

Article

The UK motor vehicle manufacturing industry: 2008 to 2018

Long-term movements in output, investment and employment in the UK motor vehicle manufacturing industry between 2008 and 2018. This is an economic review article.

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1 . Main points

- Businesses that invested more than the industry average produced two-thirds of total UK motor vehicle manufacturing output between 2008 and 2018.
- Despite representing only one-fifth of all motor vehicle manufacturing firms, larger businesses with 500 or more employees contributed an average of 91% of industry turnover and 92% of industry investment across the decade.
- The percentage of turnover invested showed signs of decline from 2016 onwards despite total turnover continuing to increase, reflecting increased uncertainty in the industry in recent years.
- The average levels of employment per firm increased notably between 2008 and 2018, with industry employment becoming increasingly concentrated in the West Midlands.
- There was a strong positive correlation between the amount of turnover invested and average levels of employment within the industry between 2008 and 2015; however, the correlation was negative between 2016 and 2018.

2 . Overview

The motor vehicle manufacturing industry is a vital part of the UK economy. With the second-highest [gross value added](#) of all the manufacturing industries at £16.35 billion, the industry had an estimated turnover in excess of £77.8 billion in 2018.

The manufacturing sector as a whole has [grown increasingly reliant on the manufacture of motor vehicles](#) in recent years, with the industry accounting for 9.0% of total UK manufacturing in 2018. Motor vehicle manufacturing firms directly employed over 169,000 people in the UK - representing 0.5% of total employment in 2018 - with the complex and highly integrated industry supply chain [estimated to employ hundreds of thousands more \(PDF, 3.97MB\)](#).

Since 2008, the UK motor vehicle manufacturing industry has been subject to a range of domestic and global factors. These include the immediate aftermath of the global economic downturn, the depreciation of sterling in 2016, increased climate awareness across the industry and the more recent political and economic uncertainty. Given the size of the industry and its importance to the UK economy, the industry has been subject to much scrutiny, with the latest official estimates pointing to a loss of momentum in recent years.

Based on new empirical analysis, this article analyses the long-term trends of the UK motor vehicle manufacturing industry between 2008 and 2018, specifically its output, investment and employment. It aims to provide economic insight and rationale behind some of the developments in the industry, whilst also providing an overview of the role of the industry within the wider UK economy. Annex A provides full details on the surveys, data and methods used to produce this analysis.

It should be noted that the analysis used in this article does not include the impact of the coronavirus (COVID-19) on the UK motor vehicle manufacturing industry. Recent data from the Society of Motor Manufacturers and Traders (SMMT) show that [UK new car registrations fell by 44.4% in March 2020](#), reflecting the impact of the ongoing coronavirus crisis. Whilst potential customers and production lines remain under lockdown, the pandemic will continue to pose a risk to domestic demand, exports and supply chains in the industry.

3 . Manufacturing output

Motor vehicle manufacturing output fell notably in the midst of the economic downturn, decreasing by 25.3% in 2009 compared with the previous year. The decline was notably more pronounced than the remaining manufacturing industries as a whole, which fell by only 9.0% in 2009 (Figure 1).

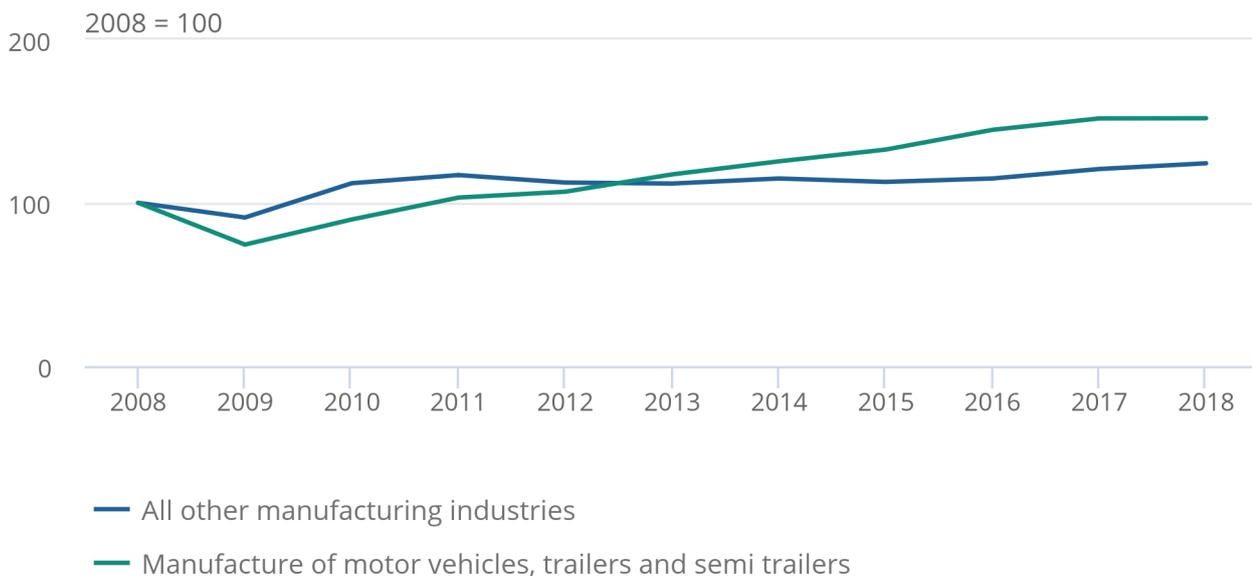
The more pronounced impact of the global economic downturn on UK motor vehicle manufacturing output relative to other manufacturing industries may partially reflect increased exposure to a number of global factors, including highly integrated supply chains, and an increasing reliance on export markets. However, following the fall in 2009, growth in motor vehicle manufacturing output has outstripped that seen in the remaining manufacturing industries and the rest of the [UK production sector](#) as a whole.

Figure 1: Following a marked fall in 2009, growth in motor vehicle manufacturing output has outstripped that seen in the rest of the manufacturing industries

Manufacturing industries, UK

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Manufacturing industries, UK



Source: Office for National Statistics

Notes:

1. Data are calculated using official Monthly Business Survey turnover estimates.

Movements in motor vehicle manufacturing output have been driven by domestic and export demand (Figure 2). The collapse in both domestic and export demand in 2009 reflects the loss of [business and consumer confidence](#) following the economic downturn, which resulted in a decline in global sales, factory shutdowns and widespread job losses across the industry. Subsequently, there was an increase in export demand, as global economic confidence broadly recovered.

The increase in export demand during this period is corroborated by data from the Society of Motor Manufacturers and Traders (SMMT) - who [recorded a 10-year high in car production in 2015](#) - and attributed the increase in output to increased demand from main export markets such as Europe, with four out of five UK manufactured cars being exported in 2015.

However, industry output has slowed considerably since the end of 2016. The broadly flat picture in 2018 - the weakest annual growth in output since 2009 - represented a significant loss in industry momentum. The slowdown in industry growth in recent years reflects a [number of factors](#), including a notable weakening in demand for new cars in the UK, with responder-led feedback indicating the changes to Vehicle Excise Duty, emission test changes in the form of the worldwide harmonised light vehicle test procedure and uncertainty about the UK's future relationship with the European Union all weighing on demand.

The SMMT recorded [a decline in the UK new car market in 2018](#), linking the fall to the backdrop of political and economic uncertainty. The recent [comparison of motor vehicle manufacturing output statistics, UK: 1997 to 2019 article](#) provides further analysis of the relationship between Office for National Statistics (ONS) and SMMT output statistics.

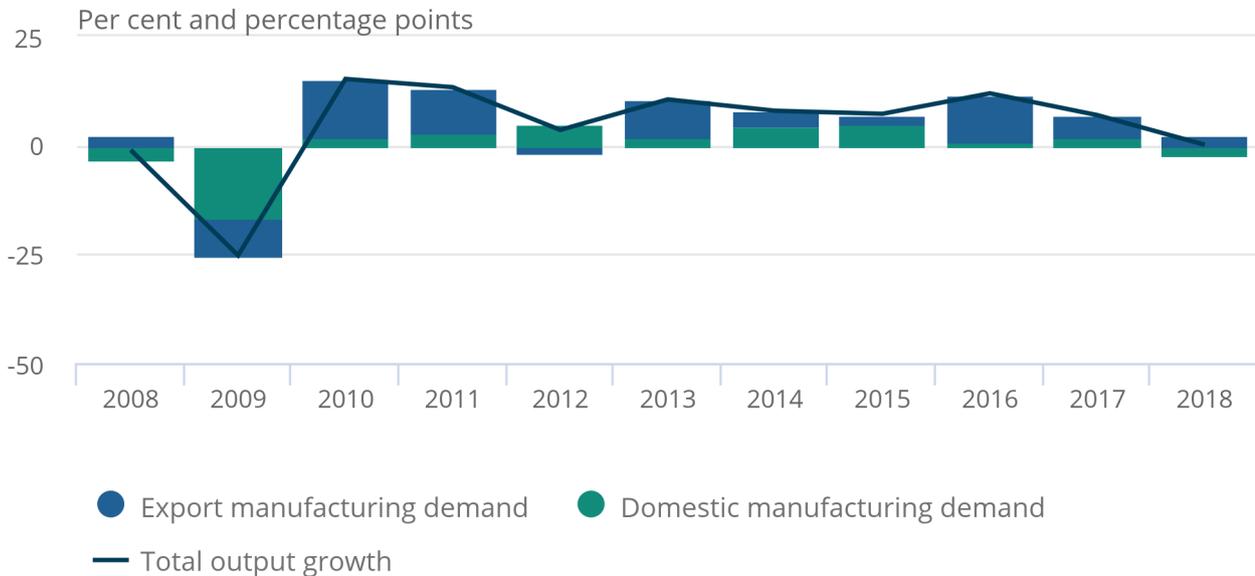
The slowdown in growth has also coincided with an easing in [global gross domestic product \(GDP\) growth](#), which may partially explain the [slowdown in demand for UK-produced motor vehicles from China](#), one of the UK's main motor vehicle export markets. Official data show that despite cars being the UK's second-largest export to China in 2018 - behind only crude oil - the volume of cars exported to China has fallen 14% over the past five years. Initial official estimates for 2019 suggest that [the slowdown in motor vehicle manufacturing continued to worsen in 2019](#), with the 5.9% fall in output the first annual decline since 2009.

Figure 2: Growth in motor vehicle manufacturing output has been driven by a combination of both domestic and export demand

UK, contributions to annual growth, 2008 to 2018

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UK, contributions to annual growth, 2008 to 2018



Source: Office for National Statistics

Notes:

- Contributions may not sum exactly because of rounding.
- Domestic and export contribution splits are based on official published Monthly Business Survey turnover estimates.

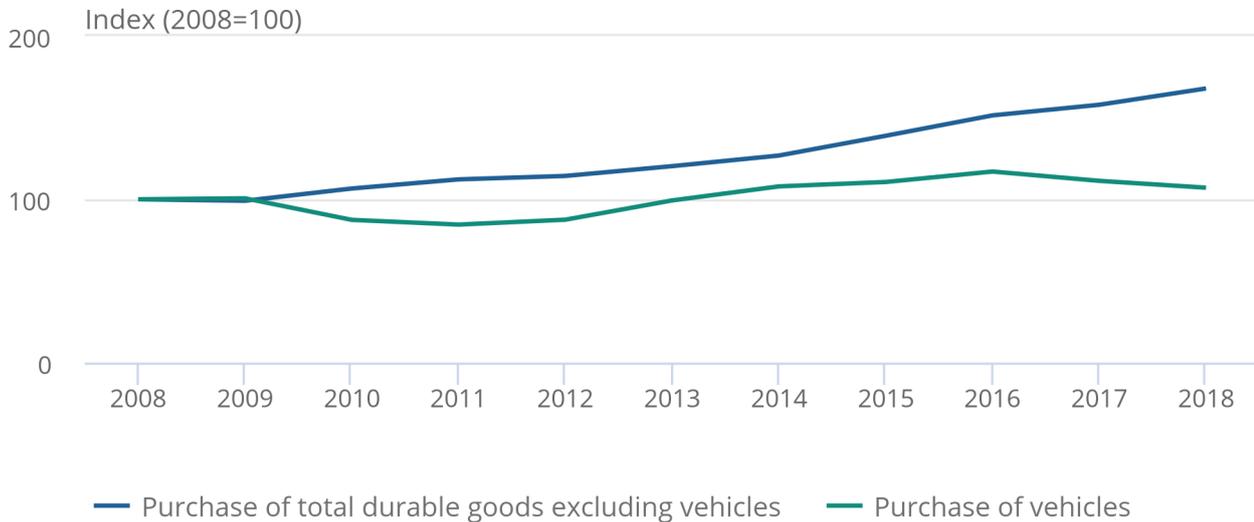
The relatively subdued domestic demand for motor vehicles in recent years is corroborated by the recent trends in UK consumer spending. [Household expenditure on durable goods](#) - including items such as furniture, jewellery and watches - fell following the financial crisis, before subsequently increasing in more recent years. The growth in household consumption of durable goods excluding vehicles has considerably outstripped the growth in the consumption of vehicles since 2009 (Figure 3).

Consumer confidence plays an important role in determining vehicle purchase decisions. In particular, during periods of economic uncertainty when consumer confidence is low, households are more likely to hold off purchases of expensive items such as cars as they build up their precautionary savings and focus their expenditure on essential items such as food and clothing. This pent-up demand would then materialise during an economic recovery as consumers feel more confident and are more willing to commit to purchasing big-ticket items such as cars.

An example of this is the decline in expenditure on vehicles between 2009 and 2011 - a period in which consumer confidence was relatively low - and the subsequent rise in expenditure on vehicles between 2012 and 2016 during which consumer confidence grew.

Figure 3: Growth in household expenditure on the purchase of vehicles has been considerably outstripped by growth in expenditure on all other durable goods since 2010

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Source: Office for National Statistics

Notes:

1. Data are based on seasonally adjusted, chained volume measure official consumer trends estimates.

The increase in output during this period also coincided with [a boom in the sale of diesel cars](#), with the registration of new diesel cars increasing dramatically between 2010 and 2014. The increased environmental awareness and the reaction of the industry to such issues - which has negatively affected the demand for diesel cars - may also partially explain the loss in momentum in more recent years.

Recent analysis from EY has attributed some of the recent slowdown in domestic demand to the [decline in demand for diesel cars in the UK](#). EY outlined how the sharp fall in diesel's popularity came as a result of more stringent emission targets, consumers' increasing environmental concerns and negative publicity following the 2015 emissions scandal.

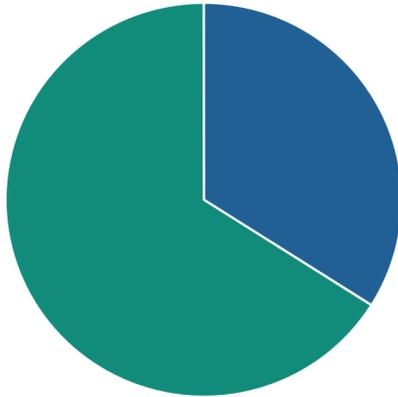
In addition to these macroeconomic and environmental factors, the strategic decisions of firms in areas such as capital investment have also had an impact on motor vehicle manufacturing output throughout the decade. Businesses who invested higher levels of their total turnover in capital and machinery contributed a disproportionately large share of total motor vehicle manufacturing output between 2008 and 2018 (Figure 4). Businesses who invested more than the industry average of 4.1% of their annual turnover - which equated to 10% of sampled firms - produced an average of 66% of total UK motor vehicle manufacturing output between 2008 and 2018.

Figure 4: Businesses who invested a higher percentage of their total turnover contributed the majority of total industry manufacturing output

Contribution to UK motor vehicle manufacturing output, 2008 to 2018 average

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Contribution to UK motor vehicle manufacturing output, 2008 to 2018 average



Source: Office for National Statistics

Notes:

1. The average percentage of turnover invested in capital and machinery by motor vehicle manufacturing firms between 2008 and 2018 is 4.1%.
2. Data are based on a sample of firms who feature on both the Quarterly Acquisitions/Disposal of Capital Assets Survey and the Monthly Business Survey.

4 . Business investment

[Business investment](#) represents net investment by UK-based businesses in non-financial assets, including investments in items such as equipment and machinery, information and communication equipment and intellectual property products.

Throughout the past decade, levels of [business investment](#) in the UK economy have been particularly exposed to changes in the wider macroeconomy. Following a notable decline as a result of the 2008 economic downturn, business investment has experienced a steady recovery. However, in more recent years the levels of investment in the UK economy have stagnated, likely reflecting the [political and economic uncertainty](#) (PDF, 517KB) during this period.

Much like in the UK economy as a whole, business investment in the motor vehicle manufacturing industry declined in the aftermath of the global economic downturn before recovering between 2010 and 2015 (Figure 5). Following this, business investment by motor vehicle manufacturers experienced a period of relative volatility between 2016 and 2018, culminating in a 11.4% fall in industry investment in 2018.

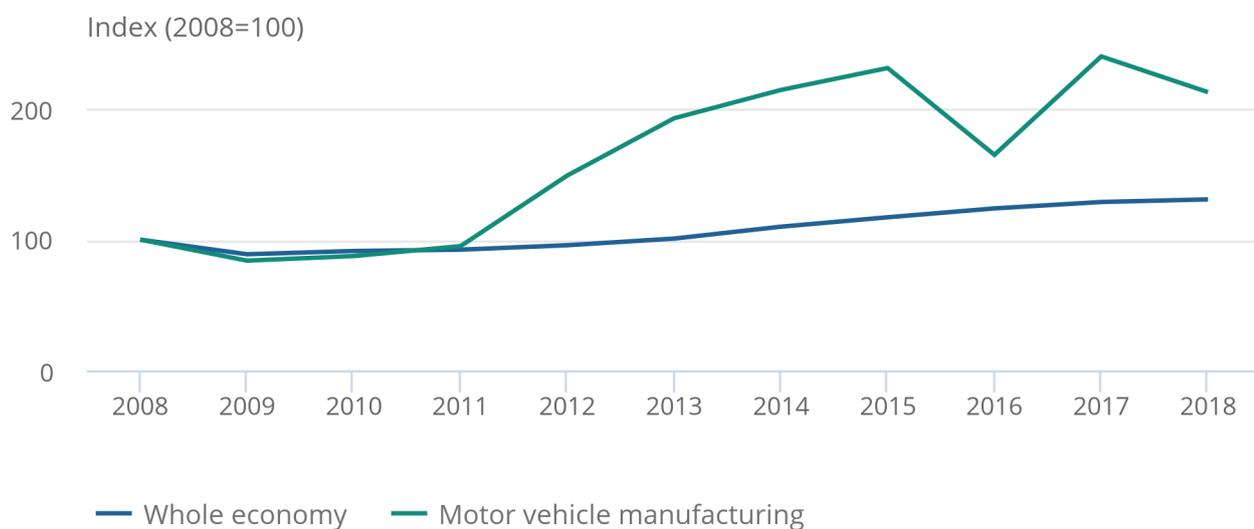
Despite the increasingly concentrated nature of investment, at a firm level the average proportion of turnover invested by motor vehicle manufacturers has generally declined in recent years (Figure 8). Following a period of growth between 2008 and 2015 - during which the percentage of turnover invested reached 5.7% - the proportion of turnover invested by firms has generally declined since 2016, despite peaking at 5.9% in 2017. This has occurred despite the total levels of industry turnover continuing to increase, a likely reflection of the increased uncertainty in the industry in recent years.

Figure 5: Business investment in the motor vehicle manufacturing industry has increased at a faster, more volatile rate compared with the rest of the economy since 2011

UK, current prices, £ million, 2008 to 2018

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UK, current prices, £ million, 2008 to 2018



Source: Office for National Statistics

Notes:

1. Motor vehicle manufacturing investment data represent the sum of investment of all firms registered to SIC 29.

The [Annual Acquisitions and Disposals of Capital Assets Survey](#) - which collects a detailed breakdown of capital expenditure - provides some insight into the areas that firms invested in between 2014 and 2018. During this period, capital expenditure by motor vehicle manufacturers was most concentrated in machinery and equipment, fabricated and other products, and construction work, with expenditure in these three areas combined making up nearly 90% of total industry expenditure (Figure 6).

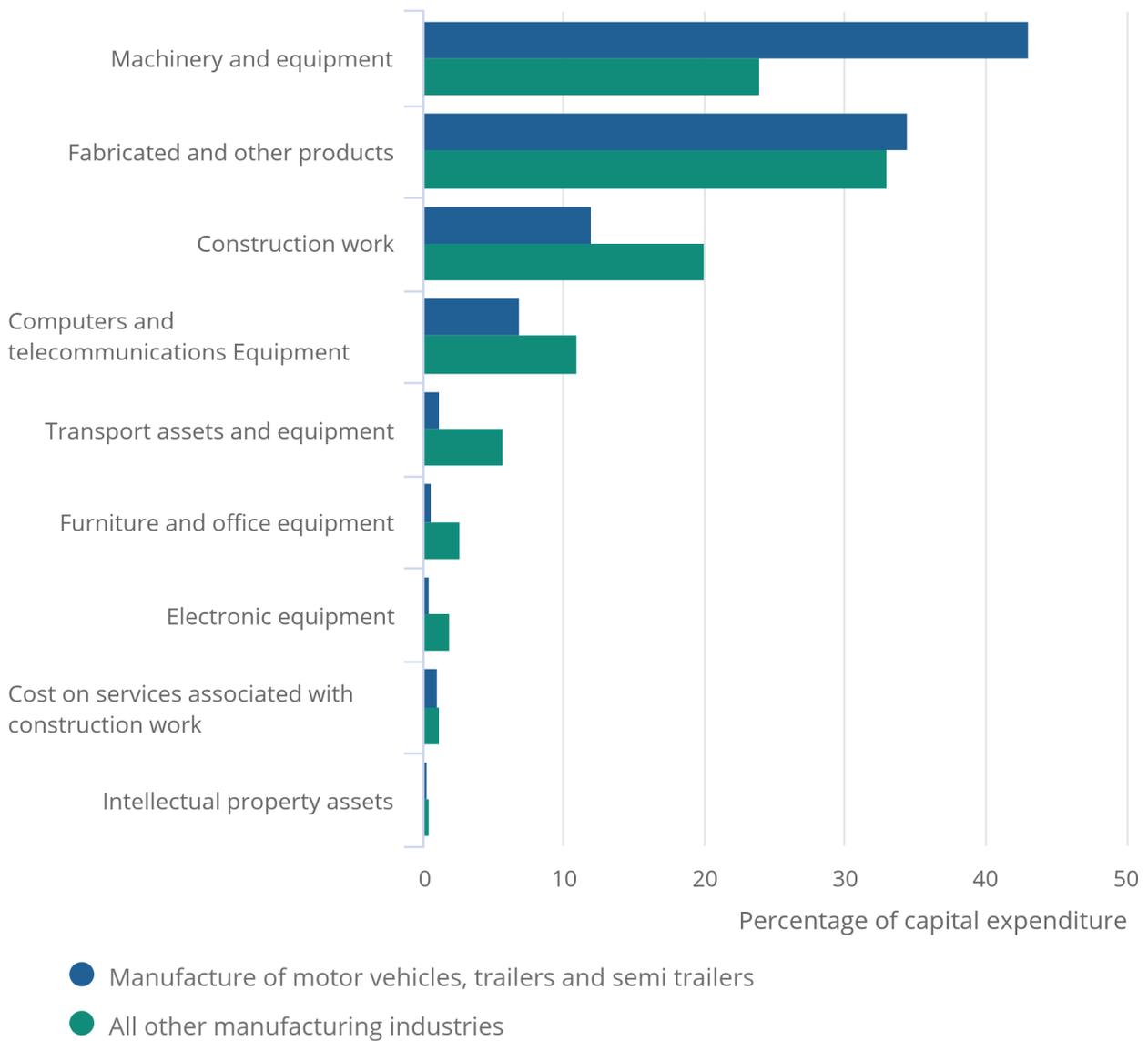
The capital expenditure of the remaining manufacturing industries is also predominately concentrated in machinery and equipment, fabricated and other products, and construction work, which combined made up 77.2% of capital expenditure. However, the expenditure of the remaining industries across the other categories is relatively more dispersed, with the capital investment in areas such as computers and telecommunications equipment and transport and assets notably higher compared with the motor vehicle manufacturing sector.

Figure 6: Capital expenditure by motor vehicle manufacturers has been concentrated in machinery and equipment and fabricated products

UK, percentage of total capital expenditure by asset, 2014 to 2018 average

Figure 6: Capital expenditure by motor vehicle manufacturers has been concentrated in machinery and equipment and fabricated products

UK, percentage of total capital expenditure by asset, 2014 to 2018 average



Source: Office for National Statistics

Notes:

1. Motor vehicle manufacturing investment data represent the sum of investment of all firms registered to SIC 29.
2. Data are sourced from the Annual Acquisitions and Disposals of Capital Assets Survey.

Investment in the motor vehicle manufacturing industry has become increasingly concentrated in the very largest of firms. This has partly been driven by the rise in the number of firms with 500 or more employees, which has increased from 14.8% of all firms in 2008 to 33.8% in 2018 (Figure 7). This rise has been mirrored in the contribution of these larger firms to total industry turnover and investment, with firms with 500 or more employees contributing 95.3% of total industry turnover and 95.9% of total industry investment in 2018.

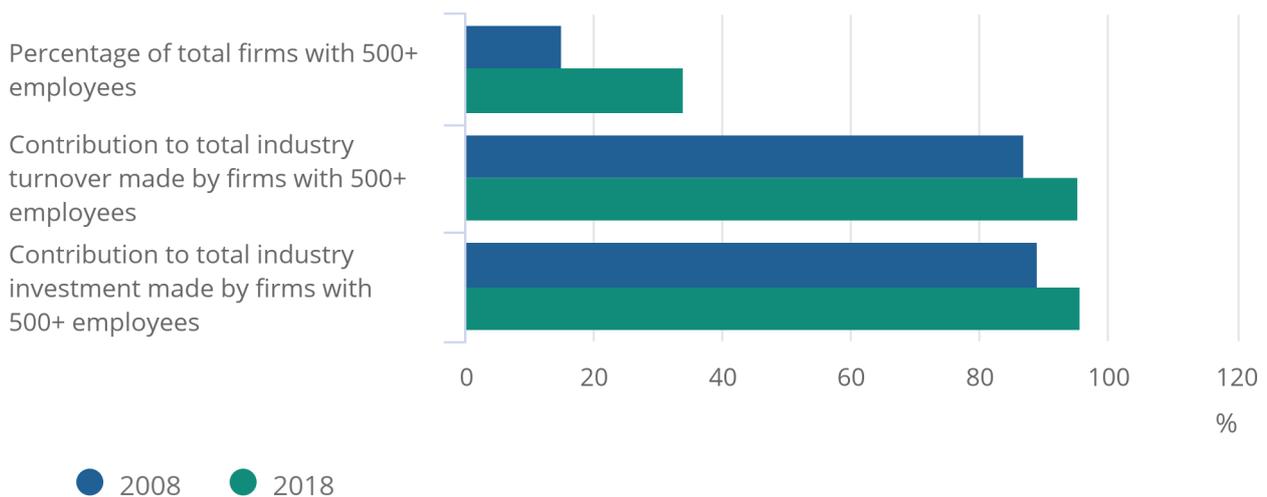
The increasingly concentrated nature of business investment may reflect the ability of larger firms to access higher amounts of finance compared with smaller firms. This enhances larger firms' ability to react to macroeconomic conditions – which have been particularly volatile in more recent years – in order to mitigate risks and maximise returns. In contrast, relatively smaller firms are likely to face greater financial constraints, making them less able to react to external macroeconomic factors, especially in the short-term.

Figure 7: Industry investment has become increasingly concentrated in firms with 500 or more employees

UK, averages in 2008 and 2018

Figure 7: Industry investment has become increasingly concentrated in firms with 500 or more employees

UK, averages in 2008 and 2018



Source: Office for National Statistics

Notes:

1. Data represent the average investment, turnover and number of firms with 500 employees or more registered to SIC 29 from 2008 to 2018.

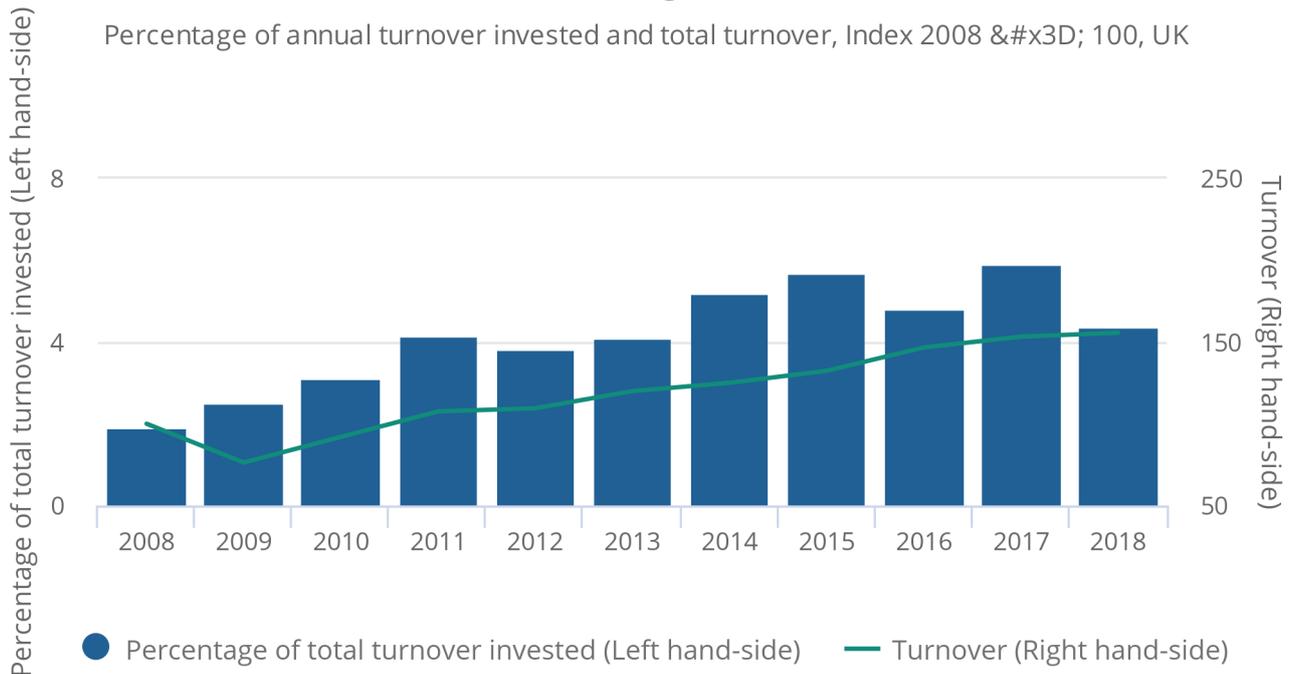
Despite the increasingly concentrated nature of investment, at a firm level the average proportion of turnover invested by motor vehicle manufacturers has generally declined in recent years (Figure 8). Following a period of growth between 2008 and 2015 - during which the percentage of turnover invested reached 5.7% - the proportion of turnover invested by firms has generally declined since 2016, despite peaking at 5.9% in 2017. This has occurred despite the total levels of industry turnover continuing to increase, a likely reflection of the increased uncertainty in the industry in recent years.

This notion is reinforced by the fact that the patterns shown in Figure 8 are broadly mirrored in the [Organisation for Economic Co-operation and Development UK business confidence index](#). In periods in which confidence is higher, firms were willing to invest more of their annual turnover into higher-risk items such as equipment and machinery, however, in periods in which confidence is lower, firms may have been increasingly risk-averse and have invested less of their annual turnover.

Figure 8: Motor vehicle manufacturers have invested less of their annual turnover in recent years despite turnover continuing to rise

Percentage of annual turnover invested and total turnover, Index 2008 = 100, UK

Figure 8: Motor vehicle manufacturers have invested less of their annual turnover in recent years despite turnover continuing to rise



Source: Office for National Statistics

Notes:

1. Headline turnover estimates are based on official estimates from the Annual Business Survey.
2. The average percentage of turnover invested in capital and machinery by motor vehicle manufacturing firms between 2008 and 2018 is 4.1%.

5 . Employment

In 2008, there were approximately 139,500 people directly employed by firms operating in the motor vehicle manufacturing sector in Great Britain. Following a period of notable decline as a result of the economic downturn, total industry employment grew to 165,500 in 2018, 18.6% higher than 2008. Despite the relative recovery in motor vehicle manufacturing employment relative to 2008, industry employment remains substantially below that seen in the 1970s, when motor vehicle manufacturing employment in Great Britain exceeded 500,000.

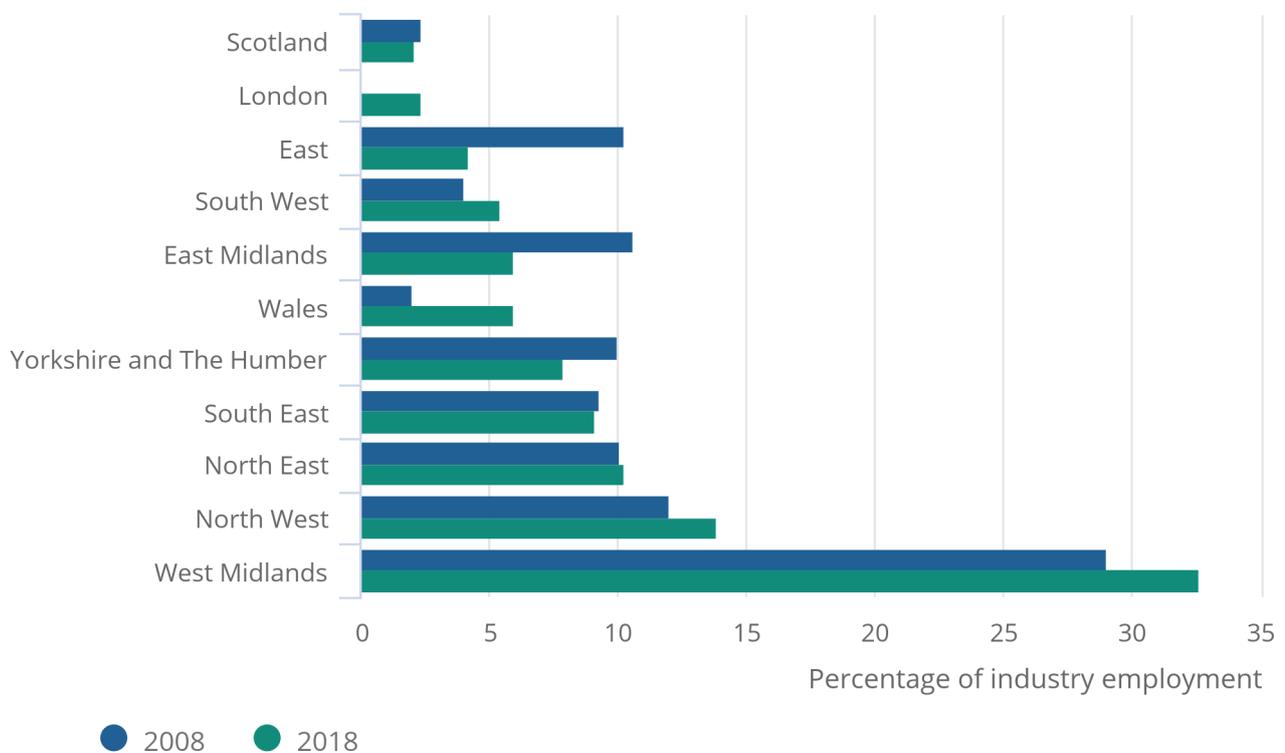
At a regional level, motor vehicle manufacturing employment is becoming increasingly concentrated in the West Midlands (Figure 9). The region contributed 32.6% of total industry employment in Great Britain in 2018 compared with 29.0% in 2008. The remainder of employment is relatively more dispersed, with only the North West and North East of England contributing over 10% of industry employment alongside the West Midlands throughout the decade. The lowest levels of motor vehicle manufacturing employment in 2018 were in Scotland and London, which contributed 2.1% and 2.4% to total industry employment respectively.

Figure 9: Motor vehicle manufacturing employment has become increasingly concentrated in the West Midlands

Concentration of motor vehicle manufacturing employment in Great Britain, 2008 and 2018

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Concentration of motor vehicle manufacturing employment in Great Britain, 2008 and 2018



Source: Office for National Statistics – Business Register and Employment Survey

Notes:

1. Employment totals include employees plus the number of working owners. This includes self-employed workers providing they are registered for VAT or Pay-As-You-Earn (PAYE) schemes. Self-employed people not registered for these, along with HM Forces and Government Supported trainees are excluded.
2. Figure 9 represents employment data in Great Britain and does not include Northern Ireland.

Despite representing an accurate estimate of direct industry employment, the complexity of the industry supply chain means that the total number of people employed either directly or indirectly by the industry is expected to be substantially higher than official estimates. Analysis from the Society of Motor Manufacturers and Traders (SMMT) estimates that with an average of 44% UK content in British-built cars, [the total number of people employed in the wider UK automotive industry was in excess of 856,000 in 2018 \(PDF, 3.97MB\)](#).

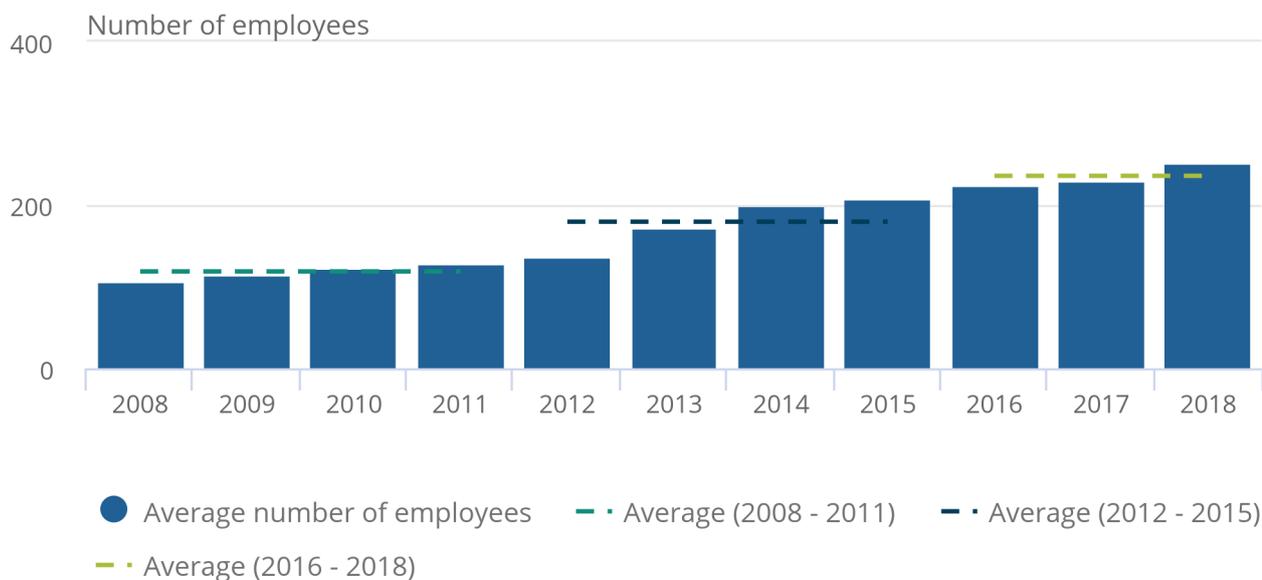
The overall rise in total industry employment is reflected in the average levels of employment per firm, which has risen consistently in every year between 2008 and 2018 (Figure 10). In 2008, motor vehicle manufacturers had an average total employment of 106; following the consistent increases over the 10-year period average employment has risen to 253. The increase in average employment per firm reinforces the notion that the industry is becoming increasingly concentrated amongst larger firms with higher levels of employment.

Figure 10: The average levels of employment by motor vehicle manufacturers has gradually risen over the decade, reaching 253 in 2018

Weighted average total employment per firm, Great Britain, 2008 and 2018

Figure 10: The average levels of employment by motor vehicle manufacturers has gradually risen over the decade, reaching 253 in 2018

Weighted average total employment per firm, Great Britain, 2008 and 2018



Source: Office for National Statistics

Notes:

1. Average employment is calculated using the amount of employment per firm as registered on the Interdepartmental Business Register.
2. Average employment estimates are weighted by each firms' contribution to total employment in each calendar year.

Although the rise in employment per firm may predominantly reflect the reaction of firms to increase production capacity as a result of increased demand for motor vehicles, it may also reflect an element of labour hoarding by manufacturers, particularly in more recent years when demand has slowed. Although it is hard to say for certain, labour hoarding - the practice of retaining staff during uncertain times - may have occurred, as retaining existing employees and hiring additional staff is deemed less risky than capital investment.

To further explore the relationship between investment and employment, Figure 11 shows the weighted percentage of turnover invested (right-hand side) alongside the average employment per firm (left-hand side). Across the decade as a whole, a strong positive correlation (0.82) between the two existed. However, during periods when industry output growth was considerably lower - such as between 2016 and 2018 - a negative correlation was evident between the average employment per firm and the percentage of turnover invested in capital.

During this period, firms chose to hire more labour and spend less of their turnover on capital and machinery. Although it is difficult to pinpoint exactly why this may have occurred, the negative correlation may further emphasise businesses' risk aversion to investment during a period of heightened political and economic uncertainty. Hiring and retaining workers as opposed to investing in capital may have carried less long-term financial risk during a period of high uncertainty. Recent analysis highlighted that [hiring would be easier to reverse in the event of a shock than capital expenditure \(PDF, 581KB\)](#).

Figure 11: The correlation between the number of employees per firm and the percentage of turnover invested was positive between 2008 and 2015, but has been negative since

The weighted average of employees per business and the weighted average of turnover invested, Great Britain, 2008 to 2015

Figure 11: The correlation between the number of employees per firm and the percentage of turnover invested was positive between 2008 and 2015, but has been negative since



Source: Office for National Statistics

Notes:

1. Average employment estimates are weighted by each firms' contribution to total employment in each calendar year.
2. The average turnover invested estimates are weighted by each firms' contribution to total investment in each calendar year.

6 . Conclusions

The motor vehicle manufacturing industry has faced challenges in the form of a number of factors over the past decade. Despite this, employment, investment and output in the industry are all substantially above the levels seen in 2008. However, in recent years the industry has showed some signs of losing momentum, with growth in all three of the main indicators analysed in this article beginning to plateau. In particular, industry output has slowed considerably since the end of 2016, with the latest official estimates showing that [industry output fell in 2019](#).

Overall, motor vehicle manufacturing output has experienced a strong recovery since the economic downturn, with the level of output in 2009 more than doubling as of 2018. Output increased consistently for nine consecutive years between 2009 and 2018 as a result of both domestic and export demand, with the majority of growth seen throughout this period stemming from firms who invest more than 4.1% of their annual turnover.

Business investment increased markedly between 2010 and 2015 but has been relatively volatile from 2016 onwards. Movements in total investment in the motor vehicle manufacturing industry has been increasingly driven by the very largest of firms. Whilst representing only 22% of all sampled firms between 2008 and 2018, firms with 500 or more employees contributed an average of 92% of total industry investment and 91% of total industry turnover. However, despite rising turnover in recent years, motor vehicle manufacturers have reduced the proportion of their annual turnover that they put towards investment, likely reflecting increased uncertainty in the industry.

Motor vehicle manufacturing employment has risen over the decade, yet remains low by historical standards, with employment becoming increasingly concentrated in the West Midlands. There was a positive correlation between the average amount of employees per firm and the average amount of turnover invested between 2009 and 2015, as firms invested in both labour and capital. However, between 2016 and 2018 there was a negative correlation between the two, as firms appeared to substitute investment in capital and machinery in order to retain and hire additional labour.

The analysis used in this article does not include the impact of the coronavirus (COVID-19) on the UK motor vehicle manufacturing industry. Whilst potential customers and production lines remain under lockdown, the ongoing pandemic will continue to pose a risk to both demand-side and supply-side factors.

Although this article focuses predominantly on the levels of employment, investment and output in the motor vehicle manufacturing industry, further analysis may potentially expand this analysis to include additional data sources and cover different aspects of the industry. This may include analysis on areas including trade, stockpiling, and research and development in the motor vehicle manufacturing industry.

7 . Author

Fred Haynes, Office for National Statistics.

8 . Annex A – Data

All data used in this article relate to [Standard Industrial Classification](#) (SIC) 29 - the manufacture of motor vehicles. The industry can be broken down into six sub-industries:

- 29100 - Manufacture of motor vehicles
- 29201 - Manufacture of bodies (coachwork) for motor vehicles (except caravans)
- 29202 - Manufacture of trailers and semi-trailers
- 29203 - Manufacture of caravans
- 29310 - Manufacture of electronic equipment for motor vehicles and engines
- 29320 - Manufacture of other parts and accessories for motor vehicles

Table 1 provides a summary of the data used as part of this publication. This includes a variety of different data sources, all of which feed into a range of different Office for National Statistics publications.

Table 1: Summary of data sources used in this publication

	Survey	Period	Frequency	Key variables	Respondents
Business investment	Capital expenditure survey (CAPEX)	2008 Q1 to 2014 Q4	Quarterly	Reporting unit reference number, net investment	Average of 245 firms per quarter
	Quarterly Acquisitions and Disposals of Capital Assets Survey (QCAS)	2015 Q1 to 2018 Q4	Quarterly	Reporting unit reference number, net investment	Average of 138 firms per quarter
Employment	Interdepartmental Business Register (IDBR)	2008 to 2018	Annual	Reporting unit reference number, annual turnover, employment, standard industrial classification	Average of 3500 firms per year
Manufacturing output	Monthly Business Survey (MBS)	2008 to 2018	Monthly	Reporting unit reference number, company name, monthly turnover, manufacturing output	Average of 200 firms per month

Source: Office for National Statistics

Manufacturing output

The data used to analyse manufacturing output have been sourced from the [Monthly Business Survey](#), which collects information on the monthly turnover of UK businesses - a proxy for output - within the production sector. These data feed directly into [UK Index of Production](#) and gross domestic product (GDP) estimates. Further data can be found in the [Monthly Business Survey turnover in production industries](#).

Business investment

The data used to estimate business investment in this analysis are sourced from the quarterly Capital Expenditure Survey (CAPEX) between 2009 and 2014 and the [Quarterly Acquisitions and Disposal of Capital Assets Survey](#) (QCAS) from 2015 onwards. Both of these surveys collect data on net investment in the UK. A combination of the two data sources has been used as the CAPEX Survey was discontinued at the end of 2015 and replaced with the QCAS survey. These two data sources feed directly into [Business investment](#) and [GDP](#) estimates.

Employment

Headline employment data used in this publication have been sourced from the [Business Register and Employment Survey \(BRES\)](#), which provides data on employee and employment estimates at detailed geographical and industrial levels. BRES data are regarded as the definitive source of official government employee statistics by industry. Employment is calculated by adding the number of working owners to the number of employees employed by a business, where working owners include sole traders, sole proprietors and partners who receive drawings and/or a share of the profits.

For headline industry employment estimates, such as that seen in Figure 9, data are sourced from the BRES, which feeds directly into publications such as [Employees in the UK](#). [Inter-Departmental Business Register](#) employment data have also been used in this publication in some of the underlying analysis, such as to create employment size-bands, as seen in Figure 6.