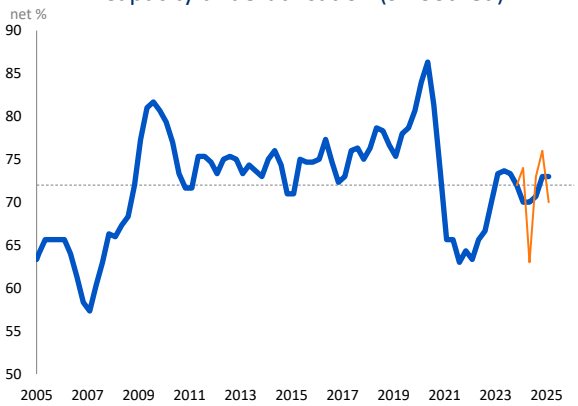

## Production costs



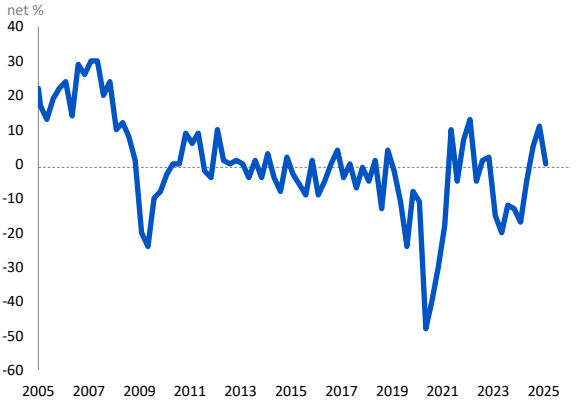

## Finished goods rel. to demand (smoothed)



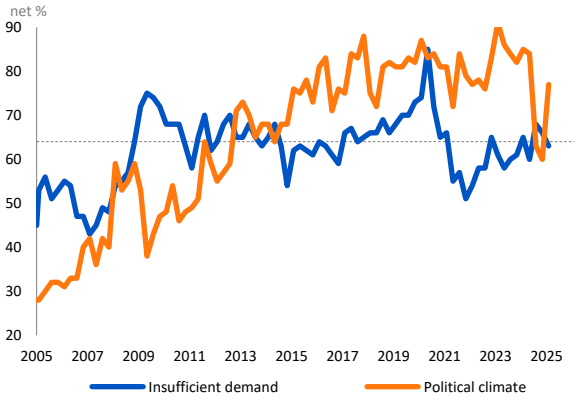

## Capacity underutilisation (smoothed)



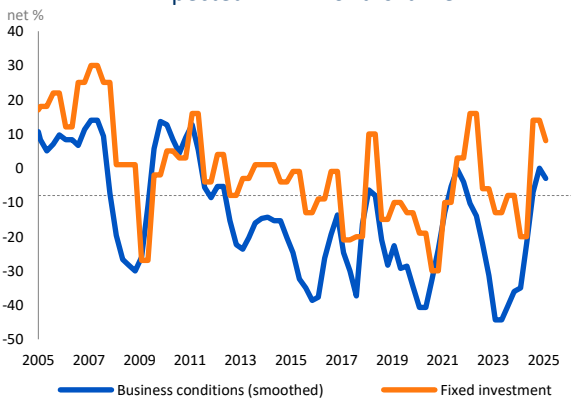

## Fixed investment




## Constraints

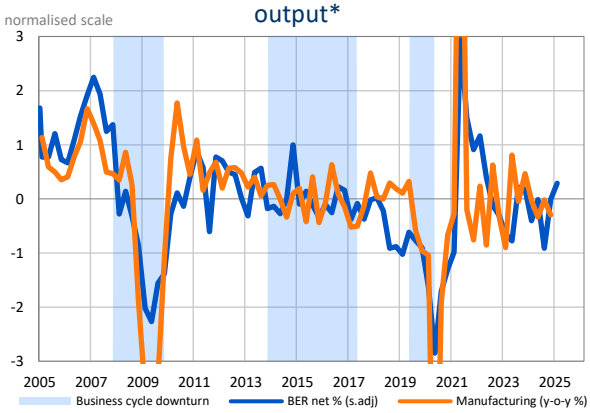



## Expected in 12 months' time

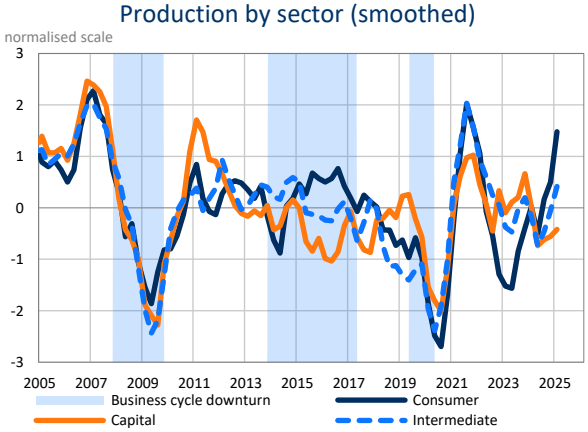


# SUMMARY

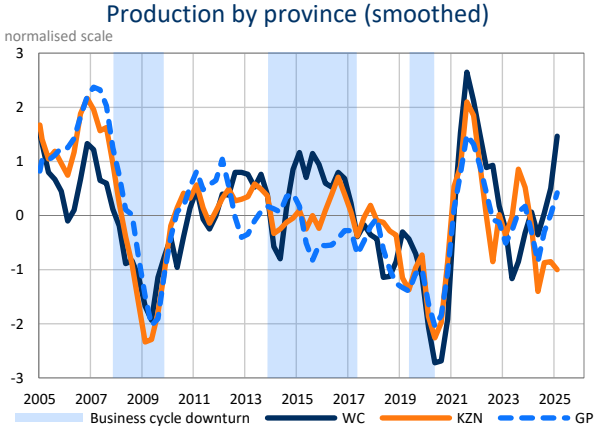
Production & actual manufacturing output*



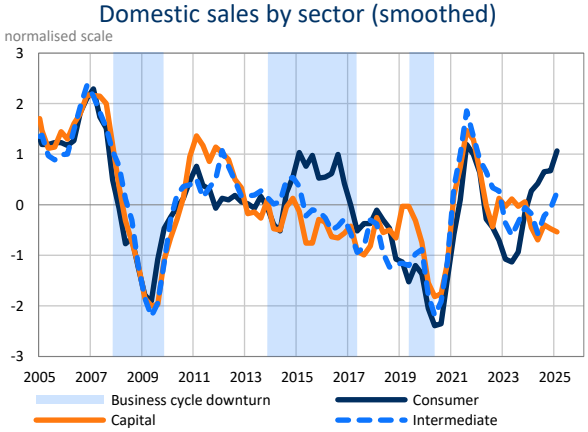

Production by sector (smoothed)



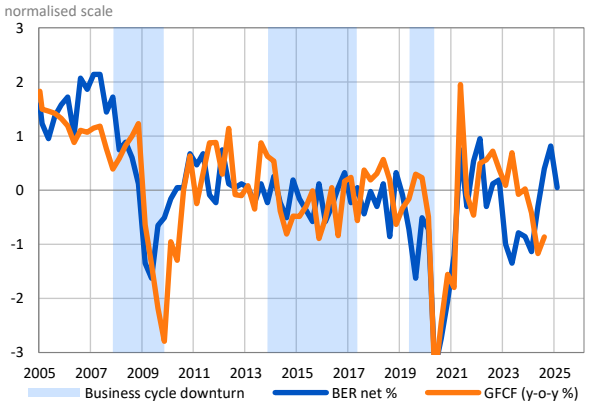

Production by province (smoothed)




Domestic sales by sector (smoothed)

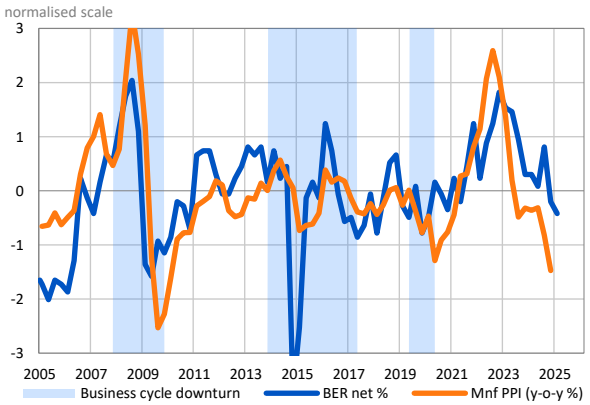



Fixed investment & Private GFCF

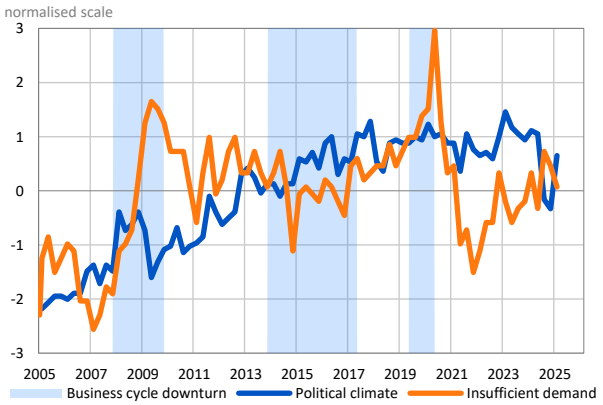



Export sales & actual exports


Production cost & PPI-inflation




Constraints



# CAPITAL[4], INTERMEDIARY[5] AND CONSUMER[6] GOODS

| Indicator | Unit | μ-σ | μ | μ+σ | 23Q2 | 23Q3 | 23Q4 | 24Q1 | 24Q2 | 24Q3 | 24Q4 | 25Q1 | Δ | Δσ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Capital goods** | | | | | | | | | | | | | | |
| Confidence | % | 13 | 33 | 53 | 10 | 21 | 19 | 16 | 16 | 25 | 26 | **29** | 3 | 10 |
| Smoothed | % | 14 | 33 | 52 | 15 | 17 | 19 | 17 | 19 | 22 | 27 | **28** | 1 | 8 |
| Production | Net % | -44 | -13 | 19 | -60 | 13 | 24 | -25 | -36 | -34 | -16 | **-31** | -15 | 30 |
| Smoothed | Net % | -38 | -13 | 13 | -10 | -8 | 4 | -12 | -32 | -29 | -27 | **-24** | 3 | 20 |
| Domestic sales | Net % | -46 | -16 | 14 | -48 | 3 | -6 | -41 | -36 | -25 | -18 | **-42** | -24 | 26 |
| Smoothed | Net % | -42 | -16 | 9 | -13 | -17 | -15 | -28 | -34 | -26 | -28 | **-30** | -2 | 19 |
| Export sales | Net % | -41 | -18 | 6 | -25 | -21 | 15 | -6 | -5 | -54 | -36 | **-7** | 29 | 24 |
| Smoothed | Net % | -36 | -18 | 1 | -19 | -10 | -4 | 1 | -22 | -32 | -32 | **-22** | 10 | 18 |
| **Intermediate goods** | | | | | | | | | | | | | | |
| Confidence | % | 19 | 34 | 49 | 20 | 29 | 28 | 20 | 27 | 24 | 34 | **31** | -3 | 8 |
| Smoothed | % | 19 | 34 | 48 | 21 | 26 | 26 | 25 | 24 | 28 | 30 | **33** | 3 | 7 |
| Production | Net % | -33 | -8 | 17 | -26 | -7 | 8 | -12 | -30 | -29 | 6 | **-4** | -10 | 20 |
| Smoothed | Net % | -29 | -8 | 14 | -18 | -8 | -4 | -11 | -24 | -18 | -9 | **1** | 10 | 17 |
| Domestic sales | Net % | -38 | -12 | 15 | -36 | -22 | -1 | -16 | -30 | -28 | 8 | **-20** | -28 | 21 |
| Smoothed | Net % | -35 | -12 | 11 | -26 | -20 | -13 | -16 | -25 | -17 | -13 | **-6** | 7 | 17 |
| Export sales | Net % | -31 | -13 | 4 | -23 | 11 | 21 | -11 | -11 | -28 | 2 | **14** | 12 | 17 |
| Smoothed | Net % | -28 | -13 | 1 | -6 | 3 | 7 | 0 | -17 | -12 | -4 | **8** | 12 | 12 |
| **Consumer goods** | | | | | | | | | | | | | | |
| Confidence | % | 25 | 39 | 53 | 15 | 16 | 27 | 25 | 36 | 37 | 45 | **42** | -3 | 9 |
| Smoothed | % | 26 | 39 | 52 | 17 | 19 | 23 | 29 | 33 | 39 | 41 | **44** | 3 | 7 |
| Production | Net % | -20 | -1 | 19 | -32 | -10 | 1 | -11 | 9 | -23 | 20 | **25** | 5 | 18 |
| Smoothed | Net % | -16 | -1 | 15 | -25 | -14 | -7 | 0 | -8 | 2 | 7 | **23** | 16 | 14 |
| Domestic sales | Net % | -24 | -2 | 20 | -38 | -7 | -12 | 5 | 17 | -4 | 18 | **18** | 0 | 19 |
| Smoothed | Net % | -20 | -2 | 17 | -23 | -19 | -5 | 3 | 6 | 10 | 11 | **18** | 7 | 13 |
| Export sales | Net % | -28 | -9 | 9 | -35 | 7 | -12 | -6 | 13 | -1 | 0 | **10** | 10 | 17 |
| Smoothed | Net % | -24 | -9 | 5 | -16 | -13 | -4 | -2 | 2 | 4 | 3 | **5** | 2 | 12 |

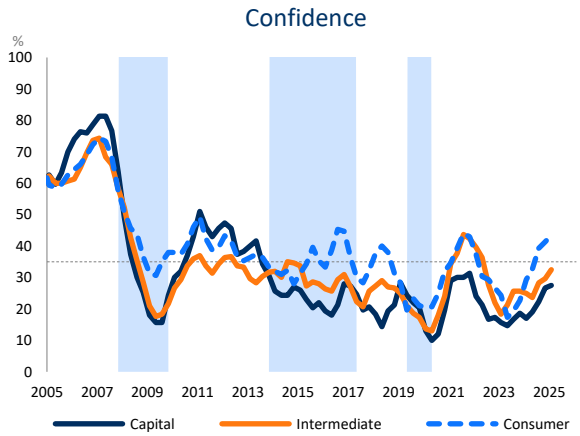
[4] Capital goods: Structural metal products (SIC code 353-4), general purpose machinery (356), special purpose machinery & machine tools (357), electrical motors & generators (361), medical appliances, photo equipment (374-6), motor vehicles & bodies (381-2), parts & accessories (383), other transport equipment (384-7)

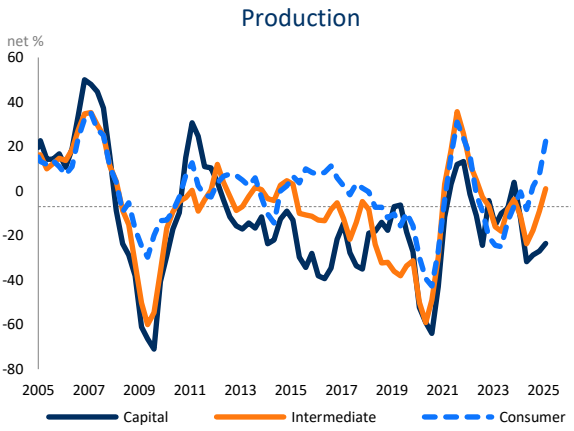
[5] Intermediary goods: Grain mill products, starches & animal feeds (303), spinning, weaving & finishing of textiles, yarns (311), knitted & crocheted fabrics (313), sawmilling, preserving of timber, bark grinding & compressing (321), wood & wood products (322), paper and products (323), basic chemicals (334), rubber (337), plastic products (338), glass & glass products, fibreglass (341), other non-metal mineral products (bricks, tiles, cement, prefab concrete, asphalt, mica products) (342), basic iron & steel (351), basic precious (gold, platinum, silver) & non-ferrous metal (aluminium, copper, lead, nickel, tin, zinc) products (352), other fabricated metal products (355), electrical distribution & control apparatus (362), wire & cable (363), batteries, electrical bulbs & other (364-6)

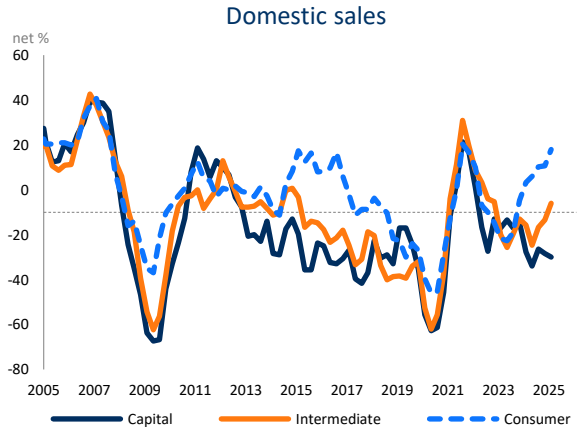
[6] Consumer goods: Meat, fish, fruit, vegetables, oils & fats (301), dairy products (302), other (304), beverages (305), tobacco (306), other textiles (312), wearing apparel & articles of fur (314-5), leather (316), footwear (317), other chemical products (335-6), computers & office machines, household appliances (358-9), TV, radio & communication equipment (371-3), furniture (391), other (e.g. jewellery, musical instruments, games & toys, recycling NOT COVERED) (392)

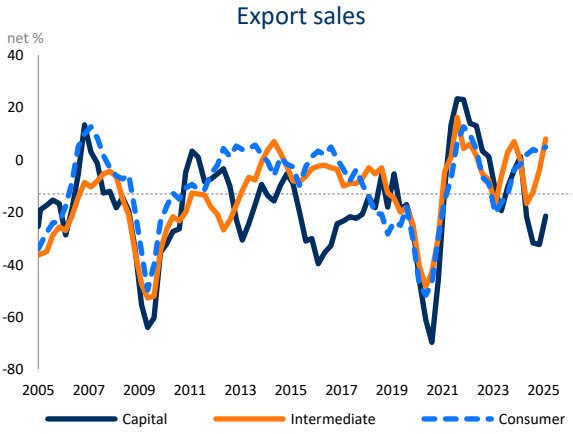
*μ – average*
*σ – standard deviation*
*Δ – change from previous period*
*$\sigma_\Delta$ – volatility (standard deviation of the changes)*
*All of the above calculated over the last 20 years*
*See technical note for further details*

# CAPITAL, INTERMEDIARY AND CONSUMER GOODS



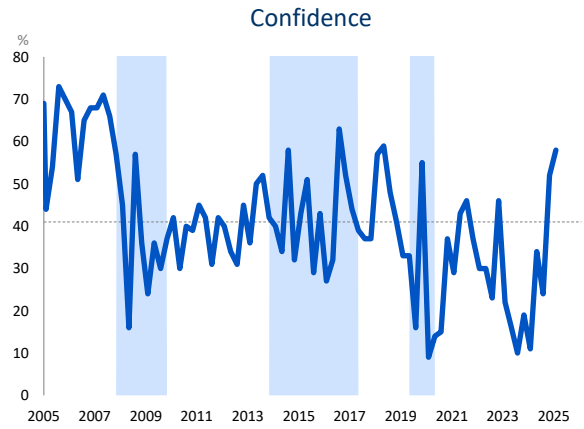



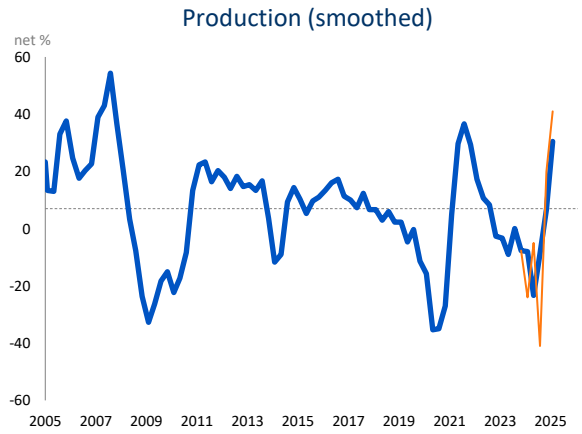



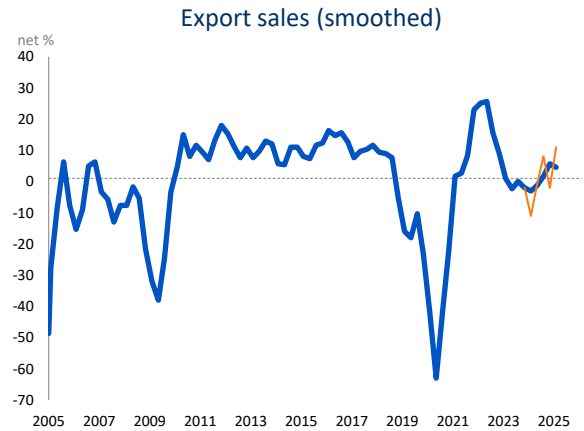

*μ – average*
*σ – standard deviation*
*Δ – change from previous period*
*$\sigma_\Delta$ – volatility (standard deviation of the changes)*
*All of the above calculated over the last 20 years*
*See technical note for further details*

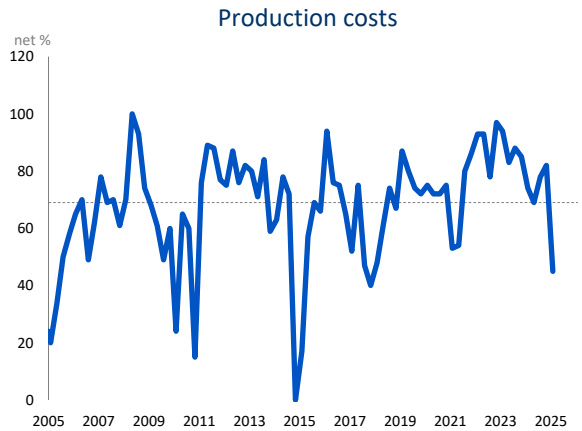
# FOOD AND BEVERAGES[7]

| Indicator | Unit | μ-σ | μ | μ+σ | 23Q2 | 23Q3 | 23Q4 | 24Q1 | 24Q2 | 24Q3 | 24Q4 | 25Q1 | Δ | Δσ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Confidence | % | 25 | 41 | 56 | 16 | 10 | 19 | 11 | 34 | 24 | 52 | **58** | 6 | 15 |
| Production | Net % | -16 | 7 | 30 | -1 | -4 | 5 | -24 | -5 | -41 | 20 | **41** | 21 | 22 |
| Smoothed | Net % | -12 | 7 | 25 | -9 | 0 | -8 | -8 | -23 | -9 | 7 | **31** | 24 | 17 |
| Export sales | Net % | -19 | 1 | 21 | -5 | 2 | 3 | -11 | -1 | 8 | -2 | **11** | 13 | 21 |
| Smoothed | Net % | -15 | 1 | 17 | -2 | 0 | -2 | -3 | -1 | 2 | 6 | **5** | -1 | 15 |
| Production costs | Net % | 50 | 69 | 87 | 83 | 88 | 85 | 74 | 69 | 78 | 82 | **45** | -37 | 19 |
| Business conditions in 12m | Net % | -32 | -10 | 12 | -53 | -27 | -36 | -70 | -36 | -26 | 13 | **31** | 18 | 23 |



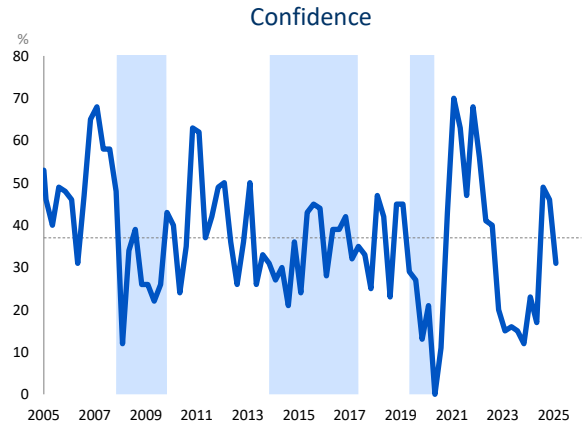



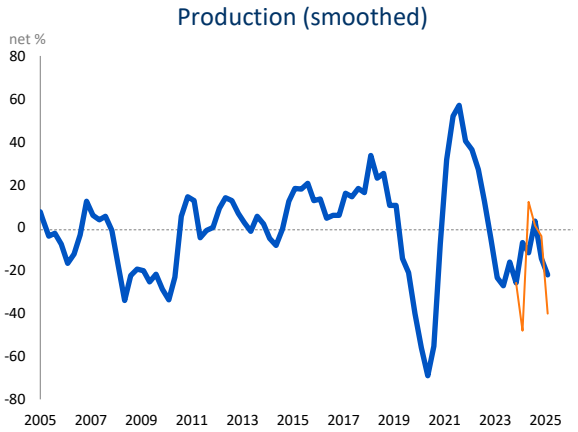

[7] Food & Beverages: Meat, fish, vegetables, oils & fats (SIC code 301), dairy products (302), grain mill products, starches & animal feeds (303), other food (304) and beverages (305). In 2017, this sector contributed 28.4% to production and 11.1% to manufactured exports, petroleum and other excluded in both cases. We recommend that users attach more weight to the trend (smoothed series) than a single data point, as the correlation between the survey production data and reference series is low.

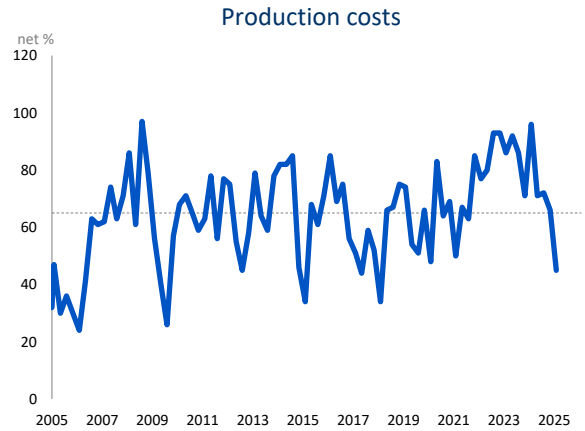
*μ – average*
*σ – standard deviation*
*Δ – change from previous period*
*$\sigma_\Delta$ – volatility (standard deviation of the changes)*
*All of the above calculated over the last 20 years*
*See technical note for further details*

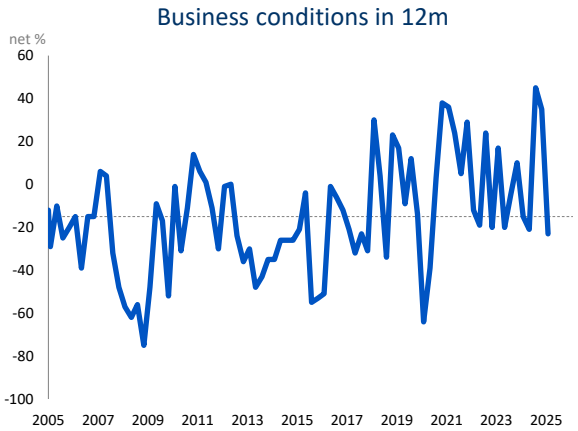
# TEXTILES, CLOTHING LEATHER AND FOOTWEAR[8]

| Indicator | Unit | μ-σ | μ | μ+σ | 23Q2 | 23Q3 | 23Q4 | 24Q1 | 24Q2 | 24Q3 | 24Q4 | 25Q1 | Δ | Δσ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Confidence | % | 22 | 37 | 52 | 16 | 15 | 12 | 23 | 17 | 49 | 46 | **31** | -15 | 14 |
| Production | Net % | -30 | -1 | 27 | -19 | -44 | 15 | -48 | 12 | 1 | -4 | **-40** | -36 | 28 |
| Smoothed | Net % | -24 | -1 | 22 | -27 | -16 | -26 | -7 | -12 | 3 | -14 | **-22** | -8 | 21 |
| Production costs | Net % | 48 | 65 | 82 | 92 | 86 | 71 | 96 | 71 | 72 | 66 | **45** | -21 | 16 |
| Business conditions in 12m | Net % | -42 | -15 | 11 | -20 | -5 | 10 | -15 | -21 | 45 | 35 | **-23** | -58 | 27 |



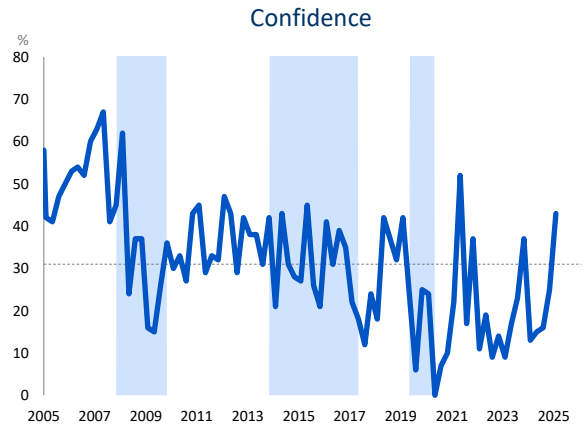



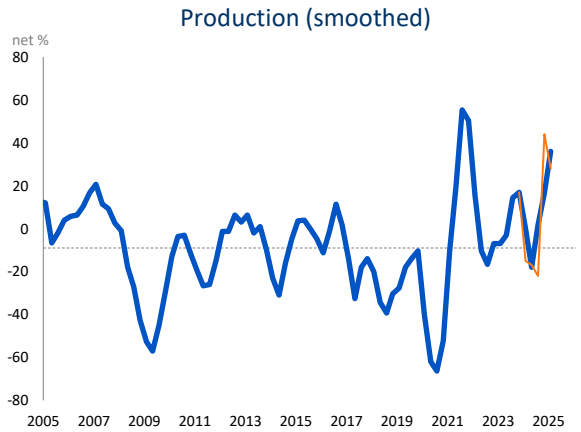

[8] Textiles, Clothing, Footwear & Leather: spinning, weaving & finishing of textiles, yarns (SIC code 311), other textiles (312), knitted & crocheted fabrics (313), wearing apparel & articles of fur (314-5), leather (316) and footwear (317). In 2017, this sector contributed 3.7% to production excluding petroleum and other.

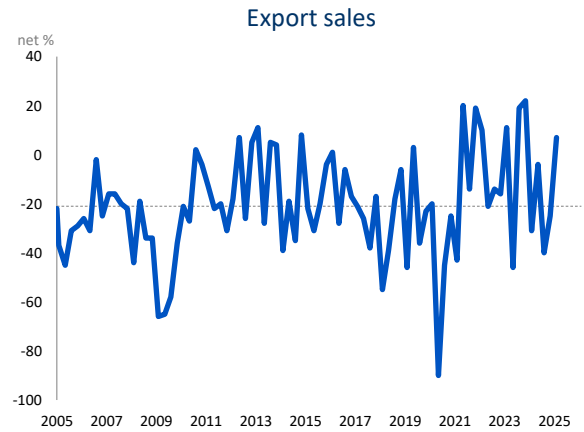
*μ – average*
*σ – standard deviation*
*Δ – change from previous period*
*$\sigma_\Delta$ – volatility (standard deviation of the changes)*
*All of the above calculated over the last 20 years*
*See technical note for further details*

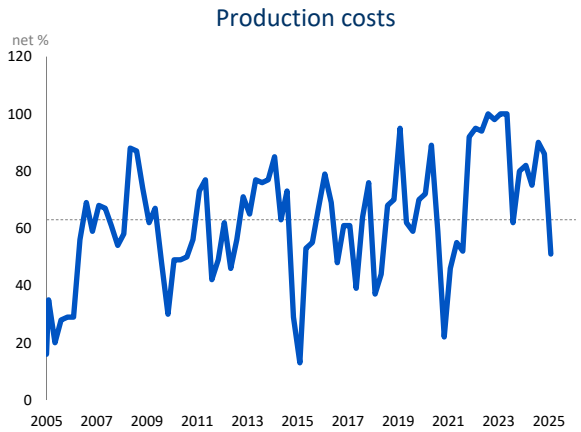
# WOOD, PAPER, PRINTING AND PUBLISHING[9]

| Indicator | Unit | μ-σ | μ | μ+σ | 23Q2 | 23Q3 | 23Q4 | 24Q1 | 24Q2 | 24Q3 | 24Q4 | 25Q1 | Δ | Δσ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Confidence | % | 17 | 31 | 46 | 17 | 23 | 37 | 13 | 15 | 16 | 25 | **43** | 18 | 14 |
| Production | Net % | -38 | -9 | 20 | -23 | 34 | 32 | -15 | -17 | -22 | 44 | **28** | -16 | 29 |
| Smoothed | Net % | -32 | -9 | 14 | -3 | 14 | 17 | 0 | -18 | 2 | 17 | **36** | 19 | 23 |
| Export sales | Net % | -42 | -21 | 0 | -46 | 19 | 22 | -31 | -4 | -40 | -25 | **7** | 32 | 27 |
| Production costs | Net % | 43 | 63 | 83 | 100 | 62 | 80 | 82 | 75 | 90 | 86 | **51** | -35 | 18 |
| Business conditions in 12m | Net % | -37 | -13 | 10 | -57 | -29 | -33 | -64 | -19 | 9 | 0 | **-3** | -3 | 27 |



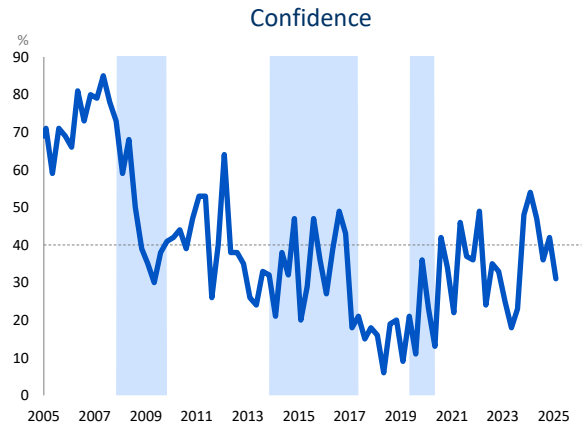



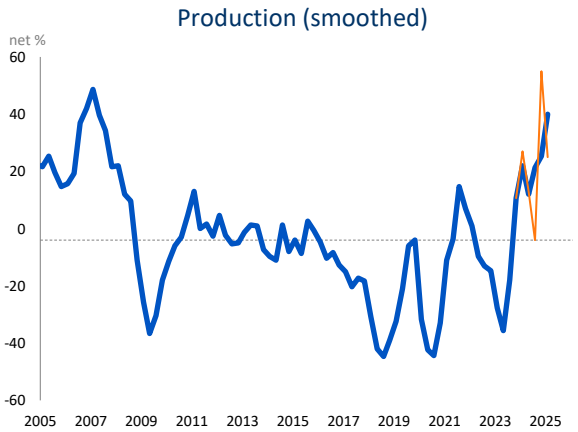

[9] Wood, Paper, Printing & Publishing: sawmilling, preserving of timber, bark grinding & compressing (SIC code 321), wood & wood products (322), paper and products (323) and printing, publishing & recorded media (324-6). In 2017, this sector contributed 13.1% to production and 4.7% to manufactured exports, petroleum and other excluded in both cases. We recommend that users attach more weight to the trend (smoothed series) than a single data point, as the correlation between the survey production data and reference series is low.

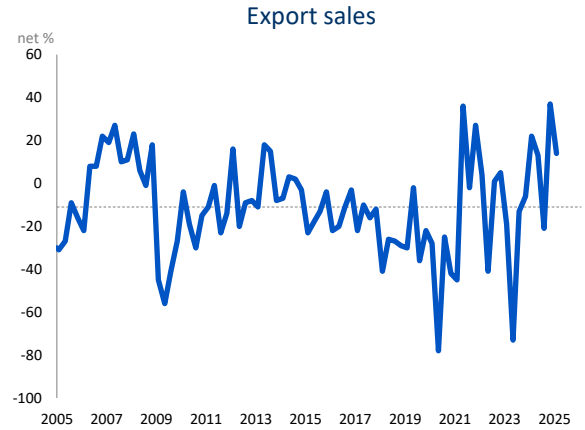
*μ – average*
*σ – standard deviation*
*Δ – change from previous period*
*$\sigma_\Delta$ – volatility (standard deviation of the changes)*
*All of the above calculated over the last 20 years*
*See technical note for further details*

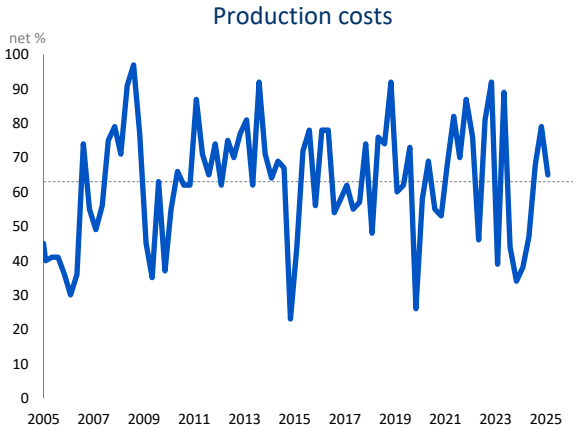
# CHEMICAL, RUBBER AND PLASTIC PRODUCTS[10]

| Indicator | Unit | μ-σ | μ | μ+σ | 23Q2 | 23Q3 | 23Q4 | 24Q1 | 24Q2 | 24Q3 | 24Q4 | 25Q1 | Δ | Δσ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Confidence | % | 21 | 40 | 58 | 18 | 23 | 48 | 54 | 47 | 36 | 42 | **31** | -11 | 12 |
| Production | Net % | -30 | -4 | 23 | -59 | -21 | 26 | 27 | 13 | -4 | 55 | **25** | -30 | 25 |
| Smoothed | Net % | -25 | -3 | 18 | -36 | -18 | 11 | 22 | 12 | 21 | 25 | **40** | 15 | 16 |
| Export sales | Net % | -33 | -11 | 12 | -73 | -13 | -6 | 22 | 13 | -21 | 37 | **14** | -23 | 25 |
| Production costs | Net % | 46 | 63 | 80 | 89 | 44 | 34 | 38 | 47 | 68 | 79 | **65** | -14 | 20 |
| Business conditions in 12m | Net % | -37 | -11 | 15 | -68 | -53 | -3 | 3 | -21 | 13 | 24 | **9** | -15 | 23 |



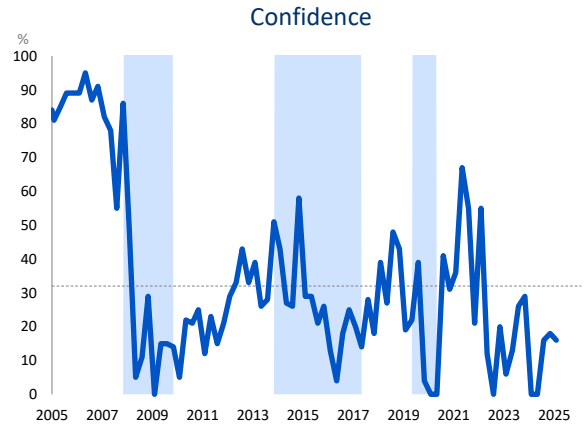



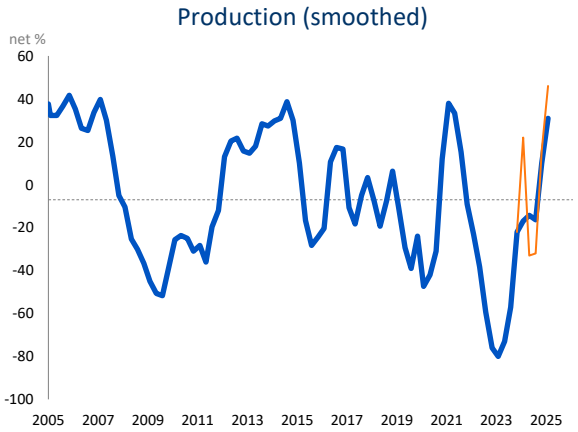

[10] Chemicals, Rubber & Plastics: Refined petroleum & coke (SIC code 331-3) (NOT COVERED), basic chemicals (334), other chemical products (335-6), rubber (337) and plastics (338). In 2017, this sector contributed 16.6% to production and 15.4% to manufactured exports, petroleum and other excluded in both cases. We recommend that users attach more weight to the trend (smoothed series) than a single data point, as the correlation between the survey production data and reference series is low.

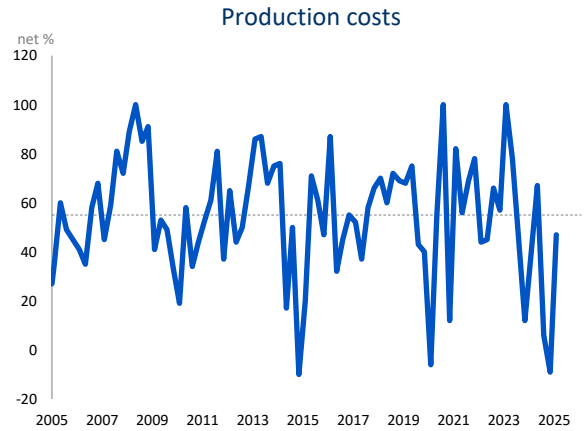
*μ – average*
*σ – standard deviation*
*Δ – change from previous period*
*$\sigma_\Delta$ – volatility (standard deviation of the changes)*
*All of the above calculated over the last 20 years*
*See technical note for further details*

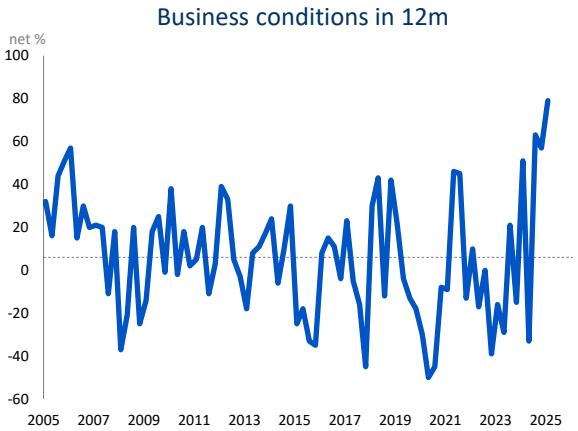
# GLASS AND NON-METALLIC MINERAL PRODUCTS[11]

| Indicator | Unit | μ-σ | μ | μ+σ | 23Q2 | 23Q3 | 23Q4 | 24Q1 | 24Q2 | 24Q3 | 24Q4 | 25Q1 | Δ | Δσ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Confidence | % | 7 | 32 | 58 | 13 | 26 | 29 | 0 | 0 | 16 | 18 | **16** | -2 | 17 |
| Production | Net % | -44 | -7 | 30 | -83 | -48 | -40 | 22 | -33 | -32 | 16 | **46** | 30 | 32 |
| Smoothed | Net % | -38 | -7 | 24 | -73 | -57 | -22 | -17 | -14 | -16 | 10 | **31** | 21 | 24 |
| Production costs | Net % | 31 | 55 | 79 | 78 | 46 | 12 | 40 | 67 | 6 | -9 | **47** | 56 | 29 |
| Business conditions in 12m | Net % | -22 | 6 | 34 | -29 | 21 | -15 | 51 | -33 | 63 | 57 | **79** | 22 | 32 |



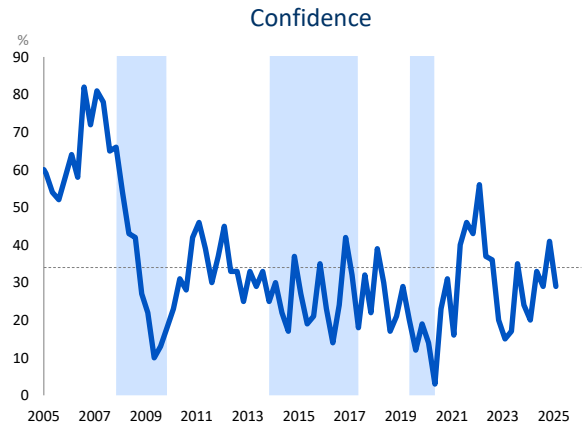



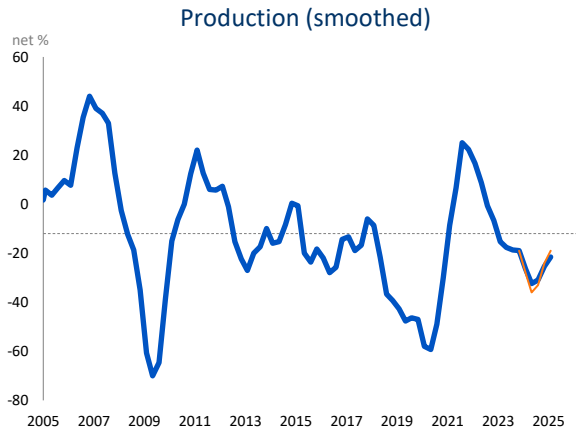

[11] Glass & Non-metallic minerals: Glass & glass products, fibreglass (SIC code 341), other non-metallic mineral products (bricks, tiles, cement, prefab concrete, asphalt, mica products) (342). In 2017, this sector contributed 4.4% to production, excluding petroleum and other.

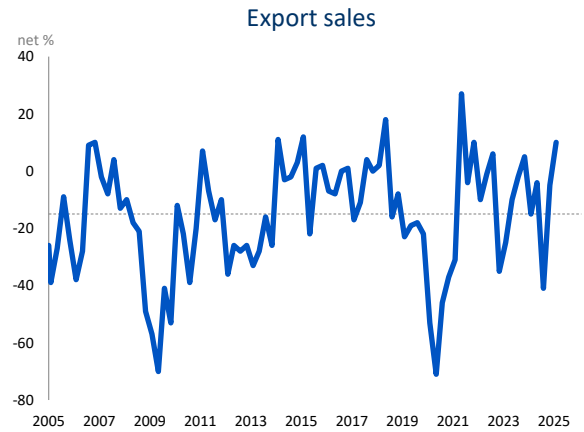
*μ – average*
*σ – standard deviation*
*Δ – change from previous period*
*$\sigma_\Delta$ – volatility (standard deviation of the changes)*
*All of the above calculated over the last 20 years*
*See technical note for further details*

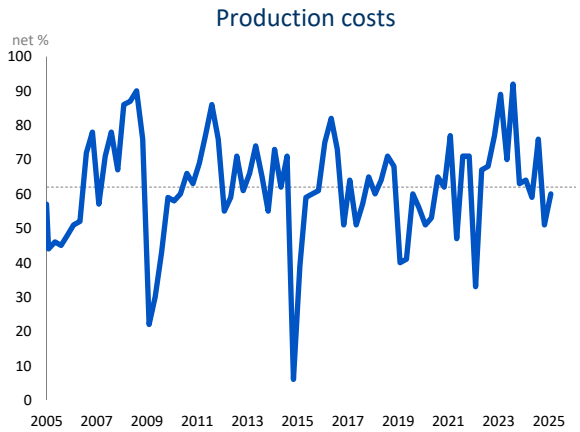
# BASIC METALS, METAL PRODUCTS AND MACHINERY[12]

| Indicator | Unit | μ-σ | μ | μ+σ | 23Q2 | 23Q3 | 23Q4 | 24Q1 | 24Q2 | 24Q3 | 24Q4 | 25Q1 | Δ | Δσ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Confidence | % | 17 | 34 | 51 | 17 | 35 | 24 | 20 | 33 | 29 | 41 | **29** | -12 | 11 |
| Production | Net % | -41 | -12 | 16 | -27 | -14 | -15 | -28 | -36 | -33 | -24 | **-19** | 5 | 22 |
| Smoothed | Net % | -37 | -12 | 12 | -18 | -19 | -19 | -26 | -32 | -31 | -25 | **-22** | 3 | 18 |
| Export sales | Net % | -35 | -15 | 4 | -10 | -2 | 5 | -15 | -4 | -41 | -5 | **10** | 15 | 19 |
| Production costs | Net % | 47 | 62 | 78 | 70 | 92 | 63 | 64 | 59 | 76 | 51 | **60** | 9 | 17 |
| Business conditions in 12m | Net % | -41 | -20 | 1 | -58 | -19 | -42 | -52 | -15 | -3 | -24 | **-25** | -1 | 18 |



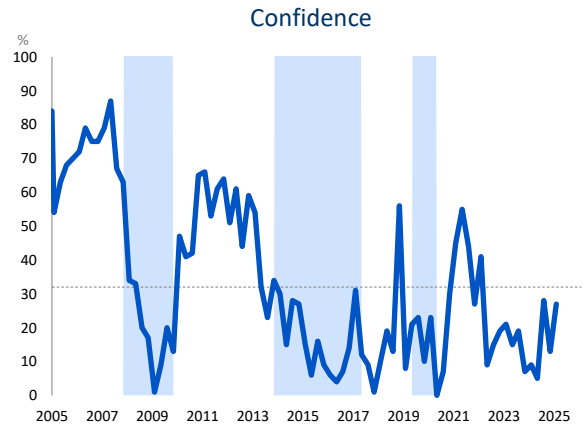



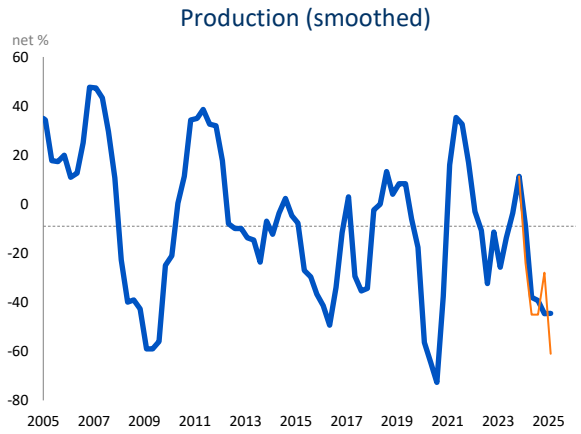

[12] Basic metals, Metal Products & Machinery: Basic iron & steel (SIC code 351), basic precious (gold, platinum, silver) & non-ferrous metal (aluminium, copper, lead, nickel, tin, zinc) products (352), structural metal products (353-4), other fabricated metal products (355), general purpose machinery (356), special purpose machinery & machine tools (357), computers & office machines (358) and household appliances (359). In 2017, this sector contributed 21.1% to production and 42.5% to manufactured exports, petroleum and other excluded in both cases.

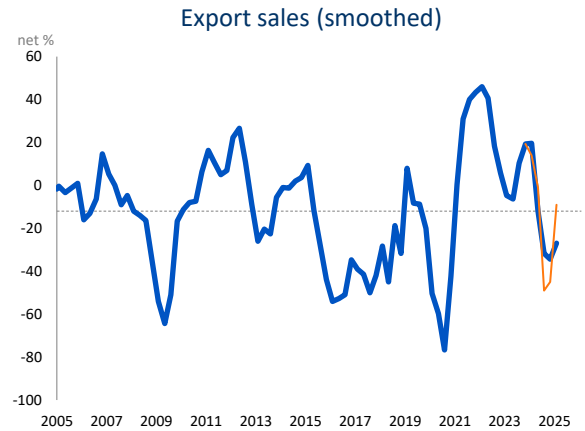
*μ – average*
*σ – standard deviation*
*Δ – change from previous period*
*$\sigma_\Delta$ – volatility (standard deviation of the changes)*
*All of the above calculated over the last 20 years*
*See technical note for further details*

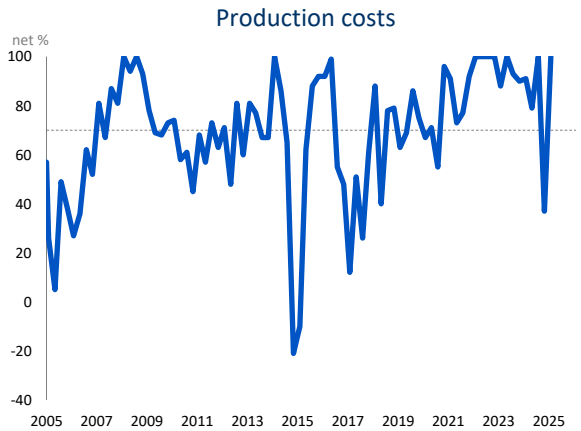
# MOTOR VEHICLES, PARTS AND TRANSPORT EQUIPMENT[13]

| Indicator | Unit | μ-σ | μ | μ+σ | 23Q2 | 23Q3 | 23Q4 | 24Q1 | 24Q2 | 24Q3 | 24Q4 | 25Q1 | Δ | Δσ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Confidence | % | 9 | 32 | 56 | 15 | 19 | 7 | 9 | 5 | 28 | 13 | **27** | 14 | 14 |
| Production | Net % | -47 | -9 | 29 | -69 | 16 | 42 | -24 | -45 | -45 | -28 | **-61** | -33 | 41 |
| Smoothed | Net % | -38 | -9 | 20 | -14 | -4 | 11 | -9 | -38 | -39 | -45 | **-45** | 0 | 27 |
| Export sales | Net % | -47 | -12 | 23 | -13 | -2 | 46 | 14 | -1 | -49 | -45 | **-9** | 36 | 39 |
| Smoothed | Net % | -39 | -12 | 15 | -6 | 10 | 19 | 20 | -12 | -32 | -34 | **-27** | 7 | 24 |
| Production costs | Net % | 44 | 70 | 96 | 100 | 93 | 90 | 91 | 79 | 100 | 37 | **100** | 63 | 25 |
| Business conditions in 12m | Net % | -57 | -25 | 8 | -90 | -62 | -69 | -83 | -58 | 10 | -18 | **-40** | -22 | 30 |



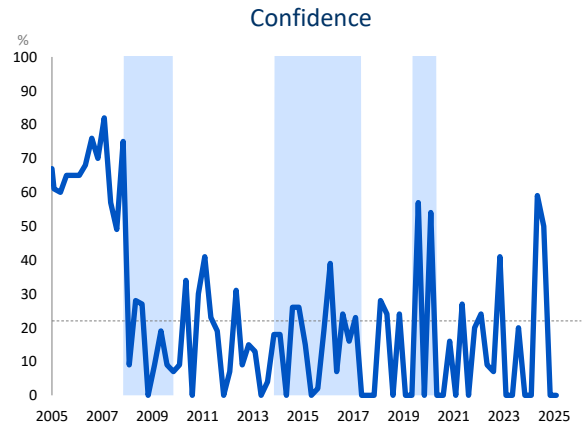



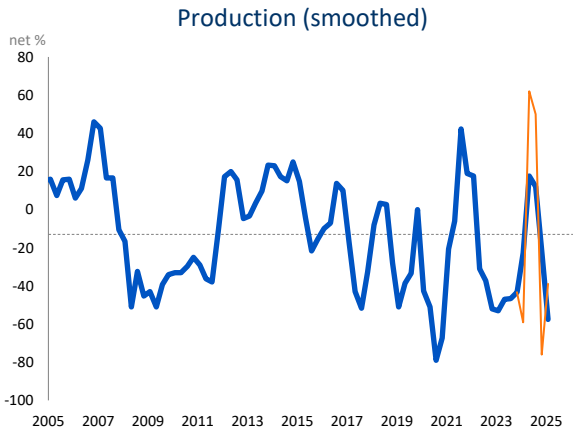

[13] Transport equipment: Motor vehicles & bodies (SIC code 381-2), parts & accessories (383), other transport equipment (384-7). In 2017, this sector contributed 7.7% to production and 16.1% to manufactured exports, petroleum and other excluded in both cases.

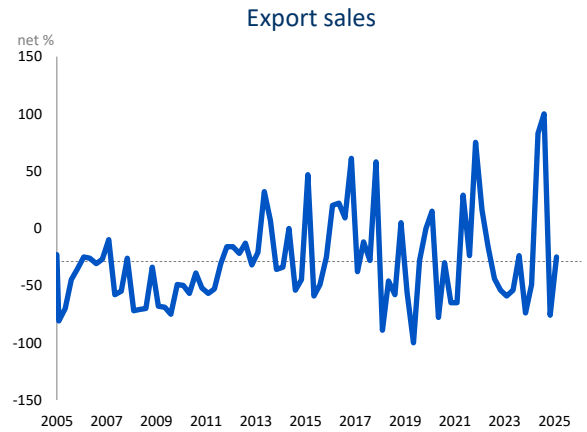
*μ – average*
*σ – standard deviation*
*Δ – change from previous period*
*$\sigma_\Delta$ – volatility (standard deviation of the changes)*
*All of the above calculated over the last 20 years*
*See technical note for further details*

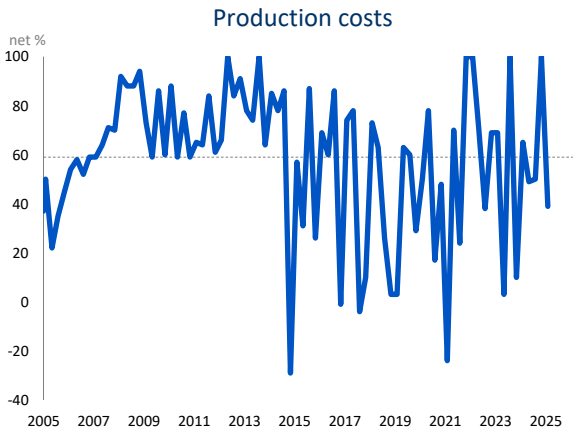
# FURNITURE AND OTHER[14]

| Indicator | Unit | μ-σ | μ | μ+σ | 23Q2 | 23Q3 | 23Q4 | 24Q1 | 24Q2 | 24Q3 | 24Q4 | 25Q1 | Δ | Δσ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Confidence | % | -1 | 22 | 45 | 0 | 20 | 0 | 0 | 59 | 50 | 0 | **0** | 0 | 23 |
| Production | Net % | -55 | -13 | 29 | -69 | 0 | -71 | -59 | 62 | 50 | -76 | **-39** | 37 | 52 |
| Smoothed | Net % | -42 | -13 | 15 | -47 | -47 | -43 | -23 | 18 | 12 | -22 | **-58** | -36 | 29 |
| Export sales | Net % | -69 | -29 | 12 | -54 | -24 | -74 | -49 | 83 | 100 | -76 | **-25** | 51 | 50 |
| Production costs | Net % | 29 | 59 | 89 | 3 | 100 | 10 | 65 | 49 | 50 | 100 | **39** | -61 | 41 |
| Business conditions in 12m | Net % | -58 | -21 | 17 | -100 | 20 | -16 | -69 | -28 | 0 | 100 | **61** | -39 | 42 |



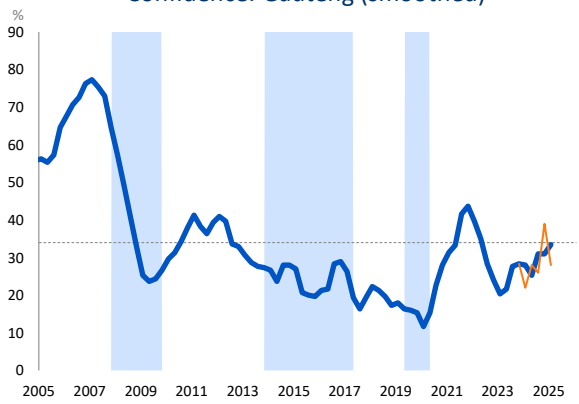

[14] Furniture & Other: Furniture (SIC code 391), other (e.g. jewellery, musical instruments, games & toys, recycling NOT COVERED) (392), tobacco (306). In 2017, this sector contributed 1.2% to production and 1.0% to manufactured exports, petroleum and other excluded in both cases. We recommend that users attach more weight to the trend (smoothed series) than a single data point, as the correlation between the survey production and export data vis-à-vis the reference series is low.

*μ – average*
*σ – standard deviation*
*Δ – change from previous period*
*$\sigma_\Delta$ – volatility (standard deviation of the changes)*
*All of the above calculated over the last 20 years*
*See technical note for further details*

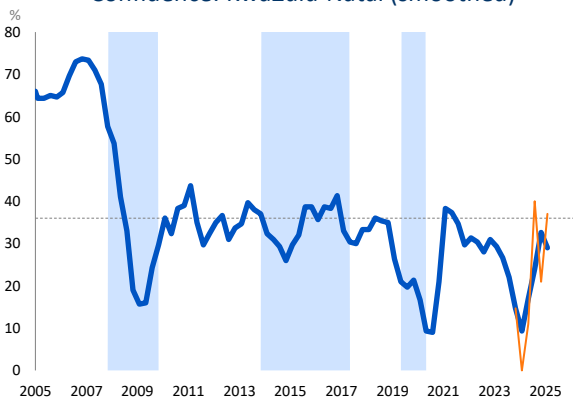
# BY PROVINCE

| Indicator | Unit | μ-σ | μ | μ+σ | 23Q2 | 23Q3 | 23Q4 | 24Q1 | 24Q2 | 24Q3 | 24Q4 | 25Q1 | Δ | Δσ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Gauteng** | | | | | | | | | | | | | | |
| Confidence | % | 17 | 34 | 51 | 20 | 29 | 34 | 22 | 28 | 26 | 39 | **28** | -11 | 8 |
| Smoothed | % | 17 | 34 | 50 | 22 | 28 | 28 | 28 | 25 | 31 | 31 | **34** | 3 | 7 |
| Production | Net % | -35 | -10 | 15 | -37 | 3 | 8 | -30 | -28 | -27 | 6 | **-8** | -14 | 19 |
| Smoothed | Net % | -31 | -10 | 12 | -16 | -9 | -6 | -17 | -28 | -16 | -10 | **-1** | 9 | 16 |
| **KwaZulu-Natal** | | | | | | | | | | | | | | |
| Confidence | % | 18 | 36 | 53 | 22 | 27 | 17 | 0 | 11 | 40 | 21 | **37** | 16 | 12 |
| Smoothed | % | 20 | 35 | 51 | 27 | 22 | 15 | 9 | 17 | 24 | 33 | **29** | -4 | 9 |
| Production | Net % | -34 | -6 | 21 | -29 | 5 | 59 | -50 | -40 | -18 | -16 | **-39** | -23 | 29 |
| Smoothed | Net % | -28 | -6 | 15 | -7 | 12 | 5 | -10 | -36 | -25 | -24 | **-28** | -4 | 18 |
| **Western Cape** | | | | | | | | | | | | | | |
| Confidence | % | 24 | 38 | 51 | 14 | 12 | 21 | 31 | 32 | 27 | 43 | **44** | 1 | 11 |
| Smoothed | % | 26 | 38 | 50 | 12 | 16 | 21 | 28 | 30 | 34 | 38 | **44** | 6 | 8 |
| Production | Net % | -23 | 0 | 23 | -22 | -22 | -3 | 7 | -1 | -26 | 29 | **24** | -5 | 23 |
| Smoothed | Net % | -18 | 0 | 18 | -21 | -16 | -6 | 1 | -7 | 1 | 9 | **27** | 18 | 17 |

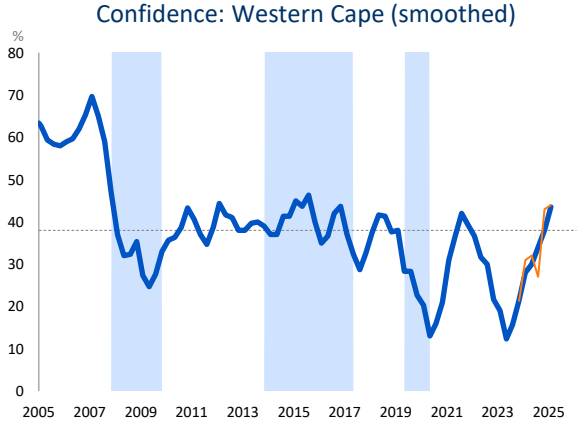
Confidence: Gauteng (smoothed)



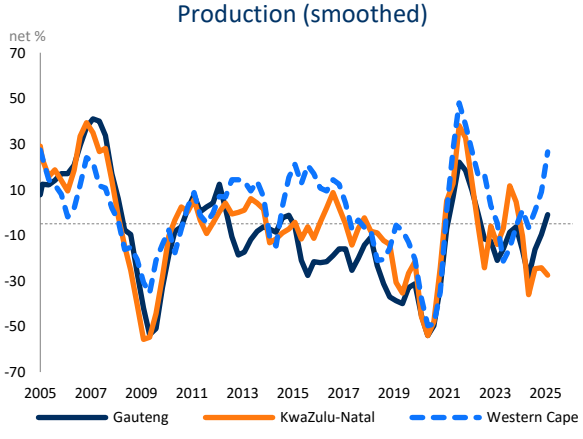

Confidence: KwaZulu-Natal (smoothed)




Confidence: Western Cape (smoothed)




Production (smoothed)




*μ – average*
*σ – standard deviation*
*Δ – change from previous period*
*$\sigma_\Delta$ – volatility (standard deviation of the changes)*
*All of the above calculated over the last 20 years*
*See technical note for further details*

# Technical note

Short-term planning is hampered as official (quantitative or numeric) data is released with a time lag. Business tendency *survey* (BTS) *results reveal what happened between the release of the last official figures and the current state of affairs*. The survey results not only reveal earlier developments in sales, production, employment, selling prices, capacity utilisation, investment etc. (for which official figures are published), but also provide unique information, such as business confidence, business conditions, constraints and respondents' expectations (or forecast) for the next quarter for which no official figures exist. It is now widely recognised that such subjective individual expectations play a key role in economic developments. Furthermore, the survey results of successive quarters *provide a means of tracking cyclical movements, pinpointing trend changes* and establishing forecasts.

## THE SURVEY METHOD

The survey results are obtained from questionnaires completed by senior executives in the trade, manufacturing and building sector during the middle month of every calendar quarter.

The business survey questionnaire contains a small number of questions. These questions are qualitative in nature, e.g. "Compared to the same quarter a year ago, is the volume of production up, the same or down?". No figures are requested.

The sample of executives remains the same from one survey to the next. A panel is in effect established. The sample provides for the main sectors. The list of participants is reviewed every few years to replace those firms that went out of business or stopped responding during the previous two years with new ones.

To provide for widely differing sizes, each firm in the manufacturing and trade sectors is allocated a weight based on its turnover. Firms in the building sector are not weighted. Participants have to complete a "participant details form" at the time of recruitment and every few years to ensure that their sector classification and turnover (optional) are correct.

The BER conducted its first survey of the manufacturing and trade (i.e. retail, wholesale and motor trade) sectors in 1954. The sector coverage was expanded to the building sector (i.e. main contractors and sub-contractors) in 1969. Architects, quantity surveyors and civil engineering contractors were added later to the building survey.

Consult the BER web page (**www.ber.ac.za**) for more information about the business tendency method.

## THE UNIQUE UNITS OF MEASUREMENT OF QUALITATIVE SURVEYS

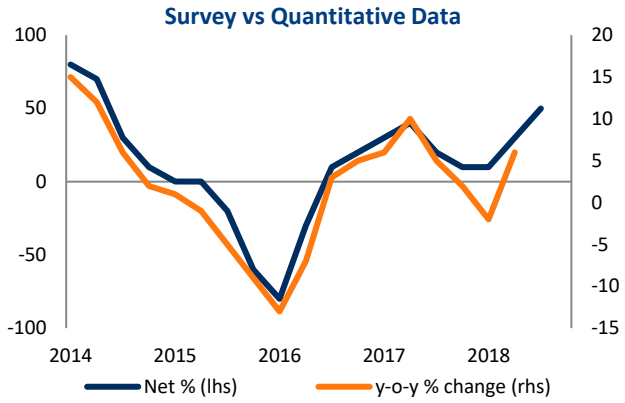
### Net percentage (net %)

The responses related to the change in production, prices, employment, business conditions etc. are presented as a "net percentage" (also called a "net balance" or a "net majority"). If, for example, the percentages of respondents rating production as "higher", the "same" or "lower" compared to a year ago are 70%, 10% and 20% respectively, then one can conclude that the

majority of participants experienced higher production. The net percentage is calculated as the percentage of respondents rating "production" as higher less the percentage rating it as "lower". The percentage rating it as the "same" is ignored. The net percentage in this example is therefore 50%, being the difference between the 70% "higher" and the 20% "lower". A net percentage of –10%, for instance, would indicate a decline in production compared to a year ago. Take note that this does not mean a year-on-year contraction of 10%. It only means that the production of a majority of 10% of the respondents was lower compared to a year ago.

The net percentage, or net balance statistic, can theoretically vary between a minimum of -100 (when all participants replied "lower") and a maximum of +100 (when all respondents replied "higher"). Theoretically a value of zero, therefore, indicates no change, between 0 and 100 reflects a rise (or improvement) and between 0 and –100 a decline (or deterioration) compared to the same quarter a year ago. The net balance statistic is a diffusion index, i.e. it indicates the degree to which the indicated change is "diffused" (spread) throughout the sample population. It indicates both the direction and size of the change.

Given that it reflects respondents' estimation of the change in the phenomenon/variable in the current quarter relative to the same quarter a year ago, the net percentage corresponds to a year-on-year percentage change/growth rate in the corresponding/equivalent official data series (see the figure on the right).




**Percentage (%)**

The responses relating to business confidence and constraints are presented as percentages.

In the case of business confidence, respondents have to rate prevailing business conditions as either "satisfactory" or "unsatisfactory". The percentage of respondents rating prevailing business conditions as satisfactory is taken as an indicator (proxy) for business confidence. A reading of 10 for business confidence, for instance, means that only 10% of the respondents indicated that they were satisfied. In this example, 90% were, therefore, unsatisfied.

In the case of the constraints, respondents have to rate if a particular issue – for instance, a shortage of skilled labour – "seriously", "slightly" or "not at all" hampers their activity. Composite constraint indices are calculated by weighting the responses as follows: The answers of respondents rating a particular constraint as "serious" are weighted by 0.67%; "slightly" by 0.33% and "not a constraint at all" are discarded. The results are then multiplied by 100/67 = 1.49 to convert it to an index that can vary between zero and 100.

Care must be taken when making inferences from the constraints indices given that the list of constraints (issues) remains unchanged over time. Each constraint ought to be analysed relative to its own historical performance rather than comparing the ratings of the different constraints at a specific point in time. The latter inference would be more appropriate if respondents had to list all issues hampering their activity at a particular point in time and rank them in order of their impact.

Theoretically, the confidence and constraints series can vary between a minimum of zero and a maximum of 100. A value of zero would reflect an extreme lack of confidence/no limitation at all and 100 extreme confidence/complete limitation. These results reflect respondents' evaluation of the phenomenon/the survey variable in respect to that specific survey quarter, i.e. not relative to some period in the past or future.

# DESCRIPTIVE STATISTICS IN THE TABLES

### Smoothed

Some series show erratic/volatile movements, i.e. data jumps around quite a bit between consecutive quarters. In such cases, it is necessary to smooth these movements over a longer period to obtain a general trend. Another case where we added moving averages is when the correlation between the survey results and the corresponding reference series is low or non-existent.

Three-quarter centred moving averages (3qcma) were selected in order to not disturb turning points too much, e.g. the moving average of 17Q4 is calculated as the average of 17Q3, 17Q4 and 18Q1, that of 18Q1 is calculated as the average of 17Q4, 18Q1 and 18Q2 etc. In order for the smoothed series to run up to the last unsmoothed data point, the last smoothed data point is only the average of two quarters, namely the previous and current quarter.

When a smoothed series is added, it is prudent not to attach too much value to the unsmoothed results of a particular quarter, but rather to evaluate it in its historical context.

### Seasonal adjustment (SA)

In theory, the time series ought to display no seasonal patterns because respondents are instructed to compare the current quarter with the same one of a year ago (e.g. they have to compare the current Festive Season or wet/dry winter period with the same time a year ago). However, in practice, some series nevertheless reveal seasonal patterns, probably because some respondents incorrectly compare the survey quarter with the one directly preceding it. In such cases, a seasonally adjusted series (i.e. where such seasonal variation is eliminated with X12 ARIMA) is added.

### Average (μ)

The neutral level of the time series for the two measurement types, net percentage and percentage, is 50 or zero respectively. The long-term average (mean) is often not equivalent to this neutral level. In such cases, it is more useful to evaluate the current results relative to such a long-term average than the neutral level.

### One standard deviation below (μ-σ) and above (μ+σ) the average

The standard deviation indicates the common variation in or dispersion of the values. Data points falling between one standard deviation below and above the average could be regarded as common. Any data point falling outside these ranges, therefore, displays statistically significant variation.

### Change (Delta: Δ)

This statistic indicates the change in the results of the latest quarter relative to the preceding quarter.

### Volatility (standard deviation of the deltas: Δσ)

This statistic indicates the volatility of the quarter-on-quarter change. If the size (regardless if it is an increase or decline) of the change is greater than the standard deviation of the deltas, then it displays a statistically significant variation.

## CONVENTIONS AND AIDS PROVIDED IN THE CHARTS

### Shaded areas

Indicates cyclical downturns as demarcated by the South African Reserve Bank. Users need to take note that the business cycle could have already reversed course towards the end of the period covered in the chart, but usually we wait until the bank determines a turning point before changing the shaded areas.

### Solid vs. dotted horizontal (X) axes:

A solid line indicates the theoretical mid-points of 50 or zero respectively, while a dotted line indicates the long-term average (mean). Also see the section on the "average" above.

### Normalised scale

Time series data is normalised (standardised) when one wishes to observe the co-movement among indicators with different units of measurement, say for instance, between a diffusion index (confidence) and the growth rate in a volume index (GDP growth). Normalisation converts both series to the same scale (unit) by subtracting the long-term average from each series and dividing it by its standard deviation. This ensures that one compares "apples" with "apples" when making a visual inspection and not mistakenly identify co-movements or deviations that different scales could produce.