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ROAD FREIGHT TRANSPORT SMEs: TRADING, OPERATIONAL AND DECARBONISATION PERSPECTIVES

Briefing Report

Technical Report ENG-TR.030

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University of Westminster

January 2023

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1. Introduction

This report consider the trading and operating situation facing UK road freight transport small and medium-sized businesses (SMEs), especially focusing on their views, preparedness and actions already taken to improve the fuel efficiency of their operations in response to the UK Government's net zero greenhouse gas (GHG) emissions legislation, as well as how they have been affected by the Covid-19 pandemic.

The report only considers road freight transport SMEs that provide goods transport services to other businesses and to private individuals. It does not consider the many SMEs that operate LGVs and HGVs but do not offer freight transport services to others and do not consider themselves to be road freight transport SMEs (i.e. those SMEs that either use LGVs and/or HGVs for their own goods transport within their businesses which are engaged in some other activity - such as manufacturing, wholesaling or retailing - or that use LGVs to provide services other than goods collection and delivery - including many services such as building, plumbing, lighting, equipment maintenance and repair).

Few studies of road freight transport have considered the situation of SMEs. However, if the UK Government's net zero target is to be met by 2050 by road freight transport operators then it is important to consider the situation of SMEs in this sector, given the number of them and the number of goods vehicles they operate.

Chapter 2 considers all SMEs in the UK (not just road freight transport SMEs) in relation to their number, economic situation and views and efforts in relation to decarbonisation.

Chapter 3 considers the importance of SMEs in the road freight transport sector in the UK providing the history of the sector and the size and number of road freight transport operators.

Chapter 4 discusses the goods vehicles, operator licencing, fleet sizes and goods vehicle drivers in relation to SMEs in the UK.

Chapter 5 considers the trading conditions facing road freight transport SMEs in the UK including their financial turnover and profitability, the impacts on them of the Covid-19 pandemic and Brexit, and their service innovation and the use of ICT.

Chapter 6 discusses goods vehicle acquisition by road freight operators, including the external finance that they make use of and their views on it.

An analysis of road goods vehicle operating costs is presented in **chapter 7** with consideration of recent changes in key operating cost components including fuel prices, drivers' wages and the price of new vehicles.

Contraventions of road freight transport regulations by SMEs are considered in **chapter 8.**

Chapter 9 considers the views and awareness of UK road freight transport SMEs about GHG emissions and decarbonisation, their current and future decarbonisation actions, the challenges they face, and ways in which these can be addressed by stakeholders.

Chapter 10 considers the timescale associated with the uptake of zero emission goods vehicles by SMEs in the UK and its comparison with the UK Government's 2050 net zero GHG emissions target. It also considers the potential impact of connected autonomous goods vehicles of road freight transport SMEs, and the likely continued reduction in road freight transport SMEs over time. It then examines the actions that could be taken by various stakeholders with respect to these SMEs in efforts to ensure that the road freight transport sector meets the UK Government's net zero legislation.

Conclusions are provided in **chapter 11.**

Definitions of small and medium-sized businesses (SMEs) vary between data sources and surveys consulted. For the purposes of UK Government statistics, used extensively in this report (BEIS, 2021a, 2021b, 2021c; ONS, 2021), SMEs are defined as having less than 250 employees and an annual turnover of up to £50 million, with the further subdivision into micro, small and medium-sized businesses by number of employees and annual turnover shown in **Table 1.1**. In UK Government annual survey work into the trading and operating conditions of SMEs (known as the Longitudinal Small Business Survey – LSBS – BEIS, 2021b, 2021c) which is carried out by the Department of Business, Energy and Industry Strategy (BEIS), SMEs are further divided into those with and without employees.

Table 1.1: SME definition used by the UK Government

Type of business		Number of employees	Turnover
SMEs	Micro-business	< 10 employees	< £2 million
	Small business	10-49 employees	£2-10 million
	Medium-sized business	50-249 employees	£10-50 million
	Large business	> 250 employers	> £50 million

Some of the other surveys with SMEs drawn upon in this report that have been carried out by other organisations use this same definition, while others differ. Survey work by the British Business Bank (a UK Government owned but privately run financial institution that supports small businesses) uses the same definition of SMEs as the UK Government statistics (i.e. less than 250 employees) (British Business Bank, 2021a; Klahr et al., 2021a; Klahr et al., 2021b).

Meanwhile, the BVA BDRC uses a definition for the purpose of its survey of SME finance and financial views that for inclusion an SME has an annual turnover of less than £25m, is not more than 50% owned by another business, and is not run as a social enterprise or as a not for profit organisation (BVA BDRC, 2021).

For qualitative interviews with SME road freight transport operators in the UK, research by Ipsos MORI carried out for the Department for Transport, only included sole traders and businesses with less than 50 employees (Crush and Reynolds, 2021).

One European survey of road freight transport SMEs has included businesses with fleets of 1-250 goods vehicles (Toelke and McKinnon, 2021), while another has defined medium-sized businesses as having an annual turnover of €10-50 million (McKinnon and Petersen, 2021).

The surveys drawn upon in this research also differ in terms of the sectoral level at which results are reported. One refers to specific categories of road freight transport operation (ONS, 2021) and another two surveys only include road freight transport operators (Crush and Reynolds, 2021; Toelke and McKinnon, 2021). Meanwhile, another survey includes senior managers in European shippers, road freight and logistics providers and providers of other services ((McKinnon and Petersen, 2021).

Two surveys made use of include businesses with a standard industrial classification (SIC) code of H which designates businesses involved in Transport and Storage, but which includes businesses involved in cargo handling, passenger transport and non-road freight transport (BEIS, 2021; British Business Bank, 2021a). Another survey presents results which includes businesses in SIC codes H (Transportation and storage) and SIC code J (Information and communication – which includes publishing, media and computing businesses) (BVA BDRC,

2021). Two other surveys which refers to the sector as 'distribution' include businesses in SIC codes H (Transportation and storage), G (Wholesale and retail trade; repair of motor vehicles and motorcycles) and I (accommodation and food service activities) (Klahr et al., 2021a, 2021b).

These differences in definitions of SMEs and in the types of businesses included in survey work consulted needs to be borne in mind when reading the report. So too do the sample sizes in these various surveys. Further details of each of the surveys made use of in this report can be found in **Appendix 1**.

This report has been produced as part of the Centre for Sustainable Road Freight (SRF – EPSRC grant number: EP/R035148/1). A survey of UK road freight transport SMEs and their views and experiences in relation to fuel efficiency and decarbonisation, Brexit and Covid-19 has also been carried out in 2022 as part of this SRF work. A report containing the results of that survey work is also available. That report and further details about the SRF project are available at: http://www.csrf.ac.uk/

2. SMEs in the UK: number, economic situation and decarbonisation

2.1 Number of SMEs in the UK

Table 2.1 shows the number of registered and unregistered private businesses in the UK private sector and their associated employment and turnover, by size of business in 2021. This shows that at the start of 2021 there were 5.6 million businesses in the UK and that SMEs (i.e. businesses with less than 250 employees) accounted for 99.9% of these businesses, 61% of employment and 52% of turnover in the UK. Micro businesses alone (i.e. with 0-9 employees) accounted for 95% of all businesses, 32% of employment and 21% of turnover (BEIS, 2021a). Small businesses (i.e. with 10-49 employees) accounted for approximately 4% of all businesses, 6% of employment and 6% of turnover, and medium-sized businesses (i.e. with 50-249 employees) accounted for approximately 1% of all businesses, 13% of employment and 16% of turnover (BEIS, 2021a).

Table 2.1: Estimated number of businesses in the UK private sector and their associated employment and turnover, by size of business, 2021

Size of business	Number of employees	Total number of businesses		Total employment		Total turnover	
		Thousand	%	Million	%	£ Billion	%
Micro	0 (unreg)	2,931	52.4%	0.0	11.9%	111	2.5%
	0 (reg)	1,244	22.3%	0.9	4.9%	192	4.3%
	1	134	2.4%	0.1	1.1%	25	0.6%
	2 to 4	765	13.7%	2.0	7.9%	351	7.9%
	5 to 9	263	4.7%	1.7	6.6%	261	5.9%
Small	10 to 49	211	3.8%	4.1	15.2%	650	14.6%
Medium	50 to 249	36	0.6%	3.5	12.9%	721	16.2%
Large	250+	8	0.1%	10.6	39.4%	2,139	48.1%
TOTAL		5,591	100%	22.9	100%	4,449	100%

Notes:
Data is for the start of the year.
Includes all registered and unregistered businesses.
For businesses with zero employees: 'unreg' = unregistered, 'reg' = registered.
Businesses with only one PAYE employee are counted in the "zero employees" category, rather than the "1 employee" category, as the employee is treated as being equivalent to a "working proprietor" in order to ensure that incorporations by individuals operating alone do not distort the overall numbers of businesses with employees.
BEIS impute the turnover of unregistered businesses based on the turnover for zero-employee VAT/PAYE registered businesses at an industrial sector level.
Total turnover figures exclude SIC code K (financial and insurance activities) where turnover is not available on a comparable basis.
Source: BEIS, 2021a.

In 2021, these 5.6 million private businesses comprised 3.2 million sole proprietorships (56% of the total), 2.0 million actively trading businesses (37%) and 384,000 ordinary partnerships (7%). Of these 5.6 million businesses, 1.4 million (25%) employed someone other than the owner, while 4.2 million (75%) did not. Forty eight percent of these businesses (2.7 million)

were registered for VAT and/or PAYE, while 52% (2.9 million businesses) were not (i.e. they were 'unregistered'[1]) (BEIS, 2021a).

Table 2.2 shows the change in the number, employment and turnover of private businesses in the UK over the period 2000 to 2019 by size of business. Growth has occurred in all sizes of businesses with the exception of those with one employee. Growth has been least strong in those businesses with 5-9 employees (BEIS, 2021a).

Table 2.2: Change in the number, employment and turnover of private businesses in the UK, 2010-2019 by size of business

Size of business (by number of employees)	Change in number of businesses (%)	Change in employment (%)	Change in turnover (%)
With no employees*	35%	37%	44%
1 employee	-20%	-22%	-13%
2-4 employees	27%	18%	73%
5-9 employees	19%	16%	13%
6-10 employees	24%	22%	30%
50-249 employees	28%	28%	46%
250 or more employees	29%	18%	20%
All businesses	31%	22%	29%
All SMEs	31%	25%	39%

Notes:
* - includes registered and unregistered business with no employees (businesses with one PAYE employee are counted as having no employees - see notes with Table 2.1 for further information).
Data is for the start of the year.
Includes all registered and unregistered businesses.
Source: calculated from data in BEIS, 2010 and 2019.

Overall, there were 1.4 million (31%) more SME private businesses in the UK in 2019 than in 2010. The number of businesses with no employees grew far faster than any other category over the period from 2010 to 2019 (by 37%), with the number of unregistered business with no employees growing slightly faster than registered businesses with no employees (37% compared with 35%).

2.2 SME difficulties during the Covid-19 pandemic and Brexit

Many SMEs have faced difficult economic and trading conditions since early 2020 during the Covid-19 pandemic with cash reserves and confidence in business survival falling (ONS, 2020, 2022). Survey work has found that many UK SMEs have experienced reduced turnover as a result. One survey found that approximately 60% of UK SMEs respondents experienced reduced turnover and 50% reported shrinkage of their businesses in the 12 months to the end

[1] The current threshold for VAT registration in the UK is an annual VAT taxable turnover above £85,000 (the VAT taxable turnover being the total of everything sold that is not VAT exempt). A business does not need to register for PAYE if none of its employees are paid £120 or more a week, get expenses and benefits, have another job or get a pension. Therefore, the vast majority of unregistered businesses have no employees.

of 2020, while another found that 42% of SMEs have suffered reduced turnover and 30% experienced falls in employment levels (BEIS, 2021b, 2021c; Enterprise Research Centre, 2020). However, 67% of UK SMEs reported having generated a profit or surplus, taking into account any financial support provided by government, in the previous financial year when asked this in 2021 (BEIS, 2021b, 2021c).

Between January 2019 and January 2021 (i.e. since the onset of Covid-19 and Brexit) the number of SMEs and total private businesses in the UK fell by 5% (see **Table 2.3**). Business with no employees or one employee have been worst affected in terms of closures, employment levels and turnover over this period. Unregistered businesses with no employees fared far worse than registered one with no employees.

Table 2.3: Change in the number, employment and turnover of private businesses in the UK, 2019-2021 by size of business

Size of business (by number of employees)	Change in number of businesses (%)	Change in employment (%)	Change in turnover (%)
With no employees*	-6%	-6%	-1%
1 employee	-6%	-7%	-6%
2-4 employees	2%	1%	5%
5-9 employees	1%	0%	12%
6-10 employees	0%	0%	3%
50-249 employees	0%	0%	13%
250 or more employees	0%	-2%	8%
All businesses	-5%	-2%	7%
All SMEs	-5%	-2%	7%

Notes:
* - includes registered and unregistered business with no employees (businesses with one PAYE employee are counted as having no employees - see notes with Table 2.1 for further information).
Data is for the start of the year.
Includes all registered and unregistered businesses.
Source: calculated from data in BEIS, 2019 and 2021a.

Major business obstacles reported by SMEs in recent survey work include (in order of importance): economic uncertainty due to Covid-19, social distancing regulations, uncertainty about Brexit, regulations/red tape, liquidity or cashflow, competition in the market, taxation, late payment, unable to find the right skills, availability or cost of suitable premises and obtaining finance (Enterprise Research Centre, 2020).

2.3 SMEs and net zero emissions

There is a lack of comprehensive data on greenhouse gas (GHG) emissions from SMEs (Blundel and Hampton, 2021; British Business Bank, 2021a; OECD, 2021). However, one study has estimated that UK SMEs (i.e. businesses with less than 250 employees) emit 53% of all business-related GHG emissions, with the other 47% due to larger businesses. In addition, SMEs account for approximately 30% of total GHG emissions in the UK (i.e. taking into account residential and other non-businesses sources of GHG emissions). This study, involving survey work with 1,200 UK SMEs also estimated that based on an assessment of

each's: (i) awareness and engagement about its GHG emissions, (ii) knowledge and capabilities about GHG emissions, and (iii) actions already taken to reduce GHG emissions, that 76% of these SMEs were in the earliest two of four maturity stages in the transition to net zero emissions (British Business Bank, 2021a).

Survey work by the European Investment Bank showed that in 2020, 37% of businesses across the EU were investing in measures to improve energy efficiency. However, energy efficiency actions and investment varied by business size, with 49% of large businesses making such investments compared with 27% of SMEs (European Investment Bank, 2020).

In addition, large businesses in the EU are far more likely to have put in place energy consumption and GHG emissions monitoring and set company targets. In 2019, 74% of large businesses in the EU had an internal energy audit system in place and 58% had set targets for energy consumption / GHG emissions. By comparison, 37% of SMEs in the EU had an internal energy audit system in place and 26% had set targets for energy consumption (European Investment Bank, 2020). Survey work in the UK found that 36% of SMEs had conducted training on environmental matters, while 31% had undertaken environmental audits or reports (Enterprise Research Centre, 2020). Another UK survey of SMEs found that only 32% of them have a consistently documented and implemented energy policy (Carbon Trust, 2020).

Qualitative research with UK SMEs has indicated that the term 'net zero' is poorly understood by some, with greater recognition of terms including 'carbon footprint', 'carbon reduction', 'sustainability', 'going green' and 'climate change'. Most of the SMEs surveyed who were familiar with the concept of GHG reductions viewed it as something that would cost their business money. In addition, a subsection of SMEs were more concerned with business benefits and cost savings, than with GHG reductions (Broadway Initiative, 2021).

SMEs in the EU cite a range of barriers to investing in decarbonisation actions including (in order of importance): uncertainty about the regulatory and taxation environment, the cost of investment activities, uncertainty about climate change impacts, uncertainty about new technologies to tackle the impacts, availability of finance and availability of staff with the right skills to identify and implement investments related to climate change (European Investment Bank, 2020).

Survey work among SMEs specifically in the UK has shown the following barriers to decarbonisation (in order of importance): money, time, not knowing where to start, other priorities, not knowing where to find help, uncertainty about what it means, government policies, and lack of belief that it will make a difference. This survey work has also indicated that SMEs making faster progress in decarbonisation typically have better financial skills and digital literacy than those that are not (Broadway Initiative, 2021). A UK survey of SMEs found that lack of time and money were given as the main barrier to act on improving energy efficiency (cited by 46% of respondents as a barrier compared to 15% or lower for other barriers) (Carbon Trust, 2020).

However, improving environmental performance can lead to benefits for SMEs so can be attractive if barriers can be addressed and overcome. **Table 2.4** summarises the commonly cited barriers and drivers to improvements in environmental performance among SMEs (Blundel and Hampton, 2021).

Table 2.4: Barriers and drivers in improving SME environmental performance

Primary focus	Common Barriers	Common Drivers
Internal / intra-organisational-level	• Lack of awareness • Lack of specialist knowledge / technical skills • Limitations in absorptive capacity / organisational learning • Competing priorities / lack of time • Resource constraints • Access to capital • Short term tenancy agreements • Lack of strategic alignment	• Cost savings • Risk mitigation • Pro-environmental values • Reputation and image • Staff morale
External / inter-organisational level	• Lack of trusted brokers / intermediaries • Information deficit regarding opportunities • Principal-agent / split-incentive problem	• Compliance • Competitive advantage • New market opportunities • Corporate reputation • Public subsidy

Source: Blundel and Hampton, 2021.

Results from a UK survey indicates that SMEs are more likely to be asked by their customers about their efforts to reduce environmental impacts (with 28% of SMEs reporting this in 2019 compared with 12% in 2016 – Carbon Trust, 2020). Such pressure from customers together with increasing government regulations are likely to increase decarbonisation efforts among SMEs.

2.4 SME financing for fuel efficiency and decarbonisation

Access to finance is important in SMEs contribution to fuel efficiency and decarbonisation with a diverse range of suppliers of finance required to meet their varying needs. This will include banks, equity finance and other lenders (including community/responsible finance institutions and market-based/peer-to-peer lenders) (Tickell and Robins, 2020). However, it should be noted that a sizeable proportion of UK SMEs are disinclined to use external finance. Survey work in Q4 2020 showed that only 33% of respondents agreed with the statement, “Happy to use external finance to help the business grow and develop”. Meanwhile, 85% of respondents agreed with the statement, “Current plans for the business are based on what we can afford ourselves”, 51% agreed with the statement, “Never think about whether we could/should use more external finance”, 80% agreed with the statement, “We will accept a slower rate of growth rather than borrowing to grow faster, and 68% agreed with the statement, “Because the future feels uncertain we are being very cautious with our plans for the business” (BVA BDRC, 2021).

SME awareness of how to select, finance and implement decarbonisation actions best suited to their needs is limited in many such businesses. Many SMEs require advice and guidance that meets their specific needs. Financial organisations and government have important roles to play in the provision of such information, as does the sharing knowledge of other SMEs that faced similar challenges and case studies of their decision-making and actions (Tickell and Robins, 2020).

3. Importance of SMEs in the road freight transport sector

3.1 History and development of road freight transport SMEs

The road freight transport sector in the UK has comprised many small businesses since its inception. Prior to the 20th century, many individuals provided local carrier services in their rural or town vicinity using a horse and cart or a packhorse. Businesses larger than a single vehicle began to emerge for inter-urban services which operated from coaching inns but even the vast majority of these would be categorised in today's terms as micro or small businesses (Chartres, 1977a, 1977b; Everitt, 1977; Gerhold, 1993a, 1993b). By the nineteenth century, some large parcel carriers had emerged such as Pickfords, Carter Paterson and McNamara, that provided horse-powered local delivery and collection services in conjunction with rail freight trunk. These businesses went on to adopt motorised goods vehicles when they became available in the early twentieth century, but most road freight businesses remained very small. After the First World War, during which the motorised goods vehicles were deployed in large numbers to distribute ammunition, provisions, fuel, troops, road building materials and evacuees, the UK Government sold off (relatively inexpensively) approximately 40,000 to 50,000 reconditioned goods vehicles that had been used during the war effort that were no longer required by them (Gibson, 2001). These supplemented the existing motorised goods fleet used by commercial freight businesses to keep the country running during the war (together with horses and rail freight) and gave many individuals the opportunity to establish themselves as self-employed providers of road freight transport services. Many ex-servicemen, who had learned to drive during their time in the armed services, entered the industry. Demand for road freight services grew rapidly, which led to the number of goods vehicles fleets doubling between 1919 and 1921 (to 128,000), and continuing to increase annually throughout the 1920s and 1930s, even during the years of the Great Depression, albeit at a slower rate of growth. By 1938, there were almost half a million goods vehicles. They were used by both own accounts operators (i.e. those manufacturers, wholesalers and retailers operating their own freight transport) and hire or reward operators (i.e. those providing freight transport services to others). The former operated more goods vehicles than the latter, especially after the introduction of operator licensing in 1933 which limited growth rates of the hire or reward sector through quantitative licensing controls in order to prevent rail freight being undercut and losing business, as well as address the poor operating and safety practices such as overloading, long drivers' hours and poor vehicle maintenance (Armitage, 1980). Survey worked showed that in Britain in 1936, 53% of goods vehicles used primarily for hire or reward were operated in fleets of a single vehicle, 19% in fleets of two vehicles, 23% in fleets of 3-9 vehicles, 3% in fleets of 10-19 vehicles, and only 1% in fleets of 20 or more vehicles (Bayliss, 1971). In this survey work, in the South East region of England in 1936, 95% of goods vehicles used primarily for hire or reward were operated in fleets of less than 10 vehicles (with 56% in fleets of 1 vehicle and 17% in fleets on 2 vehicles).

Survey work in the South East, provides insight into goods vehicle operator licences by fleet size in 1932, 1953 and 1965 (see **Table 3.1**). This indicates that fleet sizes increased over this time period.

Table 3.1: Goods vehicle operator licences primarily for hire or reward by fleet size in the South East, 1932, 1953 and 1965

Fleet size	Proportion of operator licences used primarily for hire or reward		
	1938	**1953**	**1965**
1	50%	38%	33%
2	17%	17%	17%
3-6	24%	27%	25%
7-10	4%	14%	12%
11-20	4%	4%	8%
Over 20	1%	1%	4%
Total	100%	100%	100%
Survey size (number)	1,244	132	178

Note: Data for 1938 is based on businesses holding 'A' and 'B' operator licences. Data for 1953 and 1965 is based on a survey of a sample of businesses holding 'A' operator licences.
Source: quoted in Baylis, 1971.

Subsequent market research survey work in the UK in 1992 and 2001 indicates that fleet sizes of operators providing hire or reward services have continued to increase over time (see **Tables 3.2** and **3.3**). These surveys indicated that 32% of goods vehicles used primarily for hire or reward services were in fleet sizes of up to ten vehicles in 1992, and 26% in 2001.

Table 3.3: Goods vehicles operated by businesses providing hire or reward services by fleet size in the UK, 1992

Fleet size	Proportion of businesses	Proportion of goods vehicles
1-4	69%	16%
5-10	18%	16%
11-25	10%	20%
26-50	2%	11%
51+	1%	37%
Total	100%	100%

Note: Based on a random sample of 1,000 businesses.
Source: MAI Research Ltd, 1992.

Further details about goods vehicle fleet sizes held on operator licences in the whole of Britain over the last decade can be found in **section 4**.

Table 3.3: Goods vehicles operated by businesses providing hire or reward services by fleet size in the UK, 2001

Fleet size	Proportion of businesses	Proportion of goods vehicles
1-2	44%	6%
3-5	22%	8%
6-10	16%	12%
11-25	11%	18%
26-50	4%	14%
51+	3%	42%
Total	100%	100%

Note: Based on a random sample of 1,500 businesses.
Source: NOP Research Group, 2001.

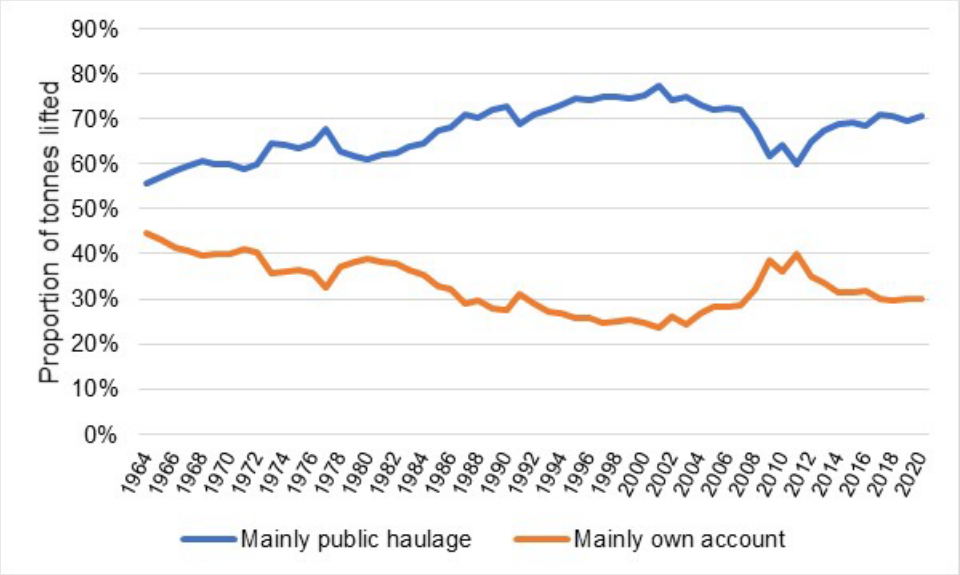
This survey data indicates that business size in hire or reward sector have increased over the decades. This is due to demands for ever-more sophisticated logistics services, the preference of large customers to work closely with a single logistics provider, and the associated need for investment in supply chain computing and technology in such settings. However, the legacy of small businesses in the sector persists due to the relatively low entry costs and barriers, with often only a goods vehicle required to set up a viable business. This leads to a highly price competitive and low-profit margin sector.

The entire UK freight transport by road and removal market was estimated to have an annual turnover of £31 billion in January 2021 (BEIS, 2021a). Due to the high levels of competition, the relative lack of difference in services offered by competitors, and its capital- and labour-intensive nature, the road freight transport sector has generated low profit margins for many years. Prior to the Covid-19 pandemic average profit margins in the sector were 2-3% per annum. However, an assessment of the UK's 2000 leading road freight transport operators in 2021 found that their average profit margin in the latest financial year was only 1.7%, with an average growth rate of 0.7%, and only 117 of these 2,000 businesses were achieving a better than 10% return on assets (Evans, 2021a, 2021b). Even among the top 100 road freight transport operators by turnover, using the most recently available published accounts in October 2021, the median pre-tax profit margin over the previous twelve months was 2.6%, with 55 of these companies having profit margins of less than 3%, 42 of them having profit margins of less than 2%, 30 of them having profit margins of less than 1%, and 21 of them making a pre-tax loss (calculated from data in Motor Transport, 2021a).

The growth in subcontracting by large freight operators to smaller ones and self-employment, for reasons including keeping workers or vehicles beyond the larger businesses' payroll or balance sheet to manage peak business and ensure workers are 'flexible', as well as the tax advantages that this can offer these businesses as well as drivers has also helped to ensure that many small businesses continue to exist (Freight Transport Association, 2019). See **sections 3.2** and **4.2** for further discussion of this issue, especially in relation to the use of subcontracted or self-employed individuals who work for other businesses either on a temporary or permanent basis, often using LGVs to carry out the delivery of parcels and packages associated with the growth in online shopping or HGVs in the construction and quarrying industries. Working as self-employed contractors, many such workers have an unregistered business, so do not appear in the UK Government business data presented in this section.

In addition, to the growing average fleet sizes of hire and reward operators, **Figure 3.1** shows the growing relative importance of the hire or reward sector (called 'mainly public haulage') compared to the own account sector in Britain. In 2020, the hire or reward sector accounted for 71% of total road freight tonne kilometres (and 61% of all total tonnes lifted by road). Its importance has increased over the last sixty years (with the exception of the period of the global recession from 2008 to 2011) as a growing proportion of road freight transport has been outsourced by manufacturers, wholesalers and retailers.

Figure 3.1: Road freight tonne kilometres in Britain by mode of working 1964-2020



Source: Department for Transport, 2021a (together with data prior to 1990 from earlier versions of the Department for Transport's Transport Statistics Great Britain).

3.2 The size and number of road freight transport businesses

UK Government data using SIC classifications allows the breakdown of road freight transport businesses into three subsectors: freight transport by road, removals and post and courier services. This section provides analysis of the registered private businesses in these three subsectors (i.e. those that are VAT and/or PAYE registered). Data is not available for unregistered (i.e. self-employed) freight transport by road and removal businesses that are not VAT and PAYE registered and have no employees, but some data is provided in **section 3.6.1** for unregistered post and courier businesses.

The data in this chapter about road freight transport businesses in the UK using these three SIC codes (freight transport by road, removals and post and courier services) only considers businesses that specialises in providing goods transport services to other businesses and to private individuals (i.e. it is the primary function of the business). It does not consider the many SME and large businesses that operate LGVs and HGVs but do not offer freight transport services to others and do not consider themselves to be road freight transport businesses (i.e. those businesses that either use LGVs and/or HGVs for their own goods transport within their businesses which are engaged in some other activity - such as manufacturing, wholesaling, retailing or public sector work - or that use LGVs to provide services other than goods collection and delivery - including many services such as building, plumbing, lighting, equipment maintenance and repair). Data is available about the number, employment and turnover of these businesses but, as it does not indicate whether or not they use goods vehicles and that the use of goods vehicles is not their primary concern and is not reported separately from their other activities, it has not been analysed.

This Government data permits the division of this road freight transport business subsector data by employee band (see **Table 3.4**). In March 2021, there were 63,305 registered freight transport by road businesses, 39,160 registered post and courier businesses and 2,740 registered removal businesses in the UK (a total of 105,205 registered road freight transport sector businesses) (ONS, 2021).

The vast majority of registered businesses in the freight transport by road and post and courier sectors have 0-4 employees (the smallest category of micro businesses, accounting for 84% of freight transport by road businesses, 95% of postal and courier businesses, 72% of removals, and 88% of all road freight transport businesses in 2021 – a total of 92,250 businesses in the UK). This compares with 79% of all registered businesses in the UK with 0-4 employees. Many of these registered road freight transport businesses have no employees, with only the owner of the business working for it (and either operating a single heavy goods vehicle (HGV) or light goods vehicle (LGV) or operating no goods vehicles and instead providing their driving services to other businesses that provide the vehicle).

All micro businesses (i.e. with 0-9 employees) accounted for 94% of registered freight transport by road businesses, 98% of registered postal and courier businesses, 88% of registered removals businesses, and 95% of all registered road freight transport businesses in 2021. This compares with 90% of all registered businesses in the UK (ONS, 2021). The smaller proportion of micro businesses in the removal subsector than the other two is due to the greater resources (vehicles and personnel) required in many such businesses compared to the other two road freight transport subsectors.

Small businesses (i.e. with 10-49 employees) accounted for 5% of registered freight transport by road businesses, 2% of registered postal and courier businesses, and 11% of registered removals businesses in 2021. Overall, 4% of registered road freight transport businesses were small businesses compared with 8% of all registered businesses in the UK (ONS, 2021).

Medium (i.e. with 50-249 employees) and large (i.e. 250 or more employees) businesses accounted for 0.6% and 0.1% of all registered road freight transport businesses in the UK in 2021. By comparison, medium and large registered businesses accounted for 1.4% and 0.3% of all businesses in the UK in 2021 (ONS, 2021).

Table 3.4: Number of registered private businesses in road freight and in total in UK, March 2021 (by employee band)

Size of business	Number of employees	Freight transport by road	Post and courier	Removals	All road freight businesses	All businesses in the UK
Micro	0 to 4	83.8%	95.1%	71.5%	87.7%	78.7%
	5 to 9	9.9%	3.0%	16.1%	7.5%	11.1%
Small	10 to 49	5.3%	1.6%	11.3%	4.1%	8.4%
Medium	50 to 249	0.9%	0.3%	1.1%	0.6%	1.4%
Large	250+	0.1%	0.1%	0.0%	0.1%	0.3%
	TOTAL (%)	100%	100%	100%	100%	100%
	TOTAL (no.)	63,305	39,160	2,740	105,205	2,752,630

Notes:
Data is for the end of March each year.
Unregistered businesses not included.
Source: analysis of Inter Departmental Business Register – Nomis: ONS, 2021.

In 2021, approximately 55% of registered removals and freight transport by road businesses (36,000) and 83% of post and courier registered businesses (33,000) had no employees (i.e. were self-employed) in 2021. In addition, there were 20,000 unregistered post and courier businesses with no employees in 2021 (calculated from data in BEIS, 2021a, and ONS, 2021).

The data for unregistered removals and freight transport by road businesses with no employees is not published. However, UK government data shows that there were 137,000 unregistered businesses with no employees in the entire 'Land transport and transport via pipelines' sector (SIC code 49) which comprises removals and freight transport by road businesses, as well as passenger road and rail and rail freight businesses. This is therefore likely to include a substantial number of minicab and taxi drivers who earn below the registered business VAT and PAYE thresholds as well as removals and freight transport by road businesses. However, even if 15-25% of these unregistered self-employed businesses are in the removals and freight transport by road subsector this would be equivalent to 20,000-35,000 businesses. If this were the case, it would provide an estimated total of 40,000-55,000 unregistered road freight transport businesses with no employees (i.e. removals, freight transport by road and post and courier businesses) in the UK in 2021. Added to registered businesses with no employees, this provides an estimated total of 110,000-125,000 road freight transport businesses with no employees in 2021. This provides an estimated total of 145-160,000 road freight transport businesses (i.e. freight transport by road, removals and post and courier businesses with without employees) in the UK in 2021, of which 75-80% had no employees in 2021.

There are three types of road freight transport business that have no employees (i.e. are self-employed): (i) those businesses that operate no goods vehicles and work for other road freight transport businesses (i.e. drivers who work for another road freight businesses but who are either contractors/self-employees for tax purposes or who work as a temporary driver for other such businesses, moving between businesses as and where required), (ii) those businesses

that operate a goods vehicle and work for other road freight transport businesses (i.e. drivers who work for another road freight businesses but who are either contractors/self-employees for tax purposes or who work as a temporary driver for other such businesses, moving between businesses as and where required), and (iii) those businesses that have their own goods vehicle and run their own road freight transport business provide services directly to customers. Type (i) and (ii) are likely to be unregistered businesses, while type (iii) can be registered or unregistered depending on whether or not it has employees, its PAYE earnings and its VAT taxable turnover).

It has been estimated that there were approximately 20,000 registered businesses with fleets of no more than five HGVs providing road freight transport services to others in Britain in 2020/21 (see **section 4.2**). This suggests that approximately 65% of the 83,000 registered micro businesses with less than five employees providing road freight transport services (and that represented approximately 60% of all road freight transport businesses) in Britain in 2020 were either operating LGVs or no goods vehicles of their own rather than HGVs.

The UK government introduced changes to tax legislation known as 'IR35' in April 2021. This legislation was targeted at those workers (including freight transport drivers and other freight-related workers) who provided their services to a medium or large business on a regular, on-going basis but who, rather than being employees of that business instead provided their services via either a registered or unregistered business who as self-employed workers. This self-employed status allowed the individual concerned and the larger business to pay less National Insurance and income tax than would otherwise have been necessary. IR35 will ensure that the larger business using the labour of the self-employed individual either places the individual of their payroll as an employee or notifies the Inland Revenue of this arrangement so that the employee income tax and National Insurance can be charged to both parties. It is therefore possible, that as a result of this IR35 tax change, there will be a decline in the number of such self-employed goods vehicle drivers and other freight workers in the UK, which will be reflected in future Government data releases providing the number of registered business with 0-4 employees providing road freight transport services from 2022 onwards.

It is also possible to express the number of registered businesses in these road freight transport subsectors by turnover band (see **Table 3.5**). This also shows a far higher proportion of the smallest businesses (with turnovers up to £99,000 per annum) than in registered businesses in the UK as a whole (82% of post and courier businesses, 65% of freight transport by road businesses and 44% of removal businesses, compared with 38% of all businesses in the UK).

A total of 97% of all registered road freight transport businesses (99% of post and courier businesses, 96% of freight transport by road businesses and 97% of removal businesses) had turnovers of up to £1.99 million in 2021, compared with 95% of all registered businesses in the UK).

Table 3.5: Number of registered private businesses in road freight and in total in the UK, March 2021 (by turnover band)

Size of business	Annual turnover	Freight transport by road	Post and courier	Removals	All road freight businesses	All businesses in the UK
Micro	Up to £100,000	65.1%	81.5%	44.2%	70.6%	37.9%
	£100K to £1.99 mill	31.4%	17.5%	53.1%	26.8%	56.9%
Small	£2 to 9.99 million	2.9%	0.7%	2.2%	2.1%	3.9%
Medium	£10 to 49.99 million	0.6%	0.2%	0.4%	0.4%	1.0%
Large	£50 million+	0.1%	0.1%	0.0%	0.1%	0.3%
	TOTAL (%)	100%	100%	100%	100%	100%
	TOTAL (no.)	63,305	39,165	2,740	105,210	2,752,630

Notes:
Data is for the end of March each year.
Unregistered businesses not included.
Source: analysis of Inter Departmental Business Register data obtained from Nomis (ONS, 2021).

3.3 Recent changes in number of road freight transport businesses

Tables 3.6 and 3.7 show the change in the number of registered road freight businesses by subsector over the period 2010 to 2019 (by number of employees and annual turnover bands). This therefore covers the period before Brexit and the Covid-19 pandemic occurred (with the UK leaving the European Union at the start of 2020 and the pandemic also commencing at this time). These indicate that the smallest category of freight transport by road and post and courier businesses by both employees (0-4) and by turnover (up to £99,000) have increased far more than in all registered private businesses in the UK. All registered road freight transport businesses with 0-4 employees increased by 91% over the period, compared to a 33% increase among all businesses in the UK. Given that the number of HGV operator licences and the goods vehicles held on them diminished over this period for fleets with up to five HGVs (see **Table 4.3** in **section 4.2**), it is likely that the growth in the number of these smallest road freight transport businesses between 2010 and 2019 was accounted for by businesses that operated LGVs or operated no goods vehicles of their own at all (i.e. they were self-employed contractor who drove the vehicles of other road freight transport businesses) rather than HGVs.

Table 3.6: Growth in number of registered private businesses in road freight and in total in the UK, 2010-2019 (by employee band)

Size of business	Number of employees	Freight transport by road	Post and courier	Removals	All road freight businesses	All businesses in the UK
Micro	0 to 4	87%	101%	70%	91%	33%
	5 to 9	8%	17%	28%	11%	13%
Small	10 to 49	7%	23%	48%	12%	19%
Medium	50 to 249	25%	73%	17%	29%	20%
Large	250+	27%	0%	N/A	20%	21%
TOTAL		71%	90%	58%	76%	29%

Notes:
Data is for the end of March each year.
Unregistered businesses not included.
N/A – not applicable.
Source: analysis of Inter Departmental Business Register data obtained from Nomis (ONS, 2021).

On a turnover basis, all registered road freight transport businesses with an annual turnover of up to £100,000 increased by 120% over the period 2010-2019, compared to a 33% increase among all businesses in the UK (see **Table 3.7**).

Table 3.7: Growth in number of registered private businesses in road freight and in total in the UK, 2010-2019 (by turnover band)

Size of business	Annual turnover	Freight transport by road	Post and courier	Removals	All road freight businesses	All businesses in the UK
Micro	Up to £100,000	130%	110%	58%	120%	22%
	£100K to £1.99 mill	21%	48%	58%	28%	35%
Small	£2 to 9.99 million	22%	37%	40%	24%	22%
Medium	£10 to 49.99 million	30%	83%	0%	34%	33%
Large	£50 million+	100%	50%	N/A	80%	40%
TOTAL		71%	90%	58%	76%	29%

Notes:
Data is for the end of March each year.
Unregistered businesses not included.
N/A – not applicable.
Source: analysis of Inter Departmental Business Register data obtained from Nomis (ONS, 2021).

The number of registered post and courier businesses with no employees increased by 97% between 2013 and 2019 (from approximately 8,500 to 16,700 businesses). Meanwhile, the number of unregistered post and courier businesses with no employees (which have smaller turnovers than registered ones and fall below VAT and/or PAYE thresholds) increased by 9% between 2013 and 2019 (from approximately 25,700 to 28,000 businesses (calculated from data in BEIS, 2013, 2019). As discussed previously, these post and courier businesses with no employees grew at a far faster rate than those with employees. This is likely to reflect an increase in both genuine self-employment as well as in subcontracting by larger businesses with so-called self-employed workers providing services to them on a regular basis in order to reduce taxation and National Insurance rates for both parties. Similar data showing changes in the number of registered and unregistered freight transport by road and removals businesses is not available.

Tables 3.8 and 3.9 show the change in number of registered private businesses by employment and turnover bands between 2019 and 2021. This is the period over which both Brexit and the Covid-19 pandemic have been in force (with the UK leaving the European Union at the start of 2020 and the pandemic also commencing at this time). The data shows the very strong growth in the micro businesses (0-9 employees) in the road freight transport sector (which increased by 39% among those with 0-4 employees and by 59% among those with 5 to 9 employees over the period) with most of this taking place within the freight transport by road and post and courier subsectors at a time when there was a substantial demand for goods vehicle drivers (given the loss of EU drivers who returned to their domestic countries and the rise in online shopping during lockdowns when non-food physical shops were closed and many were scared to visit grocery shops and resorted to online buying instead).

In the freight transport by road subsector growth in registered businesses was greatest among those with 5-9 employees (85% increase in businesses), while among post and courier businesses grow was greatest among those with 0-4 employees (80% increase in businesses). Growth was far less strong in the removals subsector over this period (with 17% growth in businesses with 0-4 employees and 17% growth in those businesses with 5-9 employees). However, it still far outperformed growth among all registered businesses in the UK (among which those with 0-4 employees increased by 2% while those with 5-9 employees did not change). This may indicate a rise in demand from those who purchased new properties during the pandemic.

The number of all registered small road freight transport businesses between 2019 and 2021 also grew (by 11%) whereas there was no change in the number of all small businesses in the UK.

As a result of these changes in the number of micro and small businesses, there was a 39% increase in the number of business across the entire road freight sector compared to only a 2% increase among all businesses in the UK over this two-year period.

Table 3.8: Growth in number of registered private businesses in road freight and in total in the UK, March 2019 - March 2021 (by employee band)

Size of business	Number of employees	Freight transport by road	Post and courier	Removals	All road freight businesses	All businesses in the UK
Micro	0 to 4	21%	80%	17%	39%	2%
	5 to 9	85%	1%	7%	59%	0%
Small	10 to 49	16%	-3%	-5%	11%	0%
Medium	50 to 249	-2%	5%	-14%	-1%	0%
Large	250+	0%	25%	N/A	6%	-1%
TOTAL		25%	73%	12%	39%	2%

Notes:
Data is for the end of March each year.
Unregistered businesses not included.
N/A – not applicable.
Source: analysis of Inter Departmental Business Register data obtained from Nomis (ONS, 2021).

The turnover data in **Table 3.9** provides a similar picture.

Table 3.9: Growth in number of registered private businesses in road freight and in total in the UK, March 2019 – March 2021 (by turnover band)

Size of business	Annual turnover	Freight transport by road	Post and courier	Removals	All road freight businesses	All businesses in the UK
Micro	Up to £100,000	32%	88%	20%	51%	0%
	£100K to £1.99 mill	14%	30%	7%	17%	3%
Small	£2 to 9.99 million	3%	0%	-14%	2%	4%
Medium	£10 to 49.99 million	15%	18%	0%	15%	6%
Large	£50 million+	0%	17%	N/A	6%	7%
TOTAL		25%	73%	12%	39%	2%

Notes:
Data is for the end of March each year.
Unregistered businesses not included.
N/A – not applicable.
Source: analysis of Inter Departmental Business Register data obtained from Nomis (ONS, 2021).

The number of registered post and courier businesses with no employees increased by 97% between 2013 and 2019 (from approximately 8,500 to 16,700 businesses) and by 95% between 2019 and 2021 (from approximately 16,700 to 32,600 businesses). Meanwhile, the number of unregistered post and courier businesses with no employees (which have smaller turnovers than registered businesses) fell by 30% between 2019 and 2021 (from approximately 28,000 to 19,700 businesses (calculated from data in BEIS, 2013, 2019, 2021a – see **section 3.5.2** for further details). The vast majority of the growth in the number of registered micro post and courier businesses with 0-4 employees between 2019 and 2021 was therefore accounted for by these registered business with no employees (which accounted for 98% of the growth in businesses in this subsector, while those with 1-4 employees accounted for the remaining 2% of growth (of the overall 80% growth in registered post and couriers businesses with 0-4 employees shown in **Table 3.6**). This indicates the likely continuation in the trend for larger business to sub-contract work to so-called self-employed workers. Again, similar data showing changes in the number of registered and unregistered freight transport by road and removals businesses over this period is not available.

3.4 The number, employees and turnover of businesses with employees in the freight transport by road and removals subsector

Table 3.10 uses another UK Government data source (BEIS, 2021a) that includes only registered businesses that have employees (i.e. businesses with no employees are not included). It provides the number of businesses, their number of employees, and their turnover in 2021 in the freight transport by road and removals businesses subsectors combined together.

At the start of 2021, there were approximately 30,000 freight transport by road and removals businesses with employees in the UK, with a total of 286,000 employees and a total annual turnover of £31.8 billion. Those freight transport by road and removals businesses with 1-9 employees (i.e. micro businesses) accounted for 86% of these businesses, 33% of all these employees and 23% of this annual turnover, while those businesses with 10-49 employees (i.e. small businesses) accounted for 12% of these businesses, 23% of all these employees and 26% of this annual turnover. Therefore, jointly, registered micro and small freight transport by road and removals businesses with employees accounted for 98% of these businesses, 56% of all these employees and 49% of this total turnover in these two subsectors. This compared with registered micro and small businesses in the UK as a whole accounting for 87% of these businesses, 37% of all these employees and 33% of all annual turnover in 2021.

Large freight transport by road and removals businesses accounted for only 0.2% of all these businesses and 27% of total turnover in this subsector. This compares with large businesses in the UK as a whole accounted for 1% of businesses and 52% of turnover in 2021. In 2021, the average number of employees in freight transport by road and removals businesses with employees (10 employees) was less than that in UK businesses as a whole (16 employees).

All registered freight transport by road and removal SMEs (i.e. micro, small and medium sized businesses) accounted for 99.8% of all the businesses, 74% of all these employees and 73% of this total turnover in these two subsectors. This compared with all registered SMEs in the UK as a whole accounting for 99.5% of these businesses, 53% of all these employees and 48% of all annual turnover in 2021.

The business number, turnover and employment data presented above indicates the relative lack of market concentration in the freight transport by road and removals subsectors (unlike in the post and courier subsector – see **section 3.5**).

Freight transport by road and removals businesses accounted for 2.1% of all businesses with employees, 1.3% of all employees, and 0.8% of all business turnover in businesses with employees in the UK in 2021. Freight transport by road and removals micro, small, medium and large businesses accounted for 2.2%, 1.7%, 1.6% and 0.9% of all micro, small, medium and large businesses with employees in the UK in 2021, respectively.

Comparing the number of registered businesses in **Tables 3.5** and **3.10** indicates that approximately 65% of registered businesses in the road freight transport sector had no employees in 2021, while 35% had employees, while among micro businesses (i.e. with 0-9 employees) it is estimated that approximately 70% had no employees.

Table 3.10: The number, employment and turnover of registered road freight transport businesses and all private businesses with employees in the UK, 2021

Size of business	Businesses		Employment		Turnover	
	Number	%	Thousand	%	£ million	%
Freight transport by road and removal services businesses in the UK						
Micro	25,620	86%	93	33%	7,352	23%
Small	3,600	12%	67	23%	8,321	26%
Medium	575	2%	53	19%	7,569	24%
Large	70	0.2%	73	26%	8,518	27%
Total	29,865	100%	286	100%	31,759	100%
All businesses in Britain						
Micro	1,162,155	82%	4,209	19%	636,893	15%
Small	210,550	15%	4,111	18%	649,883	16%
Medium	35,620	3%	3,474	16%	720,540	17%
Large	7,655	1%	10,639	47%	2,139,334	52%
Total	1,415,980	100%	22,433	100%	4,146,651	100%

Notes:
Data is for the start of the year.
Micro: 1-9 employees; Small: 10-49 employees; ; Medium: 50-249 employees; Large: 250 or more employees
N/A – not available (suppressed for confidentiality due to small number of businesses)
Registered business with no employees and unregistered businesses not included.
Source: BEIS 2021a.

Table 3.11 shows the number of freight transport by road and removals businesses with employees, together with their employment level and annual turnover in 2010, 2019 and 2021. **Tables 3.12** and **3.13** show the change in the number of businesses, employees and turnover in these businesses and in all businesses in the UK between 2010-2021 and 2019-2021, respectively.

Table 3.11 shows the increase in the importance of freight transport by road and removals businesses with 1-9 employees (i.e. micro businesses) in their number, employment, and turnover in both absolute and relative terms between 2010 and 2021. Businesses with 10-49 employees (i.e. small businesses) have reduced in their relative importance in terms of number of businesses, but only marginally in terms of their employment and not at all in their turnover. Large businesses decreased over this period in terms of their relative importance in numbers, employment and turnover.

Table 3.11: The number, employment and turnover of registered freight transport by road and removals businesses with employees in the UK, 2010, 2019 and 2021

Size of business	Businesses		Employment		Turnover	
	Number	%	Thousand	%	£ million	%
2010						
Micro	12,665	79%	48	21%	5,123	21%
Small	2,805	17%	56	25%	6,333	26%
Medium	475	3%	43	19%	4,876	20%
Large	55	0.3%	77	34%	8,176	33%
Total	16,000	100%	225	100%	24,508	100%
2019						
Micro	18,530	83%	62	24%	6,111	20%
Small	3,140	14%	62	24%	7,701	25%
Medium	590	3%	56	22%	7,013	23%
Large	70	0.3%	77	30%	9,565	32%
Total	22,330	100%	257	100%	30,390	100%
2021						
Micro	25,620	86%	93	33%	7,352	23%
Small	3,600	12%	67	23%	8,321	26%
Medium	575	2%	53	19%	7,569	24%
Large	70	0.2%	73	26%	8,518	27%
Total	29,865	100%	286	100%	31,759	100%

Notes:
Data is for the start of the year.
Micro: 1-9 employees; Small: 10-49 employees; ; Medium: 50-249 employees; Large: 250 or more employees
Registered business with no employees and unregistered businesses not included.
Source: BEIS 2010, 2019, 2021a.

Table 3.12 emphasises the strong absolute growth in the number (46%) and employment (29%) of micro freight transport by road and removals businesses with employees between 2010 and 2019, which was greater than the growth rate among all micro businesses in the UK (17%) and their employment level (13%). However, the average turnover of micro road freight and removal businesses only increased by 19% compared with 38% growth among all micro businesses in the over this period.

The number, average employment level and average turnover of small road freight and removals businesses with employees all increased between 2010 and 2019 (by 12%, 11% and 22% respectively) but this growth was less strong than among all small businesses in the UK over this period.

Medium sized road freight and removals businesses grew rapidly between 2010 and 2019 both in terms of their average employment levels and average turnover (30% and 44%, respectively).

By contrast, large road freight and removals businesses experienced no change in their average employment levels and average turnover rose by only 17%.

and large businesses with employees in road freight and removals businesses and all businesses in the UK were similar between 2010 and 2019 (with the exception of the lack of employment growth among large road freight transport and removals businesses.

Table 3.12: Change in the number, employment and turnover of registered freight transport by road and removals businesses and all private businesses with employees in the UK, January 2010- January 2019

Size of business	Businesses (% change)	Employment (% change)	Turnover (% change)
Freight transport by road and removal services businesses in the UK			
Micro	46%	29%	19%
Small	12%	11%	22%
Medium	24%	30%	44%
Large	27%	0%	17%
Total	40%	14%	24%
All businesses in the UK			
Micro	17%	13%	38%
Small	24%	22%	30%
Medium	28%	28%	46%
Large	29%	18%	20%
Total	18%	19%	28%

Notes:
Data is for the start of the year.
Micro: 1-9 employees; Small: 10-49 employees; ; Medium: 50-249 employees; Large: 250 or more employees
Registered business with no employees and unregistered businesses not included.
Source: calculated from data in BEIS 2010, 2021a.

Table 3.13 shows absolute changes in the number of businesses, employment levels and annual turnover of businesses with employees between the start of 2019 and the start of 2021. This period therefore includes the onset of the Covid-19 pandemic in early 2020, and the UK leaving the EU at the end of January of 2020. This indicates that micro and small freight transport by road and removals businesses with employees fared relatively well over this period compared with all micro and small businesses with employees in the UK. Among micro freight transport by road and removals businesses with employees the number of business increased by 38%, employment levels by 50% and turnover by 20% over this period (however turnover growth has substantially lower than employment growth). Among small road freight and removals businesses both employment levels and turnover grew at 8%.

Meanwhile, medium and large businesses freight transport by road and removals businesses with employees performed worse than all medium and large businesses with employees in the UK (with large road freight and removals businesses experiencing a 5% reduction in employment levels and an 11% reduction in turnover).

Table 3.13: Change in the number, employment and turnover of registered freight transport by road and removals businesses and all private businesses with employees in the UK, January 2019 - January 2021

Size of business	Businesses (% change)	Employment (% change)	Turnover (% change)
Freight transport by road and removal services businesses in the UK			
Micro	38%	50%	20%
Small	15%	8%	8%
Medium	-3%	-5%	8%
Large	0%	-5%	-11%
Total	34%	11%	5%
All businesses in the UK			
Micro	1%	0%	7%
Small	0%	0%	3%
Medium	0%	0%	13%
Large	0%	-2%	8%
Total	0%	-1%	8%

Notes:
Data is for the start of the year.
Micro: 1-9 employees; Small: 10-49 employees; ; Medium: 50-249 employees; Large: 250 or more employees
Registered business with no employees and unregistered businesses not included.
Source: calculated from data in BEIS, 2019, 2021a.

Table 3.14 shows the average number of employees, turnover per business and turnover per employee of registered freight transport by road and removals businesses with employees in 2021. These businesses of all sizes had lower average turnovers than their equivalent size of business in the UK economy as a whole. Average turnover per employee was also substantially lower in all sizes of registered freight transport by road and removals businesses.

Table 3.14: The average number of employees, turnover per business and turnover per employee of registered freight transport by road and removals businesses with employees and all businesses with employees in the UK, 2021

Size of business	Number of employees	Ave. no. of employees	Turnover per business (£ 000)	Turnover per employee (£ 000)
Freight transport by road and removal services businesses in the UK				
Micro	*1 to 9*	3.6	287	79
Small	*10 to 49*	18.6	2,311	124
Medium	*50 to 249*	92.2	13,163	143
Large	*250+*	1042.9	121,686	117
Total		9.6	1,063	111
All businesses in the UK				
Micro	*1 to 9*	3.6	548	151
Small	*10 to 49*	19.5	3,087	158
Medium	*50 to 249*	97.5	20,229	207
Large	*250+*	1389.8	279,469	201
Total		15.8	2,928	185

Notes:
Data is for the start of the year.
Micro: 1-9 employees; Small: 10-49 employees; ; Medium: 50-249 employees; Large: 250 or more employees
Registered business with no employees and unregistered businesses not included.
Source: calculated from data in BEIS, 2021a.

Tables 3.15 and **3.16** shows that the average workforce of large businesses in the freight transport by road and removals subsector has fallen considerably over the last decade (by 26% between 2010 and 2021) as well as by a lesser extent among registered micro and small businesses with employees. This reduction the average workforce of large businesses was considerably greater than among all large businesses in the UK over this period (which fell by 10%).

Average turnover per business fell by 29% in micro freight transport by road and removals businesses with employees between 2010 and 2021, compared with an 18% fall among large businesses. At the same time small and medium businesses experienced increases in average turnover of 2% and 28%, respectively.

Table 3.15: The average number of employees, turnover per business and turnover per employee of registered freight transport by road and removals businesses with employees, UK, 2010, 2019 and 2021

Size of business	Number of employees	Ave. no. of employees	Turnover per business (£ 000)	Turnover per employee (£ 000)
2010				
Micro	*1 to 9*	3.8	405	107
Small	*10 to 49*	20.0	2,258	113
Medium	*50 to 249*	90.5	10,265	113
Large	*250+*	1400.0	148,655	106
Total		14.1	1,532	109
2019				
Micro	*1 to 9*	3.3	330	99
Small	*10 to 49*	19.7	2,453	124
Medium	*50 to 249*	94.9	11,886	125
Large	*250+*	1100.0	136,643	124
Total		11.5	1,361	118
2021				
Micro	*1 to 9*	3.6	287	79
Small	*10 to 49*	18.6	2,311	124
Medium	*50 to 249*	92.2	13,163	143
Large	*250+*	1042.9	121,686	117
Total		9.6	1,063	111

Notes:
Data is for the start of the year. Micro: 1-9 employees; Small: 10-49 employees; Medium: 50-249 employees; Large: 250 or more employees
Registered business with no employees and unregistered businesses not included.
Source: calculated from data in BEIS, 2010, 2019, 2021a.

Table 3.16: Change in the average number of employees, turnover per business and turnover per employee of registered freight transport by road and removals businesses with employees and all businesses with employees, UK, 2010-2021

Size of business	Number of employees	Ave. no. of employees	Turnover per business (£ 000)	Turnover per employee (£ 000)
Freight transport by road and removal services businesses in the UK				
Micro	*1 to 9*	-4%	-29%	-26%
Small	*10 to 49*	-7%	2%	10%
Medium	*50 to 249*	2%	28%	26%
Large	*250+*	-26%	-18%	10%
Total		-32%	-31%	2%
All businesses in the UK				
Micro	*1 to 9*	-4%	26%	30%
Small	*10 to 49*	-1%	9%	10%
Medium	*50 to 249*	0%	29%	28%
Large	*250+*	-10%	1%	12%
Total		0%	17%	17%

Notes:
Data is for the start of the year. Micro: 1-9 employees; Small: 10-49 employees; Medium: 50-249 employees; Large: 250 or more employees
Registered business with no employees and unregistered businesses not included.
Source: calculated from data in BEIS, 2010, 2021a.

Whereas **Table 3.16** provides a breakdown of changes in the average number of employees, turnover per business and turnover per employee of registered freight transport by road and removals businesses with employees for the entire period 2010- 2021, **Table 3.17** breaks this down into the periods 2010-2019 and 2019-2021. This indicates the more difficult trading conditions experienced during the latter period which includes Brexit and the start of the Covid-19 pandemic among all except medium businesses.

Table 3.17: Change in the average number of employees, turnover per business and turnover per employee of registered freight transport by road and removals businesses with employees, UK, 2010-2019 and 2019-2021

Size of business	Number of employees	Ave. no. of employees	Turnover per business (£ 000)	Turnover per employee (£ 000)
2010-2019 (% change)				
Micro	*1 to 9*	-12%	-18%	-8%
Small	*10 to 49*	-1%	9%	10%
Medium	*50 to 249*	5%	16%	10%
Large	*250+*	-21%	-8%	17%
Total		-18%	-11%	9%
2019-2021 (% change)				
Micro	*1 to 9*	8%	-13%	-20%
Small	*10 to 49*	-6%	-6%	0%
Medium	*50 to 249*	-3%	11%	14%
Large	*250+*	-5%	-11%	-6%
Total		-17%	-22%	-6%

Notes:
Data is for the start of the year.
Micro: 1-9 employees; Small: 10-49 employees; ; Medium: 50-249 employees; Large: 250 or more employees
Registered business with no employees and unregistered businesses not included.
Source: calculated from data in BEIS, 2010, 2019, 2021a.

There were a total of 66,000 road freight transport by land and removals registered businesses In the UK in 2021 (see **section 3.2**). An analysis of IBDR and BEIS data can provide insight into the importance of road freight transport by land and removals businesses with and without employees in 2021. Using this data it can be estimated that in 2021 there were approximately 36,000 such registered businesses with no employees (calculated from data in BEIS, 2021a, and ONS, 2021). This represented approximately 60% of all registered road freight transport by land and removals businesses in 2021 .

As discussed in **section 3.2,** the data for unregistered removals and freight transport by road businesses with no employees is not publicly available. However, UK government data shows that there were 137,000 unregistered businesses with no employees in the entire 'Land transport and transport via pipelines' sector (SIC code 49) which comprises removals and freight transport by road businesses, as well as passenger road and rail and rail freight businesses. This is therefore likely to include a substantial number of minicab and taxi drivers who earn below the registered business VAT and PAYE thresholds as well as removals and freight transport by road businesses. However, even if 15-25% of these unregistered self-employed businesses are in the removals and freight transport by road subsector this would be equivalent to 20,000-35,000 businesses.

If this were the case, it would provide an estimated total of 85,000-100,000 freight transport by road and removals businesses in 2021 (i.e. both those with employees and those with none), of which 65-70% had no employees in 2021.

Analysis of IBDR and BEIS data can also provide insight into changes in the number of registered road freight transport by land and removals businesses with and without employees between 2010-2021. Using this data it can be estimated that while registered businesses with employees increased in number by approximately 90% over this period, those registered businesses with no employees (i.e. self-employed businesses) increased in number by approximately 140% (calculated from data in BEIS, 2021a, and ONS, 2021). This indicates a stronger rate of growth in numbers among registered self-employed businesses.

3.5 The number, employees and turnover of businesses in the post and courier subsector

3.5.1 Businesses with employees

Table 3.18 uses UK Government data (from BEIS) to provide insights into the number of registered post and courier businesses with employees, their number of employees, and their turnover in 2010 and 2019 (2021 data is not available due to it being considered disclosive by BEIS due to the small business numbers contained in some categories. Using this data it has been necessary to perform calculations that combine medium and large businesses into a single category to overcome disclosive difficulties).

Table 3.18: The number, employment and turnover of registered post and courier businesses with employees in the UK, 2010 and 2019 (and all registered businesses in UK with employees, 2019)

Size of business	Businesses		Employment		Turnover	
	Number	%	Thousand	%	£ million	%
Post and couriers businesses, 2010						
Micro	4,290	88%	17	6%	1,082	6%
Small	490	10%	10	4%	969	6%
Medium and Large	80	2%	255	90%	14,612	88%
Total	4,860	100%	282	100%	16,663	100%
Post and couriers businesses, 2019						
Micro	5,235	88%	18	8%	1,458	7%
Small	620	10%	12	5%	1,455	7%
Medium and Large	115	2%	206	87%	18,678	87%
Total	5,970	100%	236	100%	21,591	100%
All businesses in UK, 2019						
Micro	1,155,390	82%	4,206	18%	595,013	16%
Small	211,290	15%	4,116	18%	629,163	16%
Medium and Large	43,270	3%	14,341	63%	2,621,289	68%
Total	1,409,950	100%	22,663	100%	3,845,465	100%

Notes:
Data is for the start of the year.
Micro: 1-9 employees; Small: 10-49 employees; Medium and Large: 50 or more employees.
Registered business with no employees and unregistered businesses not included.
Source: calculated from data in BEIS 2010, 2019.

This data in **Table 3.18** shows that while micro businesses (with 1-9 employees) accounted for the vast majority of post and courier businesses in 2010 and 2021 (88% in both years), they accounted for less than 10% of total employment and turnover. Small post and courier businesses with employees accounted for approximately 10% of business and 5% of employment and turnover in both years. By contrast, while medium and large businesses accounted for only 2% of businesses, they accounted for approximately 90% of employment and turnover. This indicates the degree of market concentration in the post and courier subsector compared with the freight transport by road and removals subsector and among all registered businesses with employees in the UK (among which medium and large businesses accounted for 3% of all businesses, 63% of employment and 68% of turnover in 2019). This is reflected in the fact that there were only 15 large UK post and courier businesses with more than 500 employees in 2021, each of which have national networks and logistics infrastructure, and sizeable parcel flows and turnovers.

There was little change in the relative importance of these differing sizes of post and courier businesses with employees between 2010 and 2019, with the exception of medium and large businesses accounting for 90% of all employees in 2010 but only 87% in 2021.

Table 3.19 shows the absolute change in the number of registered post and courier businesses with employees, their number of employees, and their turnover between 2010 and 2019. This shows that absolute growth in business numbers and turnover were similar for the subsector as a whole, while employment fell. Decline in the number of employees took place in medium and large businesses (by 19%), while it grew in micro (by 6%) and small (by 20%) businesses. This is potential further indication of larger businesses subcontracting work to self-employed workers (who are not represented in **Table 3.19** – see **Table 3.22** for further details about this). This decline in employment among medium and large post and courier businesses between 2010 and 2019 is not mirrored in all UK medium and large businesses, among which employment increased by 21% over this period.

Table 3.19: Change in the number, employment and turnover of registered post and courier businesses and all registered businesses with employees in the UK, January 2010- January 2019

Size of business	Businesses (% change)	Employment (% change)	Turnover (% change)
Post and courier businesses in the UK			
Micro	22%	6%	35%
Small	27%	20%	50%
Medium and Large	44%	-19%	28%
Total	23%	-16%	30%
All businesses in the UK			
Micro	17%	13%	38%
Small	24%	22%	30%
Medium and Large	28%	21%	26%
Total	18%	19%	28%

Notes:
Data is for the start of the year.
Micro: 1-9 employees; Small: 10-49 employees; Medium and Large: 50 or more employees.
Registered business with no employees and unregistered businesses not included.
Source: calculated from data in BEIS 2010, 2019.

Table 3.20 shows the average number of employees, turnover per business and turnover per employee of registered post and courier businesses with employees in 2019. This shows that while medium and large businesses had an average of approximately 1800 employees, small business had 19.4 and micro businesses 3.4. The turnover per employee was greatest among small businesses (£121,000), followed by and medium and large businesses (£91,000) and micro businesses (£81,000). By comparison with all businesses in the UK in 2019, medium and large post and courier businesses had substantially greater annual turnovers, while micro and small businesses with employees had lower annual turnovers. This again indicates the degree of market concentration in the post and courier subsector, which comprised only 95 medium and 20 large businesses in 2019. This compares with the freight transport by road and removals subsector in which large businesses have a lower degree of market concentration than among all large businesses in the UK (see **section 3.4**).

Table 3.20: The average number of employees, turnover per business and turnover per employee of registered post and courier businesses and all businesses with employees in the UK, 2019

Size of business	Number of employees	Ave. no. of employees	Turnover per business (£ 000)	Turnover per employee (£ 000)
Post and courier businesses in the UK				
Micro	*1 to 9*	3.4	279	81
Small	*10 to 49*	19.4	2,347	121
Medium and Large	*50 +*	1791.3	162,417	91
Total		39.5	3,617	91
All businesses in the UK				
Micro	*1 to 9*	3.6	515	141
Small	*10 to 49*	19.5	2,978	153
Medium and Large	*50 +*	331.4	60,580	183
Total		16.1	2,727	170

Notes:
Data is for the start of the year.
Micro: 1-9 employees; Small: 10-49 employees; Medium and Large: 50 or more employees.
Registered business with no employees and unregistered businesses not included.
Source: calculated from data in BEIS 2010, 2019.

Table 3.21 shows the absolute change in the average number of employees, turnover per business and turnover per employee of registered post and courier businesses with employees in the UK over the period 2010-2019. This indicates that there was a reduction in the average number of employees in all sizes of businesses. However, these reductions were greatest among medium and large businesses (a 44% reduction). Average turnover per business grew among micro (by 10%) and small (by 19%) businesses but fell among medium and large businesses (by 11%). Meanwhile, average turnover per employee increased among all sizes of business, with increases greatest among medium and large businesses (by 58%) possibly due to greater level of subcontracting to self-employed workers.

These patterns of the reducing size of average workforce and falling average turnover among medium and large businesses were more marked among post and courier businesses than among all medium and large businesses in the UK.

Table 3.21: Change in the average number of employees, turnover per business and turnover per employee of registered post and courier businesses with employees in the UK, 2010-2019

Size of business	Number of employees	Ave. no. of employees	Turnover per business (£ 000)	Turnover per employee (£ 000)
Post and courier businesses in the UK				
Micro	*1 to 9*	-13%	10%	27%
Small	*10 to 49*	-5%	19%	25%
Medium and Large	*50 to 249*	-44%	-11%	58%
Total		-32%	5%	55%
All businesses in the UK				
Micro	*1 to 9*	-3%	18%	22%
Small	*10 to 49*	-1%	5%	7%
Medium and Large	*50 to 249*	-6%	-2%	4%
Total		1%	9%	7%

Notes:
Data is for the start of the year.
Micro: 1-9 employees; Small: 10-49 employees; Medium and Large: 50 or more employees.
Registered business with no employees and unregistered businesses not included.
Source: calculated from data in BEIS 2010, 2019.

Table 3.22 provides an analysis of Ofcom data collected from the leading parcel carriers in the UK. It shows the change in the volume of parcels and revenue, together with the revenue per parcel over the period 2013/14 to 2020/21. This shows that while parcels volumes has been continually rising over the period (with huge grow in the number of parcels handled during the first year of the Covid-19 pandemic – 2019/20 to 2020/21), revenues per parcel have been falling. This reflects the intense competition that exists within the parcel delivery market. It also indicates the relative growth in B2C (business to consumer) parcels due to online shopping compared to B2B (business to business) parcels, with B2C parcels having lower delivery rates per parcel due to their lower customer service requirements.

Table 3.22: UK Parcel market - domestic volumes and revenues of parcel carriers

Year	Change in total parcel volume	Change in total parcel revenue	Change in revenue per parcel
2013/4-2014/5	+7%	+3%	-4%
2014/5-2015/6	+14%	+13%	-1%
2015/6-2016/7	+7%	+5%	-2%
2016/7-2017/8	+9%	+4%	-5%
2017/8-2018/9	+10%	+7%	-3%
2018/9-2019/20	+10%	+3%	-7%
2019/20-2020/21	+54%	+42%	-8%

Note: data is for major parcel carriers that report annually to Ofcom and includes domestic parcels only.
Source: calculated from data in Ofcom annual monitoring reports, see Ofcom, 2021.

3.5.2 Businesses with and without employees

Table 3.23 shows the number, employment and turnover of post and courier businesses with employees and those registered and unregistered businesses without employees in 2013, 2019 and 2021. The data indicates the transfer in relative importance in number of business and turnover from unregistered businesses without employees to registered ones without employees. This indicates that the work being made available to these self-employed businesses increased over the period resulting in many of them earning greater turnover and therefore exceeding the VAT and PAYE thresholds of unregistered businesses and therefore becoming registered businesses. Some of those working in unregistered in self-employed businesses work on a part-time basis.

The importance of businesses with employees in total employment in the post and courier subsector fell from 86% of employment in 2013 to 81% in 2021. However, these businesses with employees continued to account for 93% of turnover in the subsector over the period.

Table 3.23: The number, employment and turnover of post and courier businesses with and without employees in the UK, 2013, 2019 and 2021

Size of business	Businesses		Employment		Turnover	
	Number	%	Thousand	%	£ million	%
2013						
Unregistered businesses with no employees	25,715	66%	29	11%	597	4%
Registered businesses with no employees	8,470	22%	9	3%	500	3%
Registered businesses with employees	4,830	12%	235	86%	15,455	93%
All businesses	39,015	100%	273	100%	16,553	100%
2019						
Unregistered businesses with no employees	27,995	55%	32	11%	647	3%
Registered businesses with no employees	16,710	33%	17	6%	961	4%
Registered businesses with employees	5,970	12%	236	83%	21,591	93%
All businesses	50,675	100%	285	100%	23,198	100%
2021						
Unregistered businesses with no employees	19,730	34%	23	8%	359	1%
Registered businesses with no employees	32,610	55%	33	11%	1,404	5%
Registered businesses with employees	6,545	11%	236	81%	24,013	93%
All businesses	58,885	100%	291	100%	25,776	100%

Note: Data is for the start of the year.
Source: calculated from data in BEIS 2013, 2019, 2021a.

Table 3.24 shows the absolute growth in the number of unregistered and registered self-employed businesses and registered businesses with employees in the post and courier sub-

sector for the periods 2013-2019 and 2019-2021, as well as over this entire period (i.e. 2013-2021). It shows the absolute growth in the number of registered self-employed post and courier businesses (of 89%) and their turnover (of 92%) between 2013 and 2019. It also shows the absolute decline in the number of unregistered self-employed post and courier businesses (of 30%) and their turnover (of 45%) between 2019 and 2021, while registered self-employed businesses increased by 95% and their turnover by 46% over this recent period.

Overall, registered self-employed post and courier businesses can be seen to have increased in number by 285% over the entire period 2013-2021, with an increase in turnover of 181%. Meanwhile, businesses with employees experienced no change in employment levels over the period 2013-2021, despite and a 55% increase in turnover over this period. This reflects the recent growth in work levels of self-employed businesses, which is likely to have been influenced by the growth in online shopping during the Covid-19 pandemic (with businesses with employees subcontracting much of this work to these self-employed businesses). It is possible that the number of self-employed post and courier businesses will fall from 2021 onwards due to UK Government tax changes known as IR35 – these new regulations may result in those self-employed workers who work on a regular basis for larger businesses being listed as part of their workforce again.

Table 3.24: Change in the number, employment and turnover of post and courier businesses with and without employees in the UK, 2013-2019 and 2019-2021

Size of business	Businesses (% change)	Employment (% change)	Turnover (% change)
2013-2019 (% change)			
Unregistered businesses with no employees	9%	10%	8%
Registered businesses with no employees	97%	89%	92%
Registered businesses with employees	24%	0%	40%
All businesses	30%	4%	40%
2019-2021 (% change)			
Unregistered businesses with no employees	-30%	-28%	-45%
Registered businesses with no employees	95%	94%	46%
Registered businesses with employees	10%	0%	11%
All businesses	16%	2%	11%
2013-2021 (entire period - % change)			
Unregistered businesses with no employees	-23%	-21%	-40%
Registered businesses with no employees	285%	267%	181%
Registered businesses with employees	36%	0%	55%
All businesses	51%	7%	56%

Note: Data is for the start of the year.
Source: calculated from data in BEIS 2010, 2019, 2021a.

The average number of employees, turnover per business and turnover per employee of post and courier businesses with and without employees in 2013, 2019 and 2021 are shown in **Table 3.25**. This indicates the far higher average turnover of registered self-employed businesses compared with unregistered ones. The gulf between the turnover per person between businesses with and without employees increased markedly between 2013 and 2021.

Table 3.25: The average number of employees, turnover per business and turnover per employee of post and courier businesses with and without employees in the UK, 2013, 2019 and 2021

Size of business	Ave. no. of people	Turnover per business (£ 000)	Turnover per person (£ 000)
2013			
Unregistered businesses with no employees	1	23	21
Registered businesses with no employees	1	59	56
Registered businesses with employees	49	3,199	66
All businesses	7	424	61
2019			
Unregistered businesses with no employees	1	23	20
Registered businesses with no employees	1	56	57
Registered businesses with employees	40	3617	91
All businesses	6	458	81
2021			
Unregistered businesses with no employees	1	18	16
Registered businesses with no employees	1	43	43
Registered businesses with employees	36	3,669	102
All businesses	5	438	89

Note: Data is for the start of the year.
Source: calculated from data in BEIS 2013, 2019, 2021a.

Table 3.26 shows that there was little change in the average turnover of self-employed post and courier businesses between 2013 and 2019. Over this period, businesses with employees experienced an average increase in turnover of 13%.

Average turnover per business for registered self-employed businesses fell between 2019 and 2021, despite the growth in importance and turnover of these businesses as a whole (see **Table 3.26**). Unregistered self-employed businesses experienced similar reductions in average turnover per business over this period. Meanwhile, businesses with employees experienced virtually no change in average turnover per business (increasing by 1%). This indicates that there was much competition between registered self-employed businesses for work (given that the increase in their total number over the period was double their increase in total turnover – see **Table 3.24**). It also indicates that larger businesses sub-contracting work to registered and unregistered self-employed workers either gave each worker less items to deliver or paid them less per item delivered than they had in the period 2013-2019. All of these may have occurred during the Covid-19 pandemic given that during this period many individuals sought work delivering parcels and packages.

Table 3.26: Change in the turnover per business and turnover per person of post and courier businesses with and without employees in the UK, 2013-2019 and 2019-2021

Size of business	Turnover per business (£ 000)	Turnover per person (£ 000)
2013-2019 (% change)		
Unregistered businesses with no employees	0%	-2%
Registered businesses with no employees	-3%	2%
Registered businesses with employees	13%	39%
All businesses	8%	34%
2019-2021 (% change)		
Unregistered businesses with no employees	-21%	-23%
Registered businesses with no employees	-25%	-25%
Registered businesses with employees	1%	11%
All businesses	-4%	9%
2013-2021 (% change for entire period)		
Unregistered businesses with no employees	-22%	-24%
Registered businesses with no employees	-27%	-23%
Registered businesses with employees	15%	55%
All businesses	3%	46%

Note: Data is for the start of the year.
Source: calculated from data in BEIS 2013, 2019, 2021a.

The increasing relative and absolute importance of self-employed businesses in the post and courier subsector over the period 2013-2021 is important from a decarbonisation perspective. If, as seems likely, a sizeable proportion of these businesses work for larger businesses then the provision of the vehicles they use is an important issue. The greater proportion that provide their own vehicles, the potentially more difficult it is for subsector-wide fleet decarbonisation to take place given the number of businesses involved and their average size and resources available. This is also the case for the uptake of operational energy efficiency measures, with such measures less commonly taken by micro and small businesses due to lack of information, time and resources (see **section 9** for further discussion).

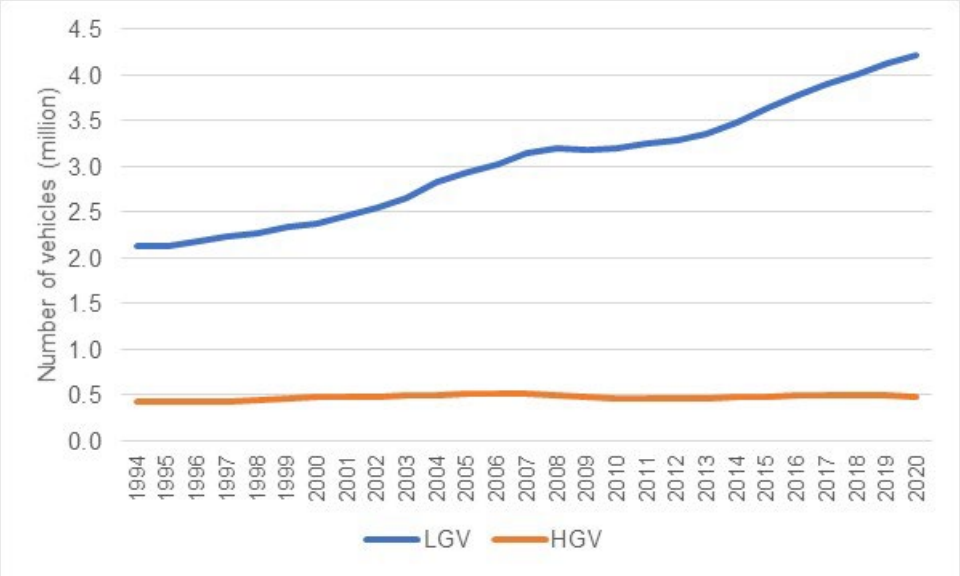
4. Goods vehicles, operator licencing and drivers in SMEs

4.1 Goods vehicles in the UK

There were approximately 4.2 million LGVs and 490,000 HGVs licensed in Britain in 2020 (see **Figure 4.1)**. It is important to note that while the road freight transport operators discussed in **section 3** do operate such vehicles, they only account for a proportion of all HGVs and a very small proportion of LGVs. While HGVs are primarily used for the transport of goods, they are operated by many other businesses whose main function is something else (such as manufacturing, retailing or construction) in addition to road freight transport businesses. This is borne out by official data that shows that in Britain in 2020, 39% of goods lifted by HGVs, 30% of tonne kilometres moved by HGVs and 42% of vehicle kilometres by HGVs were performed by vehicles licensed to businesses whose main function was not the provision of road freight transport services.

LGVs are used for many service activities in addition to the transport of goods. These activities use LGVs but the movement of goods is not their primary trip purpose, which is instead the provision of a service. Examples of such servicing activities include the work of engineers working for utility, energy and telecommunications businesses, plumbers, electricians, air conditioning and lighting engineers, carpenters, glaziers, roofers, builders, pest controllers, cleaners, security system providers, property maintenance personnel, surveyors, caterers, and gardeners. While those providing these services may carry goods as part of their work, they are also likely to carry tools and equipment that are necessary to the services they provide. One study estimated that approximately 15% of LGVs in the UK were used by road freight transport operators, while the other 85% were licensed to businesses and private individuals in other sectors either providing services or moving goods as part of their businesses (Freight Transport Association, 2018). A survey of LGV operators by the UK Department of Transport in 2019-20 also found that only 16% of these vehicles were primarily used for goods collection and delivery (with 84% primarily used by businesses and private individuals to move tools, equipment and materials in the provision of a service, for commuting and for non-business use) and that this goods delivery and collection activity only accounted for 24% of total LGV distance travelled (Department for Transport, 2021b). Given the increase in online shopping and the deliveries or parcels to consumers that this has resulted in, it is likely that the proportion of all LGVs used by road freight transport operators has increased in the last few years.

Figure 4.1: Goods vehicles licensed in Britain, 1994-2020



Source: Department for Transport, 2021c, 2021d.

4.2 Operator licences and goods vehicles specified on them

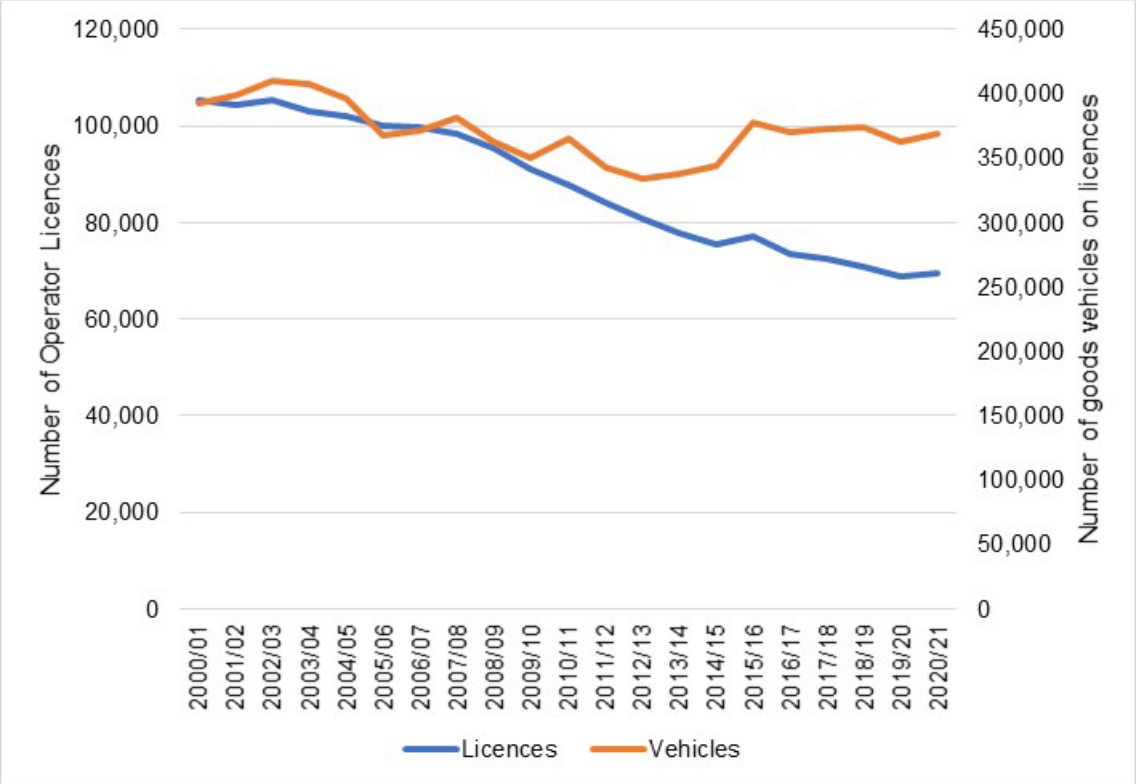
Those operating HGVs (i.e. goods vehicle above 3.5 tonnes gross weight) requires a goods vehicle operator's licence[2]. The vast majority of vehicles covered by goods vehicles are HGVs, but a licence is also required for LGVs and cars with trailers where their combined weight is over 3.5 tonnes. To gain an operator's licence it is necessary for the named individual to be of good repute and fit to hold a licence, to have appropriate financial standing, to have good enough facilities or arrangements facilities to maintain vehicles, and capable of ensuring that both they and their staff obey all the required. These include: to have an operating centre (an off-street location) where the vehicle will be kept, sufficient financial resources for the upkeep of the vehicle and business (£3,100 for one vehicle at present), no current disqualification to manage a business or recent conviction, adhere to required vehicle safety inspections at an agreed frequency and maintenance standards, observe vehicle operating requirements including speed limits, drivers' hours records and vehicle loading, and ensure that any drivers used or employed have the correct licence and training.

In 2020/21, there were approximately 70,000 operator licences in issue in Britain and approximately 370,000 goods vehicles (the vast majority of which were HGVs) specified on these licences (Traffic Commissioners, 2021). **Figure 4.1** shows the change in the number of operator licences and goods vehicles specified on those licences in Britain over the last twenty years. This shows the reduction in total licences over the period (there were 34% fewer licences in issue in 2020/21 than in 2000/01) while total vehicle numbers were only 6% lower in 2020/01 than in 2000/01. The total number of vehicles on operator licences has been far more stable over the last twenty years; vehicle numbers rose between 2013/14 and 2015/16 and have remained relatively stable since then, while total licences have continued to fall indicating a reduction in the number businesses providing road freight transport services despite growth/stability in road freight activity since 2013/14.

This decline in the number of licences in issue over the last twenty years has resulted in the average number of vehicles per licence increasing by 43% over this twenty year period (see **Figure 4.2** – which shows average number of vehicles for each type of Operator Licence). There are three types of operator licence for goods vehicles: i) restricted, ii) standard national and iii) standard international. Only the latter two (i.e. standard) licences allow the vehicle keepers to carry out road freight transport for other businesses and people; a restricted licence only allows the holder to use the vehicle to transport goods for their own business. The average number of goods vehicles per licence in 2020/21 was 27% higher than in 2000/01 for restricted licences, 23% higher for standard international licences, and 73% higher for standard international licences. The latter accounted for just over a half of all goods vehicles on operator licences in 2020/21 (see **Table 4.1**) and comprises those businesses providing domestic road freight transport services to other businesses and households. This provides further indication of the long-term reduction in road freight transport SMEs providing services to others.

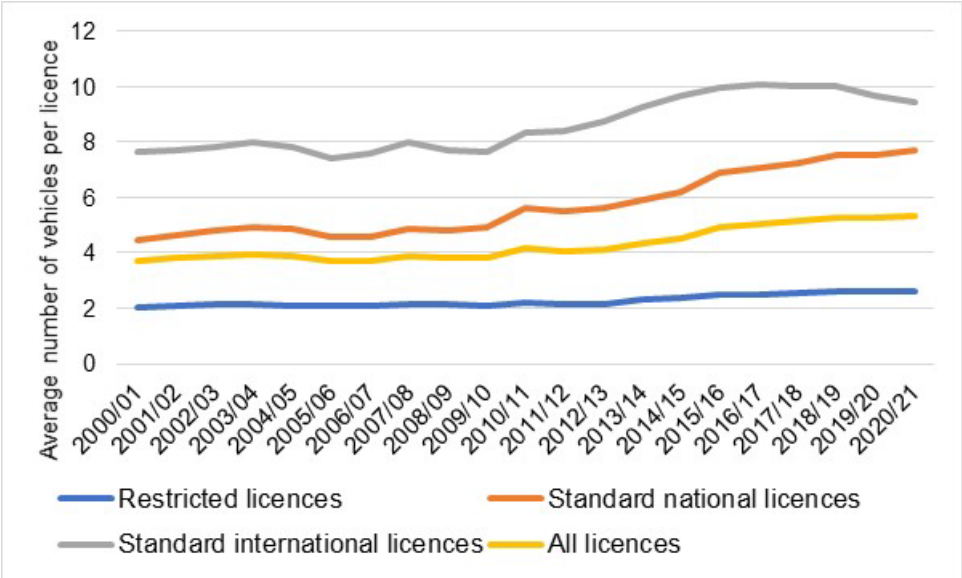
[2] There are some exemptions to the requirement for an operator licence including: military vehicles, snow ploughs and gritters, emergency service vehicles, hearses, recovery vehicles, some tractors and agricultural vehicles, vehicles operated by central government, and HGVs using public roads for less than six miles a week whilst moving between private premises belonging to the same person as the vehicle.

Figure 4.1: Operator licences and vehicle specified on them in Britain, 2000/01-2020/01



Source: Traffic Commissioners, 2000-2010; 2011-2021.

Figure 4.2: Average number of goods vehicles per operator licence in Britain by type of licence, 2000/01-2020/01



Source: calculated from data in Traffic Commissioners, 2000-2010; 2011-2021.

Table 4.1: Operator licences and goods vehicles specified on them in Britain by type of licence, 2020/21

Fleet Size	Licences		Vehicles	
	Number	%	Number	%
Restricted	35,505	51%	92,196	25%
Standard national	25,091	36%	192,831	52%
Standard international	8,932	13%	84,260	23%
Total	69,528	100%	369,287	100%

Source: Traffic Commissioners, 2021.

Table 4.2 provides an analysis of goods vehicle operator licensing data in Britain for 2020/21. In 2020/21, 23% of vehicles were held on licences with five or fewer vehicles, 35% of vehicles in fleets of ten or fewer vehicles, and 49% of vehicles in fleets of twenty or fewer. This indicates the importance of small vehicle fleets. Fleets of 21-50 vehicles accounted for 4% of licences and 19% of vehicles and fleets of more than 50 vehicles accounted for 2% of licences and 32% of vehicles in 2020/21. It should be noted that separate operator licences are required in each of the eight Traffic Commissioner regions in Britain. Therefore, larger businesses which have operating centres at which goods vehicles are kept in more than one Traffic Commissioner region may hold multiple operator licences. By comparison, the Road Haulage Association, the trade association representing 7,500 SME road freight businesses, has reported that 20% of its members operate a single vehicle, and 80% operate 1-20 vehicles (RHA, 2013).

Table 4.2: Operator licences and goods vehicles specified on them in Britain, 2020/21

Fleet Size	Licences (% change)	Vehicles (% change)
0*	12%	0%
1	34%	6%
2-5	34%	17%
6-10	9%	12%
11-20	6%	14%
21-50	4%	19%
51+	2%	32%
Total (%)	100%	100%
Total (no.)	69,528	369,287

Note: * - A zero fleet size occurs when an operator has a licence but does not specify any vehicles on it. This can occur if vehicles are only required for short periods and are therefore hired in, businesses incorrectly recording their fleet or licences no longer in use.
Source: analysis of data in Traffic Commissioners, 2022.

Table 4.3 shows the proportion of goods vehicles specified on operator licences by fleet size in Britain in 2012/13, 2014/15, 2016/17 and 2020/21. **Table 4.4** shows the change in the proportion of operator licences and the goods vehicles held on them by fleet size between 2012/13 and 202/21. The relative importance of goods vehicle fleets of 21-50 vehicles grew between 2012/13 and 2020/21. Between 2012/13 and 2020/21 the number of licences and

goods vehicles issued on licences with one vehicle and those with 2-5 vehicles fell (licences by 32% and 6%, respectively, and vehicles by 38% and 12%, respectively). By contrast, both the number of licences and vehicles on them increased a little for fleet sizes of 6-10 and 11-20 vehicles and by far more for medium- and large-sized fleet (i.e. 21-50 vehicles and more than 50 vehicles). As a result, the number of goods vehicles per operator licence was greater in 2021 than in 2012/13 (see **Figure 4.2**).

Operator licencing data from 1978 further indicates changes in goods vehicles specified on operator licences by fleet size (Foster Committee, 1978). In that year, 38% of goods vehicles were in fleets of 1-5 vehicle (compared to 32% in 2012/13 and 23% in 2020/21) and 24% were in fleets of over fifty vehicles (compared to 27% in 2012/13 and 32% in 2020/21).

Table 4.3: Operator licences and goods vehicles specified on them in Britain, 2012/13, 2014/15, 2016/17 and 2020/21

	2012/13		2014/15		2016/17		2020/21	
Fleet Size	**Licences**	**Vehicles**	**Licences**	**Vehicles**	**Licences**	**Vehicles**	**Licences**	**Vehicles**
0*	10%	0%	11%	0%	10%	0%	12%	0%
1	44%	11%	42%	9%	41%	7%	34%	6%
2-5	32%	21%	32%	20%	32%	17%	34%	17%
6-10	7%	12%	7%	12%	8%	11%	9%	12%
11-20	4%	13%	4%	13%	4%	11%	6%	14%
21-50	2%	16%	3%	17%	2%	14%	4%	19%
51+	1%	27%	1%	29%	1%	40%	2%	32%
Total (%)	100%	100%	100%	100%	100%	100%	100%	100%
Total (no)	80,073	335,351	75,235	348,063	67,121	371,718	69,528	369,287

Note: * - A zero fleet size occurs when an operator has a licence but does not specify any vehicles on it. This can occur if vehicles are only required for short periods and are therefore hired in, businesses incorrectly recording their fleet or licences no longer in use.
Source: Freedom of Information Request to Office of the Traffic Commissioners (in Motor Transport and Asset Alliance, 2018) and analysis of data in Traffic Commissioners, 2022.

Table 4.4: Change in Operator licences and goods vehicles specified on them in Britain, 2012/13-2020/21

Fleet Size	Licences (% change)	Vehicles (% change)
1	-32%	-38%
2-5	-6%	-12%
6-10	19%	9%
11-20	27%	17%
21-50	40%	30%
51+	40%	32%
Total	-13%	10%

Source: Freedom of Information Request to Office of the Traffic Commissioners (in Motor Transport and Asset Alliance, 2018) and analysis of data in Traffic Commissioners, 2022.

Table 4.1 provides the breakdown of operator licences and goods vehicles on restricted, national and international operator licences in 2020/21. This shows that there were approximately 34,000 standard (national or international) licences in issue and 277,000 vehicles specified on them (which accounted for 49% of all licences and 75% of all vehicles specified on them). This implies that were no more than 34,000 businesses holding Operator Licences for the purposes of transporting goods by road on behalf of others (and probably fewer given that a business requires a licence for each operating centre at which vehicles are kept). This can be compared with the 87,000 businesses registered as primarily providing road freight transport services in Britain in 2020. Given that the overwhelming majority of goods vehicles on operator licences are HGVs, this implies that 53,000 or more (i.e. approximately 60%) of all businesses providing road freight transport services in Britain in 2020 operated LGVs or no goods vehicles (i.e. self-employed contractors who drove other businesses' vehicles) rather than HGVs. Many road freight businesses with 0-4 employees are likely to be involved in the growth in subcontracting and self-employment that has taken place in many road freight transport operations. This has occurred due to factors including the tax advantages for drivers and medium and larger businesses and the employment flexibility for the latter of treating regular drivers as self-employed in industries such as mining, construction and others, as well as the substantial growth in the delivery of parcels and packages linked to the rise in online shopping and the demand for drivers that accompanied this growth (see **sections 3.1** and **3.2** for further discussion of this trend).

Analysis indicates that in 2020/21 approximately 8,500 standard (national or international) operator licences in Britain were in issue to licence holders with a fleet size of only one vehicle. This is equivalent to approximately 10% of all registered road freight transport businesses. Operator licences issued to holders that specify two to five HGVs on them are also likely to be small businesses. Analysis indicates that in 2020/21 approximately 12,000 standard (national or international) operator licences were in issue to licence holders with a fleet size of two to size vehicles; this was equivalent to approximately 15% of all registered road freight transport businesses in Britain in 2020. So, this analysis suggests that there were approximately 20,000 businesses with fleets of no more than five HGVs providing road freight transport services to others in Britain in 2020/21, which was equivalent to approximately 25% of all registered businesses offering road freight transport services in Britain in 2020. These small businesses accounted for approximately 30% of all goods vehicle operator licences in issue in 2020/21 and operated approximately 11% of all HGVs licensed on operator licences.

In addition, this analysis indicates that in 2020/21 approximately 15,000 restricted operator licences were in issue to licence holders with a single HGV, and 12,000 restricted licences were in issue to licence holders with two to five HGVs. These 27,000 small businesses, who use HGVs for their own restricted purposes rather than providing road freight transport services to others represented approximately 40% of all operator licences in issue and approximately 12% of all HGVs licensed on operator licences.

Table 4.5 uses a different source to provide estimates of the number of sites operated by SME road freight transport and storage businesses that have employees (i.e. those SME road freight transport businesses that have no employees are not included but such businesses would normally have only one site per business). This shows that the vast majority (83%) of SME road freight transport businesses that have employees have one operating site, while a further 12% have two sites. Medium-sized operators can be seen to operate a small proportion of all SME sites (BEIS, 2021b).

Table 4.5: Number of sites operated by SME road freight transport and storage businesses with employees, 2020

Sites	Percentage of businesses
1	83%
2	12%
3	4%
4 – 10	1%
11+	0%
Total	100%
Sample size	205

Source: BEIS, 2021b.

4.3 LGV fleet sizes

Table 4.6 shows the fleet size of LGVs registered to businesses from survey work carried out by the Department for Transport (2021c). This indicates that fleets of one vehicle accounted for 20% of company-registered LGVs, fleets of up to 5 vehicles for 51% of company-registered LGVs, fleets of up to 10 vehicles for 64% of company-registered LGVs, and fleets of up to 20 vehicles for 74% of company-registered LGVs.

Table 4.6: Fleet sizes of LGVs registered to businesses, 2019-2020

Fleet size	Percentage of LGVs
1	20%
2-5	31%
6-10	13%
11-20	10%
21-50	9%
51-100	8%
100+	9%
Total	100%

Notes:
This data excludes LGVs registered to private individuals.
Sample size: 10,575 businesses operating LGVs.
The data is for all LGVs, so does not distinguish between LGVs primarily used for the delivery and collection and goods and those primarily used for other purposes.
Source: Department for Transport, 2021d.

In 2020, 47% of LGVs were registered to businesses and 51% were registered to private individuals (Department for Transport, 2021e). Assuming that each private individual with a licensed LGV only has one such vehicle, it is possible to use this data together with that in **Table 4.6** to estimate the proportion of UK LGVs in each fleet size band (including those operated by private individuals - see **Table 4.7**).

Table 4.7: Estimated fleet sizes of LGVs registered to businesses and private individuals in the UK, 2020

Fleet size	Percentage of LGVs
1	62%
2-5	15%
6-10	6%
11-20	5%
21-50	4%
51-100	4%
100+	4%
Total	100%

Note: The data is for all LGVs, so does not distinguish between LGVs primarily used for the delivery and collection and goods and those primarily used for other purposes.
Source: estimated from data in Department for Transport, 2021c, 2021e.

4.4 HGV drivers in the UK

There were approximately 300,000 people working in the UK who recorded their main occupation as HGV driving in 2019/20 (i.e. in the run up to the UK leaving the EU on 31 January 2020 and prior to the onset of the Covid-19 pandemic), 16% of whom were from EU or other non-UK countries (15% from EU countries and 1% from other countries) (ONS, 2021).

An HGV driver shortage became apparent in 2021, with retailers and manufacturers and retailers, farms, petrol stations and residential homes struggling to obtain the goods deliveries and collections they required. Supermarkets became only partly stocked and car queues formed at petrol stations throughout the country for several days at the height of the problems (BBC News, 2021; Espiner, 2021).

HGV driver shortages had existed in the UK for more than decade but these recent difficulties were exacerbated by: i) the Covid-19 pandemic which resulted in some HGV drivers having to self-isolate and delays in driving tests for new entrants, ii) Brexit (i.e. the UK leaving the EU) which led to some non-UK drivers returning to their home countries, and iii) the tax changes made by the UK Government known as 'IR35' that resulted in some drivers registered as self-employed contractors but actually working for a medium or large company on a regular, on-going basis having to pay more National Insurance and income tax than they did previously and hence some of them choosing to stop working in the industry, as well as potential applicants being discouraged from entering due to this effective pay cut (these IR35 changes were introduced in April 2021). These factors led to a further in HGV driver capacity in the UK of approximately 45,000 drivers between 2019/20 and 2020/21 (Piecyk and Allen, 2021). Combined with existing HGV driver shortages, it was estimated by the main trade associations Logistics UK (formerly the Freight Transport Association) and the Road Haulage Association (RHA) estimated a national shortage in 2021 of 90,000 drivers and 100,000 drivers, respectively (Logistics UK, 2021a; Road Haulage Association, 2021a).

Analysis of the underlying problems causing this driver shortfall indicates that newly qualified HGV drivers do not necessarily proceed to taking a job as an HGV driver after passing their test or working as drivers in the sector for long, as well as qualified, serving drivers leaving road freight transport for work outside the sector. In 2020, approximately 650,000 people held an HGV driving licence but did not work as an HGV driver for their living (Piecyk and Allen,

2021; Smith, 2021). The driver shortage problem facing the road freight transport sector is therefore both about retaining those who pass HGV tests and those who already drive in the industry, as well as about encouraging people to train to be an HGV driver in the first place.

There are many issues that need to be addressed in order to improve HGV driver recruitment and retention. Survey work has found that the factor that consistently ranks most highly in research into the driver shortage is that of the rates of pay available given the demands and difficulties of the work. Other important factors include the long working hours and unsocial times of work (including early morning and late night activity) and, in the case of long-distance operations, often spending time travelling away from home, the inadequacy of facilities and space for rest breaks and overnight stops and their price when available, driver training costs and time requirements, driver insurance costs, the poor public perception of the work, and the lack of respect from other road users for the role (Piecyk and Allen, 2021).

It is too soon to determine whether the actions taken by the UK Government and the road freight transport industry since late 2021 will be sufficient to address the long-term HGV driver shortage that has existed in the UK, but given the ageing workforce and the regulatory pressures facing road freight transport operators, especially in terms of operating restrictions and charges in urban areas that are set to grow in order to address environment and active travel (i.e. cycling and walking) targets of policy makers, there seems little doubt that the number road freight SMEs operating HGVs and those working for them will continue its long term downward trajectory.

5. Trading and operating conditions of UK SMEs in road freight transport

5.1 Financial turnover and profitability of road freight transport SMEs

A survey asked SMEs in the transport and storage sector (which also includes passenger transport operators) in both 2019 and 2020 whether their turnover had increased, decreased or stayed roughly the same in the previous 12 months (see **Table 5.1**). Responses from transport and storage SMEs with employees and those without employees (i.e. the smallest businesses) are shown separately. Responses indicate that the majority of respondents experienced decreased annual business turnover in 2020, unlike in 2019 (responses for 2020 include the period following the onset of the Covid-19 pandemic and Brexit and therefore potentially indicate its impacts on respondents' operating and trading situation).

Table 5.1: Whether business turnover had increased, decreased or stayed roughly the same in the previous 12 months, 2019 and 2020, UK

	Transport and storage SMEs with employees		Transport and storage SMEs with no employees	
	2019	**2020**	**2019**	**2020**
Increased	34%	19%	26%	12%
Decreased	15%	64%	28%	71%
Stayed the same	47%	16%	41%	17%
Don't know	3%	0%	0%	0%
Refused	1%	1%	5%	0%
Total	100%	100%	100%	100%
Sample size	348	205	92	65

Source: BEIS, 2021b, 2021c.

Another more detailed question in this same survey about change in business turnover in the previous 12 months in 2019 and 2020 provided more detailed responses (see **Table 5.2**). Again, this shows the contrast in the experience of respondents' businesses before and during Covid-19 and Brexit, with 63% of transport and storage SMEs with employees and 72% of those with no employees experiencing some degree of shrinking in 2020, with the vast majority of these reporting 'substantial shrinkage'. This was in marked contrast to respondent's business growth in 2019 (with only 15% of transport and storage SMEs with employees and 29% of those with no employees reporting any shrinkage).

Table 5.2: Extent of change in business turnover experienced over the previous 12 months, 2019 and 2020, UK

	Transport and storage SMEs with employees		Transport and storage SMEs with no employees	
	2019	**2020**	**2019**	**2020**
Substantial growth	13%	5%	6%	10%
Significant growth	9%	7%	9%	0%
Moderate growth	12%	7%	11%	2%
Growth, don't know how much	1%	0%	0%	0%
No change	47%	16%	41%	17%
Minor shrinkage	4%	5%	5%	2%
Significant shrinkage	7%	15%	10%	6%
Substantial shrinkage	3%	41%	14%	62%
Shrinkage, don't know how much	1%	2%	0%	2%
Don't know/ Refused	4%	1%	5%	0%
Total	100%	100%	100%	100%
Sample size	348	205	92	65

Source: BEIS, 2020a, 2020b, 2021b, 2021c.

Respondents in this survey were asked about their expectations of turnover growth in next 12 months in both 2019 and 2020 (see Table 5.5). Results indicate the extent to which Covid-19 took transport and storage SMEs by surprise, with far more respondents in 2019 expecting turnover to increase than decrease over the next year. It also shows that far fewer respondents expected turnover to decrease in 2021 than had experienced a decrease in 2020 (compare expectations expressed in 2020 for the next 12 months in **Table 5.3** with actual business turnover experiences in the previous 12 months to 2020 in **Table 5.1**).

Table 5.3: Expectations of turnover growth in next 12 months, 2019 and 2020, UK

	Transport and storage SMEs with employees		Transport and storage SMEs with no employees	
	2019	**2020**	**2019**	**2020**
Increase	39%	40%	26%	34%
Decrease	12%	14%	27%	12%
Stay the same	43%	40%	40%	42%
Don't know	5%	6%	2%	10%
Refused	2%	0%	4%	2%
Total	100%	100%	100%	100%
Sample size	348	205	92	65

Source: BEIS, 2020a, 2020b, 2021b, 2021c.

Despite the shrinkage in business turnover expressed by respondents in 2020 with respect to their experiences in the previous 12 months (see **Table 5.1**),the majority of them still managed to generate a profit or surplus in 2020 (see **Table 5.4**). In answering this question respondents were asked to take into account all sources of income, so for 2020, those receiving government-related Covid-19 financial support were asked to take this into account. A similar proportion of transport and storage SMEs generated a profit in 2020 as in 2019.

Table 5.4: Taking into account all sources of income in the last financial year, did you generate a profit or surplus? 2019 and 2020, UK

	Transport and storage SMEs with employees		Transport and storage SMEs with no employees	
	2019	**2020**	**2019**	**2020**
Yes	69%	67%	60%	67%
No	26%	26%	40%	29%
Don't know	4%	6%	0%	4%
Refused	0%	1%	0%	1%
Total	100%	100%	100%	100%
Sample size	348	205	92	65

Source: BEIS, 2020a, 2020b, 2021b, 2021c.

Taking a longer term view of growth among SMEs in the transport, storage and communication SMEs, **Table 5.5** shows the proportion reporting growth between 2013 and 2020, compared with all SMEs in the UK. This indicates the lower proportion of transport, storage and communication SMEs than all SMEs reporting business growth over the period, as well as the substantial reduction in 2020 due to the pandemic.

Table 5.5: Proportion of UK SMEs achieving growth in last 12 months, 2013-2020

	2013	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**
Transport, storage and communication SMEs	35%	38%	35%	39%	36%	38%	35%	21%
All SMEs	40%	42%	39%	40%	42%	39%	37%	27%

Note: excludes start-up businesses.
Source: BVA, BDRC 2021.

5.2 Impacts of Covid-19 on road freight transport SMEs

Respondents were asked how their SME transport and storage businesses were affected by the first Covid-19 lockdown that commenced in March 2020 (see **Table 5.6**). Approximately 60% of respondents reported that the lockdown had no effect on their business, while 20-30% reported that operations were reduced and 5-15% reported that operations were increased. Compared with SMEs in fourteen other sectors of the economy, transport and storage SMEs with employees experienced a lower rate of temporary closure than many (with only the professional/science, finance/real estate, information/communications and primary sectors experiencing lower rates than transport and storage), but a higher rate of reduction in

operations than SMEs in any other of these fifteen sectors. By comparison, transport and storage SME respondents with no employees ranked in the middle of all fifteen SMEs sectors in terms of temporary business closure and a higher proportion of transport and storage businesses experienced a reduction in operations than among respondents in any other sector.

Table 5.6: Which best describes how your business adapted during the lockdown restrictions, 2020, UK

	SMEs with employees		SMEs with no employees	
	Transport and storage SMEs	**All SMEs**	**Transport and storage SMEs**	**All SMEs**
Business closed down completely (temporarily)	21%	31%	29%	33%
Operations were reduced	62%	47%	59%	45%
Business was unaffected by Covid-19 restrictions	15%	15%	6%	16%
Operations were increased	2%	6%	5%	6%
Don't know	1%	1%	0%	0%
Refused	0%	0%	0%	0%
Total	100%	100%	100%	100%
Sample size	205	5597	65	2022

Source: BEIS, 2021b, 2021c.

Transport and storage SMEs with employees were also asked about the measures that they had taken since Covid-19 began in early 2020 that related to their workforce to cope with its impacts (see **Table 5.7**). As can be seen, the most commonly reported measures were: furloughing employees (62% of respondents), reducing the working hours of employees (54%), providing facilities for remote working (34%) , and asking employees to take on extra tasks (19%). Only 12% of respondents reported having taken no measures.

Table 5.7: Workforce measures taken at any stage since the outbreak of Covid-19 to cope with its impacts, 2020, UK

	Transport and storage SMEs with employees
Furloughed employees	62%
Reduced employees working hours	54%
Provided facilities for remote working	34%
Asked employees to take on additional tasks	19%
No measures taken	12%
Laid off employees permanently/made employees redundant	11%
Moved employees to new or different roles	11%
Recruited employees for the longer term	10%
Laid off employees in the short-term without furlough	9%
Recruited employees for the short term	8%
Increased employees working hours	6%
Other	6%
Don't know	0%
Refused	0%
Sample size	205

Source: BEIS, 2021b.

SME transport and storage businesses were asked what other (i.e. non-workforce) measures they had taken to address the impacts of Covid-19 and its trading restrictions (see **Table 5.8**). The most common measures taken by these SMEs with employees were (in order of importance): changing working processes, increased borrowing, drawing on reserves and postponed investment. The same four measures were also among those most commonly taken by SME transport and storage businesses without employees, but for these respondents the most often implemented was drawing on reserves, which was reported by 56% of respondents.

Table 5.8: Other measures taken at any stage since the outbreak of Covid-19 taken to mitigate impacts and any associated trading restrictions, 2020, UK

	Transport and storage SMEs with employees	Transport and storage SMEs with no employees
Changed processes/ways of working	60%	47%
Increased borrowing	39%	36%
Drawn on reserves	37%	56%
Postponed investment	33%	34%
Changed services/products provided	14%	21%
Changed methods of selling	13%	19%
No measures taken	12%	23%
Built up stock of supplies	8%	5%
Other	0%	2%
Sample size	205	65

Source: BEIS, 2021b, 2021c.

Those transport and storage SMEs with employees were asked, at its highest level, the proportion of their workforce that was furloughed during 2020. The results are shown in **Table 5.9** and compared with the result for all SMEs in the UK. Reported staff furlough rates can be seen to be similar in transport and storage SMEs and all SMEs in the UK.

Table 5.9: Proportion of businesses' workforce furloughed, at its highest level, in 2020, UK

Proportion of workforce	Transport and storage SMEs with employees	All SMEs with employees
No more than 10%	9%	5%
No more than 25%	9%	7%
No more than 50%	18%	21%
No more than 75%	15%	12%
More than 75% but not all	12%	12%
All	36%	43%
Don't know	0%	0%
Total	100%	100%
Sample size	205	4013

Source: BEIS, 2021b, 2021c.

Survey respondents were asked whether they had received Government financial support from the Furlough Scheme and the Self-Employed Income Support Scheme during the Covid-19 pandemic (see **Table 5.10**). Eighty-nine percent of transport and storage SMEs with employees received support from the Furlough Scheme. Forty percent of transport and

storage SMEs with no employees received support from the Self-Employed Income Support Scheme compared with 15% of those with employees.

Table 5.10: Proportion of businesses receiving Furlough Scheme and the Self-Employed Income Support Scheme during the Covid-19 pandemic, 2020, UK

	Transport and storage SMEs with employees	Transport and storage SMEs with no employees
Coronavirus Job Retention Scheme (otherwise known as Furlough Scheme)	89%	0%
Self-employment Income Support Scheme	15%	40%
None of these	4%	56%
Don't know	1%	3%
Total	100%	100%
Sample size	205	65

Source: BEIS, 2021b, 2021c.

In addition, 40% of transport and storage SMEs with employees and 30% of those with none reported using Covid-19 Government-backed loans (i.e. the Coronavirus Business Interruption Loan and Bounce Back Loan) in 2020 (see **Table 5.11**).

Table 5.11: Has your business used any Coronavirus COVID-19 Government-backed accredited loans or finance agreements in 2020, UK

	Transport and storage SMEs with employees	Transport and storage SMEs with no employees
Yes	41%	30%
No	57%	70%
Don't know	2%	0%
Refused	0%	0%
Total	100%	100%
Sample size	205	65

Source: BEIS, 2021b, 2021c.

5.3 Impacts of Brexit on road freight transport SMEs

Another survey provides insight into the extent to which the UK leaving the EU has been an obstacle to business for 'distribution' SMEs and all SMEs. This survey comprises a broad definition of 'distribution'. The findings indicate that approximately 15% of distribution respondents cite Brexit as a major business obstacle (the same proportion as among all SMEs) (see **Table 5.12**).

Table 5.12: Proportion of UK businesses reporting the UK leaving the EU as an obstacle to business, 2020 (score of 1 to 10, where 1 = little or no effect and 10 = major obstacle)

	Distribution SMEs	All SMEs
10 (Major obstacle)	7%	7%
8-9	8%	8%
4-7	28%	22%
1-3	53%	60%
Don't know	3%	3%
TOTAL	100%	100%

Notes:
867 Distribution sector SME respondents, 4,124 total SME respondents.
Distribution sector includes: wholesale and retail trade; repair of motor vehicles and motorcycles, transportation and storage, and accommodation and food service activities.
Survey carried out between 27 August and 25 November 2020.
Source: Klahr et al., 2021a

In another survey, 13% of transport, storage and communication SMEs reported having international staff in 2020, compared with 23% in 2017. This reflects the impact of Brexit and its international workforce implications on SMEs in the sector. Forty percent of transport, storage and communication SMEs with international staff reported concerns about migration changes in 2020 (compared with 48% in 2017). This indicates the continued effect of Brexit changes on employment issues in transport SMEs (BVA BDRC, 2021).

5.4 Service innovation and the use of ICT among SME road freight operators

Rates of innovation are low among transportation and storage SMEs in the UK. Only 16% of transport and storage SMEs with employees reported introducing new or significantly improved services in 2020, compared with 13% of all SMEs with employees. Only 5% of transportation and storage SMEs with employees were estimated to have invested in research and development in each of the years from 2018-2020, compared with 15-20% of all SMEs with employees (BEIS, 2021b).

Information and communications technology (ICT) has been integral to supply chain management, stock control, warehousing and other logistics services for many years. The provision of such services within and between businesses, as well as the goods deliveries and collection by LGVs and HGVs that they rely on, are closely associated with large freight transport and logistics businesses (often referred to as third party logistics providers) who provide these to their retail, manufacturing and other customers, with ICT underpinning the efficiency, reliability and leanness of these product supply chains and the suppliers, intermediaries and customers that they link together. By managing such information and communication flows and the related flows of goods between these parties, large freight transport and logistics businesses have enhanced their role and importance, from transporting products to one of co-ordinating these supply chains, sometimes making use of the road freight transport services of SMEs in doing so.

By contrast, although having to make use of ICT in order to operate in a modern business world, due to their scale, financial and physical resources and in-house skills and capabilities, road freight transport SMEs tend to have experienced a far less dramatic evolution and innovation in their service provision to customers. Medium-sized freight transport businesses

are more likely to have adopted ICT to support their more extensive logistics services and supply chain functions than small and micro businesses.

Few studies have been conducted into ICT adoption among road freight transport SMEs but those that have found that their implementation of ICT is less extensive than larger freight and logistics businesses, and their attitude towards it are less positive (Pokharel, 2005). A study of only SMEs, many of which were micro and small businesses, providing freight transport and warehousing services in Finland, Norway and Sweden found that levels of ICT use and business size were positively related and that key barriers to ICT uptake were inadequate staff training and expertise and compatibility difficulties with existing systems (Kilpala et al., 2005).

A study involving road freight transport SMEs in Italy that sought to better understand the key drivers, enablers and inhibitors of ICT usage among them via survey work, group discussions and case studies found that ICT investment among these SMEs has relatively low and that few had an ICT strategy. A positive correlation between SME size and ICT use was identified and a key driver of ICT uptake was its potential to enhance supply chain interactivity and service beyond internal business benefits (Evangelista et al., 2013).

A study of the uptake and use of ICT in road freight transport businesses in the Nigerian oil sector that included large, medium and small businesses found that although large businesses were more likely to adopt ICT, smaller businesses that adopted it were more likely to adapt their ICT tools to support objectives beyond those intended by the ICT supplier (Tob-Ogu et al., 2018).

Road freight SMEs that are innovating and expanding their portfolio of services offered are likely to make greater use of ICT to support these than businesses that are not. SMEs often require advice and support in selecting and implementing appropriate logistics-based ICT tools (Evangelista et al., 2013).

6. UK road freight transport SMEs and external finance

The main requirement for finance among road freight transport SMEs (especially in the case of micro and small businesses) is to acquire HGVs and LGVs. While goods vehicles can be acquired either through outright purchases or external finance (including finance leasing and hire purchase arrangements) provided by finance lenders, road freight transport SMEs are far more likely to make use of outright purchases than larger businesses (see **section 6.1** for further discussion). In addition, goods vehicle can be acquired new or second hand; freight transport SMEs are far more likely to purchase second hand vehicles than larger businesses (see **section 6.1** for further discussion). Other activities that can require finance among road freight transport include acquiring new sites to operate from and site refurbishment, advertising and vehicle maintenance and repairs.

During the Covid-19 pandemic, some SMEs required additional financing to help meet operating costs at a time when many experienced falls in turnover (see **Tables 5.1 and 5.2**). Almost 40% of transport and storage SMEs reported the need to increase borrowing in 2020 as a result of the Covid-19 pandemic (see **Table 5.7**). A substantial proportion of transport and storage SMEs reported receiving Government-backed financial support during the pandemic (including Government-backed accredited loans and finance agreements, Furlough Scheme funding for staff, and the Self-Employed Income Support Scheme – see **Tables 5.9 and 5.10**).

6.1 LGV and HGV acquisition by road freight operators

While large road freight operators will usually purchase new vehicles and use vehicle leasing financing arrangements to do so, this is often not the case for SMEs. These smaller businesses and private individuals providing road freight services also often purchase second hand HGVs and LGVs, and are far more likely to buy vehicles outright rather than entering into financing arrangements.

Table 6.1 provides data from a survey of businesses and private individuals who are registered keepers of LGVs. Although it does not explicitly indicate SMEs, all private individuals fall into this category and the majority of those businesses purchasing second hand vehicles and buying new vehicles outright are likely to do so.

Table 6.1: Purchasing methods for LGVs in Britain, 2019-2020

Purchasing method	Private individual	Company-owned	All LGVs
New: owned outright	14%	39%	33%
New: leasing / hire purchase agreement	2%	26%	21%
Second-hand: owned outright	76%	28%	39%
Second-hand: leasing / hire purchase agreement	8%	7%	8%
All	100%	100%	100%

Source: Department for Transport, 2021d.

Table 6.2 provides findings from a survey of HGV and LGV ownership among BVRLA members (who account for approximately 25% of all HGVs and 20% of all LGVs in the UK. This indicates that approximately 45% of HGVs and LGVs are purchased outright either new or second hand (and therefore financed directly by the road freight operators either through cash reserves, profit, bank loan, overdraft or credit card or other private finance arrangement).

Contract hire and operating leases running for more than 12 months account for approximately 30% of HGV and LGV acquisitions, while short term flexi leases and rentals account for approximately 10-15% of vehicles (BVRLA, 2020).

Table 6.2: Vehicle ownership for HGVs and LGVs in the UK

	HGVs	LGVs
Owned outright (new or used)	44%	43%
Contract hire/operator lease with maintenance > 12 months	24%	26%
Other lease with no maintenance > 12 months	9%	3%
Flexi lease/flexi rental (6-12 months)	14%	5%
Short-term rental	-	7%
Managed by a fleet management services company	5%	-
Other	-	15%

Notes:
Total does not sum to 100 due to rounding errors.
Only includes vehicles held by BVRLA members.
Source: BVRLA, 2020.

6.2 External finance taken out by road freight transport SMEs

Table 6.3 shows the proportion of transport and storage SMEs with and without employees who required new external finance (i.e. finance from a bank, financial institution or other lender rather than from personal reserves) in 2019 (i.e. before the pandemic) and in 2020 (during the pandemic). The results indicate that no more of these SMEs required external finance in 2020 than in 2019. This is likely to be due, at least in part for some businesses, to the Covid-19 financial assistance received from the UK Government. The results for transport and storage SMEs are similar to those for all SMEs in the UK.

Table 6.3: Whether external finance was required in the previous 12 months, 2019 and 2020, UK

	Transport and storage SMEs with employees		Transport and storage SMEs with no employees	
	2019	2020	2019	2020
Yes	10%	9%	9%	8%
No	88%	89%	89%	92%
Don't know	3%	3%	2%	0%
Total	100%	100%	100%	100%
Sample	348	205	92	65

Source: BEIS, 2021b, 2021c.

Table 6.4 shows the types of external finance used by transport and storage SMEs for those that did make use of it in 2019 and 2020 (for 2020 Government Covid-19 loans and grants are also shown). This shows that the most widely used sources of finance are credit cards, followed by bank overdrafts, leasing/hire purchase, and loans. It also shows that approximately 35% of transport and storage SMEs used no sources of external finance in

2019 and about 30% in 2020. This listing indicates the relatively low use of leasing / hire purchase schemes, typically used by larger businesses for vehicle purchase – only approximately 30% of transport and storage SMEs with employees and 10% of those with no employees used this form of finance in 2019.

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Table 6.4: Types of external finance being used in 2019 and 2020, UK

	Transport and storage SMEs with employees		Transport and storage SMEs with no employees	
	2019	**2020**	**2019**	**2020**
Credit cards	35%	25%	30%	29%
Bank overdraft facility	33%	28%	32%	17%
Leasing or hire purchase	32%	27%	10%	16%
Loan from a bank, building society or other financial institution	21%	13%	7%	13%
Loan from business partner/directors/owner	14%	10%	8%	5%
Commercial mortgage	6%	4%	12%	0%
Loan from family/friend	5%	5%	2%	10%
Government or local authority grants or schemes not related to Coronavirus	6%	17%	1%	10%
Government or local authority grants or schemes directly related to Coronavirus	N/A	23%	N/A	24%
Factoring/invoice discounting	5%	2%	0%	0%
Loan from a peer to peer platform	0%	2%	0%	2%
Equity Finance (e.g. where share of business is sold to investors)	1%	3%	0%	0%
Another type of external finance	0%	1%	3%	2%
None of these	33%	25%	40%	33%
Don't know	1%	2%	0%	0%
Refused	1%	0%	5%	0%
Sample	348	205	92	65

Note: N/A – not applicable.
Source: BEIS, 2020a, 2020b, 2021b, 2021c.

The disinclination of transport and storage SMEs to make use of external finance in the next three years is shown in **Table 6.5**, with only approximately 20% of them saying it is likely that they will do so.

Table 6.5: Likelihood of approaching external finance providers in the next 3 years, 2020, UK

	Transport and storage SMEs with employees	Transport and storage SMEs with no employees
Very likely	11%	9%
Fairly likely	13%	9%
Not very likely	34%	21%
Not at all likely	36%	59%
Don't know	5%	2%
Sample	205	65

Source: BEIS, 2021b, 2021c.

Another UK survey carried out at the end of 2020, with a wider sample including communication (i.e. computing, media and publishing) as well as transport and storage businesses, also found that a sizeable proportion of these SMEs were disinclined to use external finance, with only 33% of these respondents saying that they were happy to do so. This survey also found that 83% of transport, storage and communication respondents stated that their current plans are based on what they can afford themselves, ourselves", 50% agreed with the statement that they, "Never think about whether we could/should use more external finance", 78% agreed with the statement, "We will accept a slower rate of growth rather than borrowing to grow faster", and 74% agreed with the statement, "Because the future feels uncertain we are being very cautious with our plans for the business". Only 41% of respondents were prepared "to take risks to be more successful" (see **Table 6.6** - BVA BDRC, 2021). Responses from transport, storage and communication respondents were similar to those of all SMEs, indicating their relatively cautious views towards borrowing, and their disinclination to take risk.

Table 6.6: SME views on finance and borrowing, 2020, UK

Statement	% of respondents in agreement with statement	
	Transport, storage and communication SMEs	All SMEs
Happy to use external finance to help the business grow and develop	34%	33%
Current plans for the business are based on what we can afford ourselves	83%	85%
Never think about whether we could/should use more external finance	50%	51%
We will accept a slower rate of growth rather than borrowing to grow faster	78%	80%
Because the future feels uncertain we are being very cautious with our plans for the business	74%	68%
A further increase in the cost of credit would make us less likely to apply for new external finance	60%	57%
As a business we are prepared to take risks to be more successful	41%	43%

Note: carried out in quarter 4, 2020.
Source: BVA BDRC, 2021.

This same survey indicates that views on using external finance to grow the business have worsened over time both among transport, storage and communication SMEs and all SMEs (see **Table 6.7**).

Table 6.7: Agreement with the statement, "Happy to use external finance to help the business grow and develop", 2015-2020, UK

	2015	2016	2017	2018	2019	2020
Transport, storage and communication SMEs	47%	43%	38%	35%	30%	34%
All SMEs	45%	43%	34%	32%	29%	33%

Source: BVA BDRC, 2021.

The relatively high price of goods vehicles can result in road freight transport SMEs that do use external finance for vehicle acquisition having higher borrowing costs than SMEs in many other sectors. In Q3 2020, transportation and storage was one of the sectors of SME customers with the British Business Bank with the largest share of loans worth more than 20% of annual turnover, with approximately 65% of borrowers taking out 20%- 25% of their turnover (the others were Education, Professional and Scientific Activities, and Other Service Activities) (British Business Bank, 2021b).

Table 6.8 shows the proportion of transport, storage and communication SMEs with external finance between 2013 and 2020 (and a comparison with all SMEs in the UK). This indicates that the penetration of external finance has remained relatively stable among these SMEs over the period.

Table 6.8: Proportion of UK SMEs with external finance between 2013 and 2020

	2013	2014	2015	2016	2017	2018	2019	2020
Transport, storage and communication SMEs	41%	38%	38%	36%	40%	37%	46%	43%
All SMEs	41%	37%	37%	37%	38%	36%	45%	37%

Source: BVA BDRC, 2021.

Table 6.9 shows the proportion of transport, storage and communication SMEs that had borrowings of more than £25,000 when surveyed in different quarters of 2020. This can be seen to have risen between Q1 and Q3, with a small reduction in Q4. In terms of these SMEs' concerns about their ability to repay these borrowing, this can be seen to have increased substantially during the quarters of 2020, with 41% of respondents citing concerns in Q4 compared with 11% in Q1 2020. This level of concern about repayments in Q3 and Q4 2020 was far greater among transport, storage and communication SMEs than all UK SMEs (BVA BDRC, 2021).

Table 6.9: UK SMEs borrowing more than £25,000 and concerns about ability to repay, 2020

	Borrowing more than £25,000				Concerned about ability to repay			
	Q1 2020	Q2 2020	Q3 2020	Q4 2020	Q1 2020	Q2 2020	Q3 2020	Q4 2020
Transport, storage & communication SMEs	18%	23%	32%	28%	11%	29%	32%	41%
All SMEs	18%	19%	25%	28%	14%	29%	21%	24%

Note: total borrowing of more than £25,000 at time of survey.
Source: BVA BDRC, 2021.

Table 6.10 shows the proportion of transport, storage and communication SMEs with a worse than average financial risk rating between 2013 and 2020, compared with all SMEs. Transport, storage and communication, along with construction, were the sectors most likely to have a worse than average risk rating over the period, considerably higher than SMEs in many other sectors.

Table 6.10: Proportion of UK SMEs with a worse than average financial risk rating between 2013 and 2020

	2013	2014	2015	2016	2017	2018	2019	2020
Transport, storage and communication SMEs	62%	56%	59%	62%	56%	49%	54%	52%
All SMEs	54%	45%	46%	49%	45%	47%	44%	47%

Note: for businesses for which risk ratings were provided.
Source: BVA BDRC, 2021.

In terms of obtaining financial advice, the 2020 SME Finance Survey found that 61% of SME respondents in the distribution sector agreed with the statement, "I know where to obtain information on the types of finance and specific providers available" (Klahr et al., 2021a).

In relation to accessing external finance to support net zero objectives, a survey of UK SMEs found that 38% of those in the Transportation and Storage sector[3] would do so via an external loan. This was higher than for SMEs in any other sector, and reflects the substantial capital cost investment for goods vehicles (British Business Bank, 2021a), especially if a sizeable second hand market has not emerged by the time this investment is necessary to meet UK Government regulations.

[3] For the purposes of this survey, the Transportation and Storage SIC code definition was used which includes businesses involved in both freight and passenger transport and storage activities.

7. Road freight transport operating costs

7.1 Current road freight transport operating costs

Road freight transport operating costs for businesses with employees include vehicle acquisition/financing costs, other vehicle standing costs (vehicle insurance and Vehicle Excise Duty), fuel costs (diesel and AdBlue), tyre costs, maintenance and repairs, and overheads.

Table 7.1 presents an analysis of the relative importance of operating cost categories for different types of goods vehicles in the UK operated by road freight transport businesses with employees at the end of 2021. The results indicate the importance of driver and fuel costs as a proportion of total operating costs.

Table 7.1: Importance of operating cost categories by type of goods vehicle for road freight transport businesses with employees, UK, end of 2021

Operating cost categories	44t artic tractor unit and trailer	32t rigid tipper	18t rigid curtain-sider	7.5t rigid curtain-sider	3.5t panel van
Driver costs[1]	28%	29%	38%	41%	55%
Fuel costs[2]	34%	31%	24%	23%	12%
Vehicle finance & tax costs[3]	15%	17%	18%	15%	14%
Overheads[4]	13%	13%	14%	14%	15%
Maintenance/repair & tyre costs	9%	10%	6%	7%	4%
Total costs	100%	100%	100%	100%	100%
Assumed annual mileage	80,000	60,000	60,000	60,000	30,000

Notes:
1. Includes wages and National Insurance.
2. Uses diesel pump prices excluding VAT.
3. Insurance finance and depreciation costs: assumes new vehicles are purchased.
4. Transport and business overhead costs include business and transport overhead costs (for offices and other buildings and their running costs, computing and telephone charges, employment costs of non-driving staff, tolls, penalty charge notices, parking charges and allowances for rest breaks and overnight stops, and any other business services required).
Data is for end of 2021.
Source: calculated using input data from Motor Transport, 2021b, BEIS, 2022.

The costs shown in **Table 7.1** are average costs for all road freight transport businesses with employees. As previously discussed (see **section 6.1**), some micro and small road freight businesses with employees purchase new vehicles outright using external finance (for instance by saving up enough or borrowing from family members to purchase), have longer vehicle replacement cycles than larger businesses, and/or purchase second-hand rather than new vehicles. These actions can result in lower absolute and relative vehicle finance costs than for larger businesses.

Some self-employed road freight transport businesses that have their own vehicles will also take these actions which reduce absolute and relative vehicle finance costs. Self-employed businesses also pay lower rates of National Insurance or may not pay it at all depending on their size and type. For self-employed businesses there are also no wage costs given there being no employees; instead the business owner typically uses income that remains after costs for their personal use. In addition, self-employed road freight businesses often have no business overheads given that they usually have no offices/premises, managers, office or support staff. Transport overheads still exist for tolls, penalty charge notices, and parking

charges for rest breaks and overnight stops. Table 7.2 illustrates the effects of there being no driver wage or business overheads cost categories for self-employed road freight businesses (all other things being equal – i.e. without changing vehicle finance methods and replacement cycles). These results indicate the even greater proportion of total operating costs that fuel represents for self-employed businesses than for those with employees.

Table 7.2: Importance of operating cost categories by type of goods vehicle for self-employed road freight transport businesses, UK, end of 2021

Operating cost categories	44t artic tractor unit and trailer	32t rigid tipper	18t rigid curtain-sider	7.5t rigid curtain-sider	3.5t panel van
Fuel costs[1]	54%	50%	47%	48%	37%
Vehicle finance & tax costs[2]	24%	27%	35%	31%	45%
Maintenance/repair & tyre costs	15%	16%	12%	15%	12%
Overheads[3]	7%	7%	6%	6%	5%
Total costs	100%	100%	100%	100%	100%
Assumed annual mileage	80,000	60,000	60,000	60,000	30,000

Notes:
1. Includes wages and National Insurance.
2. Uses diesel pump prices excluding VAT.
3. Insurance finance and depreciation costs: assumes new vehicles are purchased.
Data is for end of 2021.
Source: calculated using input data from Motor Transport, 2021b, BEIS, 2022.

Fuel costs are directly related to distance travelled, so can fluctuate by type of operation (see **Table 7.3**).

Table 7.3: Proportion of total operating cost accounted for by fuel costs depending on annual distance travelled by type of goods vehicle and business, UK, end of 2021

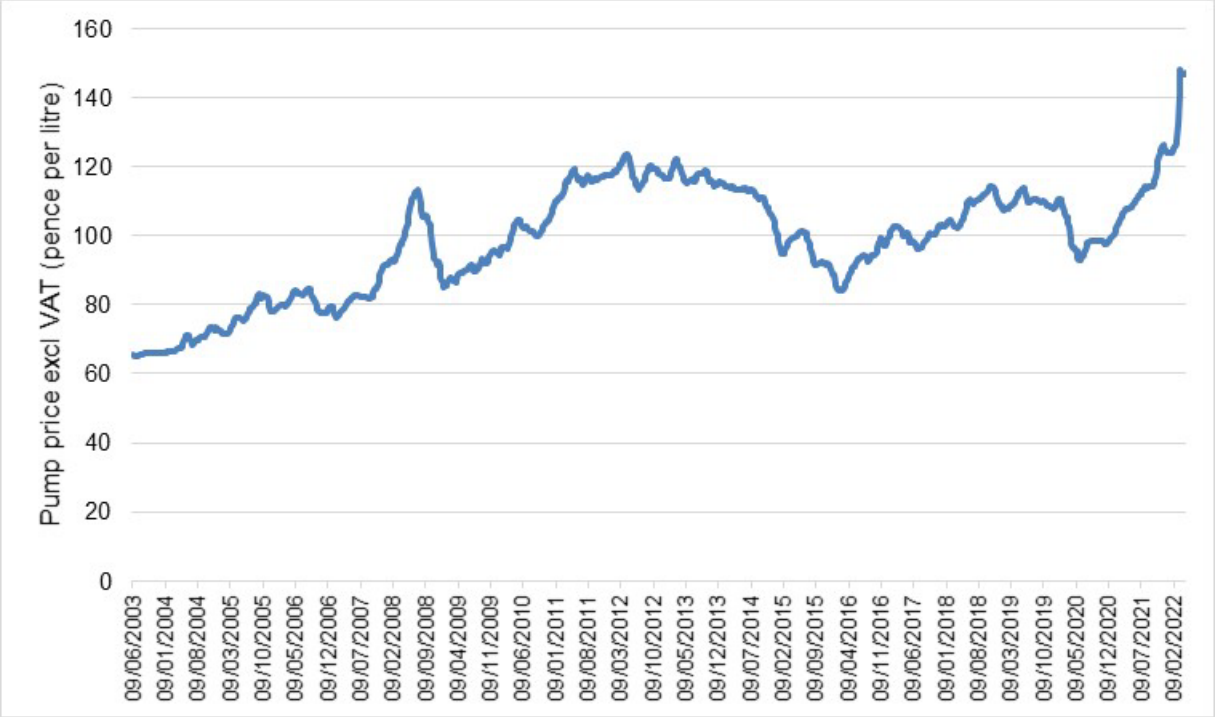
Vehicle type and annual distance travelled	Fuel costs as % of total operating costs	
	Road freight businesses with employees	Self-employed road freight businesses
44t artic tractor unit and trailer		
60,000 miles	29%	50%
80,000 miles	34%	54%
100,000 miles	38%	57%
32t rigid tipper		
40,000 miles	25%	44%
60,000 miles	31%	50%
80,000 miles	36%	54%
18t rigid curtainsider		
40,000 miles	18%	40%
60,000 miles	24%	47%
80,000 miles	29%	52%
7.5t rigid curtainsider		
40,000 miles	17%	42%
60,000 miles	23%	48%
80,000 miles	28%	52%
3.5t panel van		
20,000 miles	8%	31%
30,000 miles	12%	37%
40,000 miles	15%	42%

Notes:
Based on same calculation method as previous tables.
Data is for end of 2021.
Source: calculated using input data from Motor Transport, 2021b, BEIS, 2022.

7.2 Changes in road freight transport operating costs

Some of the key vehicle costs have been rising rapidly in the last couple of years. Diesel and AdBlue prices had increased rapidly over the last two years. Initially this was due to increases in oil and commodity prices as international economies began to increase production levels following Covid-19 pandemic lockdowns together with a shortage of fuel drivers to distribute it in the UK due to Covid-19 and Brexit, and more recently by the Russia-Ukraine War. **Figure 7.1** shows the UK pump price for diesel (excluding VAT) from 2003 to the end of April 2022. The price increase since mid-2020 is clear, with the pump prices (excluding VAT) 44% higher at the end of April 2022 than in May 2020.

Figure 7.1: Ultra low sulphur diesel pump price excluding VAT in the UK, June 2003 - end of April 2022



Source: produced from data in BEIS, 2022.

AdBlue is a product made of synthetic urea and de-ionised water which (requires air and natural gas to produce ammonia) that is used by goods vehicles and diesel cars. It is added to the catalyst system in the car's exhaust system to turn nitrogen oxide into steam and nitrogen and thereby reduce the release of harmful local air pollutants. The cost of AdBlue began to increase last year, in parallel with wholesale gas price rises, as a result of an increase in demand as international economic output began to increase following Covid-19 lockdowns and a halt in Chinese exports. This led to some production sites in Europe temporarily closing and urea prices being approximately five times higher than in January 2021. The price of urea and AdBlue are it expected to rise further due to the on-going effects of the Russia-Ukraine war on gas prices and supply. AdBlue is cheaper per litre than diesel and is used in far smaller proportions that diesel by goods vehicles (typically 3-6% depending on type of vehicle), but increases in AdBlue prices result in rising vehicle fuel costs.

Driver wages have been increasing rapidly as a result of the goods vehicle driver shortage in the UK that has arisen as a result of Covid-19, Brexit, some older drivers choosing to retire as well as several longer-term factors that have affected driver recruitment and retention (Piecyk and Allen, 2021).

Vehicle purchase prices have been increasing rapidly in the last two years as a result of semi-conductor shortages that have reduced new vehicle availability. This has also caused the demand for second-hand vehicles and prices to surge.

Table 7.4 shows the findings of an analysis of changes in road freight transport operating costs for businesses with employees between the end of 2020 and the end of 2021. The results reflect substantial annual increases in fuel, driver, and finance/tax cost categories over the 12-month period. Vehicle fuel costs have increased by the largest proportion due to the

increases in diesel prices. Total vehicle operating costs are estimated to have increased by 12-17% over the year for the assumed mileage driven, depending on type of vehicle.

Table 7.4: Change in vehicle operating costs end of 2020 to end of 2021 in the UK by type of goods vehicle

Operating cost categories	44t artic tractor unit	32t rigid tipper	18t rigid curtain-sider	7.5t rigid curtain-sider	3.5t panel van
Driver costs	+15%	+15%	+15%	+15%	+10%
Fuel costs	+24%	+24%	+24%	+24%	+24%
Vehicle finance & tax costs	+16%	+17%	+16%	+14%	+13%
Total costs	+17%	+17%	+17%	+16%	+12%
Assumed annual mileage	80,000	60,000	60,000	60,000	30,000

Notes:
Based on same calculation method as previous tables.
Data compares end of 2020 with end of 2021.
Source: calculated using input data from Motor Transport, 2020,2021b; BEIS, 2022.

Table 7.5 shows the changes in road freight transport operating costs for businesses with employees between 2015 and the end of 2020. The results reflect similar increases in driver, fuel and vehicle finance/tax cost categories between these dates, with fuel costs rising slightly more than the others. Overall, total vehicle operating costs were 11-16% higher at the end of 2020 compared with 2015 for the assumed mileage driven, depending on type of vehicle.

Table 7.5: Change in vehicle operating costs end of 2015 to end of 2020 in the UK by type of goods vehicle

Operating cost categories	44t artic tractor unit	32t rigid tipper	18t rigid curtain-sider	7.5t rigid curtain-sider	3.5t panel van
Driver costs	+14%	+16%	+16%	+12%	+10%
Fuel costs	+18%	+18%	+18%	+18%	19%
Vehicle finance & tax costs	+13%	+13%	+18%	+14%	+12%
Total costs	+15%	+15%	+16%	+13%	+11%
Assumed annual mileage	80,000	60,000	60,000	60,000	30,000

Notes:
Based on same calculation method as previous tables.
Data compares end of 2015 with end of 2021.
Source: calculated using input data from Motor Transport, 2015, 2020; BEIS, 2022.

8. Vehicle maintenance and contraventions of road freight transport regulations by SMEs

DVSA (the Driver and Vehicle Standards Agency – a governmental body) monitors goods vehicle and driver safety and compliance with operating regulations (including vehicle defects, drivers' hours, overloading) through enforcement checks carried out at the roadside and at premises and by tachograph analysis, and analysis of annual vehicle testing results by registered mechanics. Data is available by fleet size for initial fail rates in annual vehicle testing and for drivers' hours offences (but not for vehicle defects and overloading discovered in roadside and premises checks).

Table 8.1 shows the initial annual test fail rates for HGVs by fleet size in Britain. Although initial test fail rates have fallen over the period from 2013/14 to 2018/19 for all fleet sizes, the data shows that initial fail rates are closely related to HGV fleet size, with higher fail rates the smaller the fleet. In 2018/19, almost one in four HGVs in fleets of a single vehicle, and almost one in five of HGVs in fleets of 2-5 vehicles, and more than one in ten HGVs in fleets of 6-20 vehicles failed their initial test. This data indicates that, on average, the smaller the HGV fleet, the worse its level of maintenance.

Table 8.1: HGV initial test fail rate by fleet size, 2013/14 to 2018/19, Britain

Fleet size	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19
1	30%	28%	25%	23%	23%	23%
2-5	26%	25%	22%	19%	19%	18%
6-10	21%	20%	16%	15%	14%	14%
11-20	16%	15%	13%	11%	11%	10%
21-30	14%	13%	10%	9%	9%	9%
31-40	12%	11%	9%	8%	8%	8%
41-50	11%	11%	9%	8%	7%	7%
51-100	10%	9%	7%	7%	6%	6%
>101	8%	7%	6%	5%	5%	5%

Source: DVSA, 2020b.

In 2018/19 (the most recent data available) roadside and premises check found that 4% of HGV drivers had contravened drivers' hours regulations (DVSA, 2020b). Analysis of businesses operating HGVs that had committed drivers' hours offences in 2019 and 2020 in Britain are shown in **Table 8.2** by fleet size and compared with the proportion of all goods vehicles licensed in each fleet size band. This indicates that drivers in smaller fleets (i.e. fleets of 1-20 vehicles) tended to commit a greater proportion of offences than these fleets accounted for as a proportion of total vehicles licensed. Fleets of up five vehicles accounted for 23% of all goods vehicles but committed approximately 40% of all drivers hours offences in 2019 and 2020. Fleet of up to twenty vehicles accounted for 35% of all goods vehicle licensed but committed approximately 60% of all drivers hours offences.

By contrast, for larger fleets (i.e. more than 20 vehicles the drivers' hours offences were underrepresented in terms of the proportion of all licensed goods vehicles these fleets account for. For example fleets of more than 50 vehicles accounted for 32% of all goods vehicles licensed but committed 7% of all drivers hours offences in 2019 and 2020 (DVSA, 2021).

Table 8.2: Drivers' hours offences committed in 2019 and 2020 and goods vehicles operated by fleet size in 2020/21, Britain

Fleet Size	Drivers' hours offences (%)		Vehicles on operator licences (%)
	2019	2020	2020/21
0	4%	3%	0%
1	10%	10%	6%
2-5	31%	29%	17%
6-10	17%	20%	12%
11-20	16%	19%	14%
21-50	15%	12%	19%
51+	7%	7%	32%
Total	100%	100%	100%
No.	3,810	2,649	369,287

Source: calculated from data in DVSA, 2021 and Traffic Commissioners, 2022a.

The action taken by Traffic Commissioners against holders of goods vehicle operator licences and/or Transport Managers named on operator licences in the calendar year 2019 that have been made available online (Traffic Commissioners, 2022b) were reviewed to analyse the fleet size on these licences. Action was taken either as a result of evidence provided by the DVSA during roadside or premises checks, from complaints made by the public or from other sources. Actions can be taken due to any contraventions of the requirements made in holding an operator licence including those concerning the licence holder or Transport Manager, the condition of vehicles, the ways in which vehicles are used and the suitability of the operating centre. Actions that are taken can include: formal warnings against operator licences, suspension of licences, conditions imposed on licence and revocation of licences (in the most severe cases). Operator licence holders can be disqualified from holding licences and Transport Managers can be disqualified from being named on them. The results of this analysis of action taken by Traffic Commissioners are shown in **Table 8.3**. Operator licences for a single goods vehicle accounted for 18% of all actions taken and 21% of licence revocations in 2019, despite these vehicles only representing 6% of all goods vehicle on operator licences in Britain. Similarly, fleets of 2-5 vehicles accounted for 55% of all actions taken and 62% of licence revocations in 2019, despite these vehicles only representing 17% of all goods vehicle on operator licences in Britain. By comparison, goods vehicle fleets of more than 50 HGVs were subject to no action or revocations in 2019 in the data analysed, despite accounting for approximately 0ne-third of all goods vehicles on operator licences in Britain.

This analysis therefore indicates that in terms of both all actions taken by Traffic Commissioners and the revocation of licences (the most extreme action that Traffic Commissioners take), these fleets of up to 5 goods vehicles are considerably overrepresented in relation to the proportion of all goods vehicles that are operated on them.

Table 8.3: Actions taken by Traffic Commissioners against goods vehicle operator licences, by fleet size in 2019, Britain

Fleet Size	All actions taken against operator licences in 2019	Operator licence revocations in 2019 (%)	All goods vehicles held on operator licences in 2020/21 (%)
1	18%	21%	6%
2-5	55%	62%	17%
6-10	18%	12%	12%
11-20	6%	2%	14%
21-50	3%	2%	19%
51+	0%	0%	32%
Total	100%	100%	100%

Notes:
Analysis based on available online decisions made by Traffic Commissioners with hearings in the calendar year 2019 that contain vehicle fleet size information. A total of 62 such actions in 2019 were identified and analysed.
Calendar year 2019 selected rather than 2020 or 2021 due to likely impact of Covid-19 restrictions on the work of Traffic Commissioners and the DVSA.
Source: analysed from data available in Traffic Commissioners, 2022b.

The information provided in this section indicates that road freight transport SMEs are less likely to maintain and operate their HGVs in accordance with regulations and to adhere to operator licencing requirements than large road freight transport businesses.

9. UK road freight transport SMEs and the environment

This section reviews the work of surveys into road freight transport SMEs and their views and actions concerning fuel efficiency and decarbonisation of their operations.

9.1 Awareness of and views on fuel efficiency and decarbonisation

Table 9.1 shows the issues facing road freight transport SMEs that they raised as being of importance in a qualitative survey work carried out in the UK by Ipsos MORI for the Department for Transport. Interviewees mentioned the impacts of Covid-19 on their revenue and safety, the business implications of Brexit, the administrative and cost burden of the rules and regulations they have to comply with (including Low Emission Zones / Clean Air Zones), high fuel prices and the effect of traffic congestion on fuel use and journey reliability. The contribution of road freight transport to GHG emissions and climate change was not a key issue raised by these respondents (Crush and Reynolds, 2021).

Table 9.1: Current issues facing UK road freight transport SMEs raised by interviewees, 2020

Issues raised as important
Rules and regulations resulting in administrative burden
Brexit uncertainty affecting revenues and business continuity
Non-British drivers undercutting wages of British drivers
Impacts of Covid-19 on revenue and safety
Impacts of traffic congestion on fuel costs and journey-time reliability
High fuel prices
Impacts on Low Emissions Zones / Clean Air Zones introduced in urban areas and need for freight-friendly policy making

Source: summarised from Crush and Reynolds, 2021.

In this same survey work, given that very few road freight transport SMEs mentioned the environmental impacts and GHG emissions of road freight transport, the interviewers raised the topic. While some felt that it was an important issue, most felt that were too many other, more important issues for them to deal with at present. When raised by the interviewer, the term ‘emissions’ tended to result in negative feedback from interviewees with them referring to the costs of vehicle upgrades to meet compliance requirements. The term ‘fuel efficiency’, when raised, also tended to result in some negative comments; although interviewees tended to acknowledge its importance, they perceived this topic as already well disseminated and understood. Only a minority of interviewees analysed data to improve fuel efficiency and fuel prices (Crush and Reynolds, 2021).

Another UK survey carried out in 2020 examined how many SMEs in different sectors had heard about: (i) the UK government’s target to reach net zero by 2050 and (ii) the impacts of climate change on their business. Fifty six percent of SMEs surveyed had heard either ‘a fair amount’ or ‘a lot’ about the government’s net zero commitment to and 57% had heard either ‘a fair amount’ or ‘a lot’ about the implications of climate change for their business. High levels of awareness to these two concepts varied between respondents in the eight business sectors categorised. Levels of awareness were greatest among SMEs in Transportation and Storage, Agriculture and Primary Industries, and Business Services. This survey work then investigated whether these same respondents had prioritised decarbonisation in their strategies. It found

that overall 47% of UK SMEs reported that they have prioritised decarbonisation in their strategies, while 53% had not. Analysis by sector showed that, despite the high level of awareness of decarbonisation issues among Transportation and Storage SMEs, only 45% of firms in the sector had prioritised decarbonisation in their strategies (the second lowest of eight sectors after Business Services) (British Business Bank, 2021a).

This same UK survey then presented SME respondents with six relatively low-effort actions that could be taken which, although not necessarily resulting in immediate or substantial reductions in carbon emissions, could be helpful as initial actions in adapting business culture, awareness and knowledge about decarbonisation and in preparing the ground for subsequent actions. The results showed that 56% of SMEs had not taken any of these six capability-building actions. **Table 9.2** shows these results by sector; these indicate that more progress has been made by Transportation and Storage SME respondents than by SMEs in several other sectors (British Business Bank, 2021a).

Table 9.2: Share of UK smaller businesses that have taken capability-building actions, by sector, 2021

Sector	At least one capability-building action taken	No capability-building actions taken
Manufacturing	34%	66%
Other Services	41%	59%
Business Services	41%	59%
Wholesale and Retail	46%	54%
Construction	50%	50%
Transportation and Storage	52%	48%
Agriculture/Primary	54%	46%
Accommodation and Food Services Activities	57%	43%

Notes:
1,200 respondents in total.
Source: British Business Bank, 2021a.

Survey work carried out in 2020 with road freight transport SMEs from a wide range of European countries found that two-thirds of respondents rated decarbonisation with a ‘high’ or ‘very high’ priority and three-quarters of them said that fuel efficiency was of ‘high’ or ‘very high’ importance to them in their daily operations, and almost 90% of them viewing it as of ‘high’ or ‘very high’ importance in their long term strategies (Toelke and McKinnon, 2021).

Table 9.3 shows European respondents’ views on whether environmental efforts provide a business opportunity in this same survey. Overall, half of respondents saw little or no business opportunity. However, responses varied with SME fleet size. Approximately 70% of businesses with fleets exceeding 100 vehicles saw a ‘moderate’, ‘large’ or ‘very large’ business opportunity in their environmental efforts, while only 40% of those with fleet sizes of less than 20 vehicles held this opinion (Toelke and McKinnon, 2021).

Table 9.3: Respondents on whether environmental efforts provide a business opportunity for European SME road freight operators, 2020

Response	Proportion of SME respondents
Not a business opportunity	19%
To a small extent	32%
To a moderate extent	32%
To a large extent	11%
To a very large extent	5%
Total	100%

Source: Toelke and McKinnon, 2021.

Overall, 43% of European SME road freight operators reported that they had no capability to calculate their businesses' transport-related GHG emissions, while 32% said they could this at a business level and 25% said they could do this as a customer level. The findings indicated that the smaller the business, the less likely it was to be able to measure its GHG emissions, with approximately 60% of respondents with fewer than 10 vehicles having no GHG calculating capabilities, compared with approximately 20% of those with more than 100 vehicles. The ability to make such calculations also varied by the country in which the business was based. Only approximately one-thirds of respondents in the Netherlands and France could not make such calculations, compared with approximately half of UK respondents (Toelke and McKinnon, 2021).

Another survey of senior managers in both large and small European businesses comprising freight and logistics providers, shippers and other service providers found that the "likelihood of a business having a sustainable logistics strategy is partly a function of size. The proportion of businesses with such a strategy was twice as high in the over €1 bn revenue category as in the under €50 m category" (McKinnon and Petersen, 2021, p.6)

9.2 Current and future fuel efficiency and decarbonisation actions

In the qualitative research for the Department for Transport, interviewees were shown several possible actions that operators could implement to improve fuel efficiency and reduce their carbon emissions (Crush and Reynolds, 2021). These were:

- Eco-driver training and in-cab driver monitoring using vehicle telematics (to provide information including vehicle speed, acceleration, braking, location and fuel consumption)
- Vehicle adaptations (low rolling-resistance tyres, lower viscosity lubricants and vehicle aerodynamics including roof deflectors and fairings, cab-side-edge fairings, filler panels and trailer side panels and teardrop-shaped trailers)
- Alternative fuels (including bio-methane, methane, bio-gas and liquid natural gas).

Interviewees were then asked what they like or disliked about these ideas, the extent to which these seemed a viable option for their business, and the type of incentive that would be most likely to motivate their uptake or greater involvement. **Table 9.4** summarises the interviewees' responses.

Table 9.4: Summary of UK SME road freight interviewees' feedback about actions they could take to reduce GHG emissions, 2020

Actions	Interviewee feedback
Eco-driver training	Many small and medium sized businesses were conducting in-house driver training to maximise fuel efficiency. Micro businesses were less likely to be doing so, due to lack of time and resources. There were relatively low levels of awareness of eco-driver training courses among interviewees. Some questioned the value to be gained from such additional driver training beyond what they already provided in-house, seeing it as common sense and citing the difficulty to alter the behaviour of drivers who don't want to change.
Vehicle telematics	Interviewees expressed "mixed levels of awareness, knowledge of, usage, and motivation to use telematics systems". Those that already did so tended to be small and medium sized rather than micro businesses. These existing users tended to positive about the benefits of telematics.
Vehicle adaptations	The majority of interviewees were aware of aerodynamic vehicle adaptations, with uptake relatively high. Some questioned the payback. "There was generally low uptake of other vehicle adaptations such as low rolling resistance tyres, automatic tyre pressure adjustment and low viscosity lubricants, with SMEs unconvinced about the benefits of replacing their current practices with these adaptations".
Alternative fuels	The majority of SMEs were aware of at least one type of alternative fuel and some had considered introducing them in their fleet. Barriers expressed to doing so including real-world fuel benefits, capital costs and payback periods, the possible transience of government incentives, and concerns about refuelling infrastructure.
Summary of most favoured approaches	Overall, SMEs felt that telematics and eco-driver training offered greater potential for them than vehicle adaptations and alternative fuels. They were generally seen as having better fuel saving benefits, and lower payback periods and capital costs.
Means by which to encourage uptake	Financial incentives were more popular among interviewees as a means by which to foster uptake of initiatives than prizes or independent accreditation schemes. The majority of interviewees thought that a preferential rate loan would be the easiest way to do this, while some preferred a tax break or grant, especially if they had past experience of these.

Source: summarised from Crush and Reynolds, 2021.

Survey work carried out in 2020 with SME road freight operators from a range of European countries enquired about businesses' awareness and implementation of ten measures that improve fuel efficiency / reduce carbon emissions (five of which were operational and five of which related to the vehicle design. The findings, which are provided in **Table 9.5**, showed a

close statistical correlation between awareness and implementation rates. There was greater awareness and implementation of operational measures than vehicle-related measures. The monitoring of fuel consumption, eco-driver training and driver performance tracking have the highest awareness and implementation rates, with 77%, 69% and 60% of respondents having adopted these, respectively. Interviews were able to identify that operational measures were preferred by businesses due to their speed and ease of implementation. Businesses with larger fleets reported having higher levels of awareness and implementation of operational measures those with very small vehicle fleets. While businesses with larger fleets also had higher awareness and implementation of vehicle-related measures these differences were far less marked than for operational measures (Toelke and McKinnon, 2021).

Table 9.5: SME respondents' awareness and implementation of fuel efficiency / decarbonisation measures, Europe, 2020

Measure	Awareness of measure (% of respondents)	Implementation of measure (% of respondents)
Operational measures		
Fuel consumption monitoring	78%	78%
Eco-Driver training	76%	69%
Driver performance tracking	64%	60%
Transport route optimization	64%	57%
Fleet manager training	44%	40%
Vehicle-related measures		
Shorter vehicle-renewal cycles	37%	30%
Low rolling resistance tyres	37%	28%
Vehicle aerodynamics	33%	24%
Light weighting	28%	19%
Anti-idling devices	23%	17%

Source: Toelke and McKinnon, 2021.

9.3 Challenges and barriers to fuel efficiency and decarbonisation

Several barriers to the uptake of actions that would reduce GHG emissions were identified in interviews with UK road freight transport SMEs. These included their lack of time availability, their low profitability, their lack of resources for capital investment and their lack of understanding that GHG reduction extends beyond the vehicle used and its age and fuel (see **Table 9.6** – Crush and Reynolds, 2021).

Table 9.6: Key barriers to GHG emissions reduction identified by UK road freight SME interviewees, 2020

Barriers mentioned
SMEs, and especially micro businesses, are extremely time poor
SMEs operate on very low margins and are cash poor and therefore any technologies or practices would need to be affordable and offer quick payback periods.
SMEs relate better to the concept of fuel efficiency than carbon emissions.
There is a general lack of understanding that emissions reduction is more than just having an up to date vehicle.

Source: summarised from Crush and Reynolds, 2021.

Survey work among UK SMEs in eight business sectors, found that respondents in the Transportation and Storage sector cited their two most important barriers to net zero actions as (in order of importance): (i) feasibility, (ii) costs, with them rating (iii) capacity/willingness to act, and (iv) information as far less important barriers (British Business Bank, 2021a).

The vast majority of transport and storage SME respondents in another UK survey stated that they do not make use of information or advice (see **Table 9.7**).

Table 9.7: Whether information or advice is used, UK, 2019 and 2020

	Transport and storage SMEs with employees		Transport and storage with no employees	
	2019	**2020**	**2019**	**2020**
Yes	19%	16%	12%	13%
No	80%	83%	88%	87%
Don't know	1%	2%	0%	0%
Sample	349	205	92	65

Source: BEIS, 2020a,2020b, 2021b, 2021c.

A survey of road freight transport SMEs in various European countries found that only 30% of respondents said they were well informed to make sound decisions about fuel economy measures, while 60% felt their knowledge was limited and 10% felt that that they had no knowledge of the subject. Responses provided when asked about the appropriate fuels for their future vehicle operations indicated substantial uncertainty (Toelke and McKinnon, 2021).

Interviews with UK road freight transport SMEs identified the sources of information they currently use or would potentially use in future for support and guidance (see **Table 9.8**).

Table 9.8: Current and future source of information, support and guidance mentioned by UK road freight transport SMEs, 2020

Source	Sources mentioned
Current sources	Most frequently mentioned source of information was trade associations - Road Haulage Association (RHA) followed by Logistics UK. Micro businesses more likely to depend on word of mouth than larger businesses. Trade magazines also often mentioned, with Commercial Motor most commonly cited. Some received email bulletins from governmental bodies including DVSA and Traffic Commissioners. Some made use of internet and social media sources with the drivers' forum Truck Net UK mentioned by several. Some interviewees expressed mistrust that central government fully understands or appreciates their situation.
Possible future sources	"Despite some feelings of mistrust, interviewees ranked central government information as the most trustworthy, followed by trade associations (despite the conflicting views of members and non-members) and finally the automotive and fuel industry, who most of the interviewees believed would be driven primarily by their own business interests".

Source: summarised from Crush and Reynolds, 2021.

Survey work also indicates just less than half of transport and storage SMEs with employees in the UK provide on or off the job training to staff. The proportion of transport and storage SMEs provided training to employees was lower than that for all SMEs in the UK (see **Table 9.9** – BEIS, 2020a, 2020b, 2021b, 2021c). This is a further potential barrier to the wider understanding and uptake of GHG emission related actions.

Table 9.9: Whether any training (off the job or on the job) is offered to employees of SMEs, UK, 2019 and 2020

	Transport and storage SMEs with employees		All SMEs with employees	
	2019	2020	2019	2020
Yes - formal off the job	16%	14%	12%	11%
Yes - informal on the job	10%	7%	11%	13%
Yes - Both	20%	18%	25%	19%
No	53%	60%	51%	56%
Don't know	1%	1%	1%	1%
Any training	45%	39%	48%	44%
Sample	348	205	8406	5597

Source: BEIS, 2020a, 2020b, 2021b, 2021c.

9.4 Enablers of fuel efficiency and decarbonisation

A survey of SMEs in the UK asked respondents about enablers that would be helpful policy levers to encourage more decarbonisation action by SMEs. Across all respondents regardless of sector, a tax incentive was seen as most helpful (by 64% of respondents). In order of importance according to all respondents: information, external finance (including grants and loans) and clearer standards and regulations were also all rated as helpful by at least half of the respondents. By contrast, training about low-carbon solutions was not seen as helpful by the majority of respondents (British Business Bank, 2021a).

Among SME respondents in the transportation and storage sector a tax incentive was seen as the most helpful enabler (by 71% of respondents), external finance including grants and loans (by 62%) and more information on emission reducing options (by 53%) (British Business Bank, 2021a).

When asked about the type of incentive that would be most likely to motivate their uptake or greater involvement in decarbonisation initiatives, financial incentives were found to be more popular among interviewees from UK road freight SMEs than prizes or independent accreditation schemes (Crush and Reynolds, 2021).

European road freight transport SMEs taking part in a survey were provided with a list of 14 internal and external factors that can influence business decarbonisation actions and investment efforts and asked to select the five that were most important in their businesses. The highest ranking response was cost saving potential (mentioned by approximately 80% of respondents), followed by customer demand (approximately 60%), vehicle manufacturers/suppliers (approximately 50%), culture and company values (approximately 45%), expected return on investment (approximately 40%), EU-level legislation (approximately 40%) competitors (approximately 40%), national legislation (approximately 30%), leadership/management (approximately 30%), public opinion (approximately 25%), employees (approximately 20%), associations and initiatives (approximately 10%) (Toelke and McKinnon, 2021).

9.5 Recommended actions to help with fuel efficiency and decarbonisation

The authors of qualitative research into road freight transport SMEs in the UK on behalf of the Department for Transport drew the recommendations as to how decarbonisation should be achieved among these operators that are summarised in **Table 9.10** (Crush and Reynolds, 2021).

Table 9.10: Recommendations for the UK Department for Transport from research with SME road freight operators about achieving decarbonisation, 2020

Topic	Recommendations
Addressing barriers	Ensure interventions communicate a demonstrable benefit for SMEs and are as simple and straightforward to implement / apply for as possible. General messaging about initiatives needs to resonate with SMEs needs in terms of: fuel efficiency and minimising costs; improving driver performance; reducing time spent on administration; increasing competitiveness in the marketplace. Tailor initiatives to take account of business size / ability to fund upgrades or improvements to fleet, and provide achievable payback periods.
Most attractive measures and incentives	Eco driver training courses should be tailored to fit needs of SMEs (e.g. basic / advanced / specialist courses aimed at new drivers, experienced drivers etc.). Financial incentives should be tailored to meet SMEs needs (e.g. having a choice of amount that can be applied for, no minimum £ levels, choice of terms etc.).
Most effective ways of communicating advice and engaging with SMEs	Communicate initiatives and financial incentives through the DVSA and Traffic Commissioner as SMEs trust these organisations. Working with freight trade associations to express gratitude and recognition for work of SMEs and create closer relationships with them. Use variety of channels to proactively engage SMEs – email, radio advertising, events. Provide case studies of SME success stories benefitting from energy efficiency initiatives to make it attractive. Link messaging with key times of the year in which engagement with SMEs already takes place (e.g. MOT servicing / CPC training).

Source: summarised from Crush and Reynolds, 2021.

In drawing conclusions from their European survey of SME road freight operators, the authors identified the actions that should be taken by various stakeholders that are summarised in **Table 9.11** (Toelke and McKinnon, 2021).

Table 9.11: Summary of actions that stakeholders should take to increase decarbonisation among SME road freight operators, 2020

Stakeholder	Actions
Governments	Promote adoption of mandatory European-wide standards on emission reporting as well as carbon reducing initiatives like driver-training or the use of low-rolling resistance tyres. Provide advice to road freight operators on critical decarbonization issues such as differing low-carbon powertrain technologies and future infrastructure and refuelling plans for goods vehicles. Tighten EU-wide GHG emission standards for heavy-duty vehicles to maintain pressure on vehicle manufacturers. Offer financial support to further incentivise the SME carrier base.
Freight buyers	Lengthen freight contracts and tie them to investments by the road freight operators in fuel efficiency measures to reduce uncertainty and business risks for operators. Set minimum requirements for decarbonization and emission reporting in freight tenders. Provide financial support to road freight operators with upfront investments.
Truck manufacturers	Adjust their sales practices, promotions and information dissemination towards SMEs. Provide clear guidance on future vehicle and low-emission fuel technologies, including reliable information on availability, scope of application, financing and end-of-life residual values.
SME road freight operators	SMEs should address decarbonisation challenge in a more proactive manner as far as their resources allow. Taking action can provide improvements in fuel efficiency and hence cost-saving. SMEs should better exchange information and real-world experiences among themselves to build interest and trust in decarbonisation.
Industry associations, green freight programs, NGOs and research institutes	Should provide knowledge-sharing platforms, practical advice and advocacy.

Source: summarised from Toelke and McKinnon, 2021.

9.6 Decarbonisation policies of road freight transport trade associations

Two main trade associations represent UK road freight transport operators. The membership of the Road Haulage Association (RHA) mainly comprises SMEs, while Logistics UK mostly represents larger freight transport operators and shippers. Both of these have produced decarbonisation policies on behalf of their members.

9.6.1 Road Haulage Association policy

The Road Haulage Association's policy document explains the current lack of clear, scalable technologies that provide net zero solutions for large HGVs travelling over long distances. It mentions the risk of stranded assets if policymakers make sudden decisions that are to be implemented mid-way through the working life of operators' vehicles, with a consequent loss for the operator as the vehicle may be unusable and have no resale value.

The need for careful planning in the timing of HGV decarbonisation policy dates is required to ensure that they match goods vehicle availability (in terms of technology readiness, robustness and commercial/financial viability). The need for standardisation in regulations concerning vehicle fuels that are to be phased out and in any operational restrictions imposed is also discussed, to ensure that these fuel regulations are consistent in across urban areas, home nations and with mainland Europe.

The document emphasises the need for joint working between the public and private sectors to devise a goods vehicle decarbonisation roadmap and for clear communication of policies and their timescales to all relevant stakeholders in the road freight transport supply chain including operators, vehicle manufacturers, vehicle financing businesses, and users of road freight transport services (Road Haulage Association, 2021b).

9.6.2 Logistics UK policy

Logistics UK explained that the vehicle replacement cycle differs between sectors of road freight transport and that, "small businesses are more likely to opt for second-hand vehicles, many of them keeping these vehicles for significantly longer (than other sectors)". It also noted that until the second hand market for zero tailpipe emissions vehicles is mature there will be a limited supply of second-hand vehicles which will disproportionately impact smaller road freight operators.

Logistics UK noted that even when zero tailpipe emission HGVs are available, that the vehicle purchase costs, which are expected to be significantly higher than the cost of the diesel equivalent, will remain as a barrier. The document calls for the UK Government to, "provide substantial purchase grants to offset these costs". The need for Government to provide the necessary charging and other infrastructure for these HGVs and LGVs, including the need for depot-based charging for battery electric vehicles, is also discussed. It called for, "a routemap and plan from Government that provides confidence and clarity for the logistics industry".

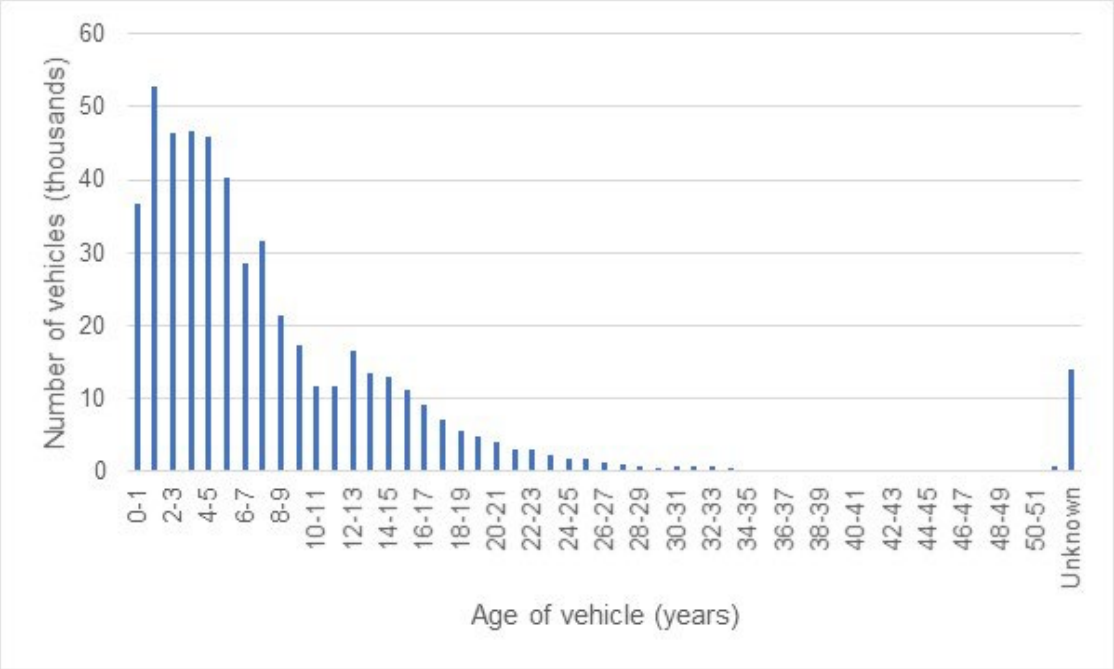
During the transition period to zero emission vehicles, the need for a policy framework, information and training for existing alternative fuels for HGVs, such as biomethane, was discussed. Logistics UK also urged the UK Government to permit greater vehicle weights and dimensions so that HGVs can carry larger loads and to provide advice and incentives to road freight transport operators to engage in driver training, eco-driving, aerodynamic vehicle features and utilisation of vehicle load capacity to increase fuel efficiency (Logistics UK, 2021b).

10. Decarbonisation and other issues relating to road freight transport SMEs

10.1 Zero tailpipe emission vehicle acquisition challenges

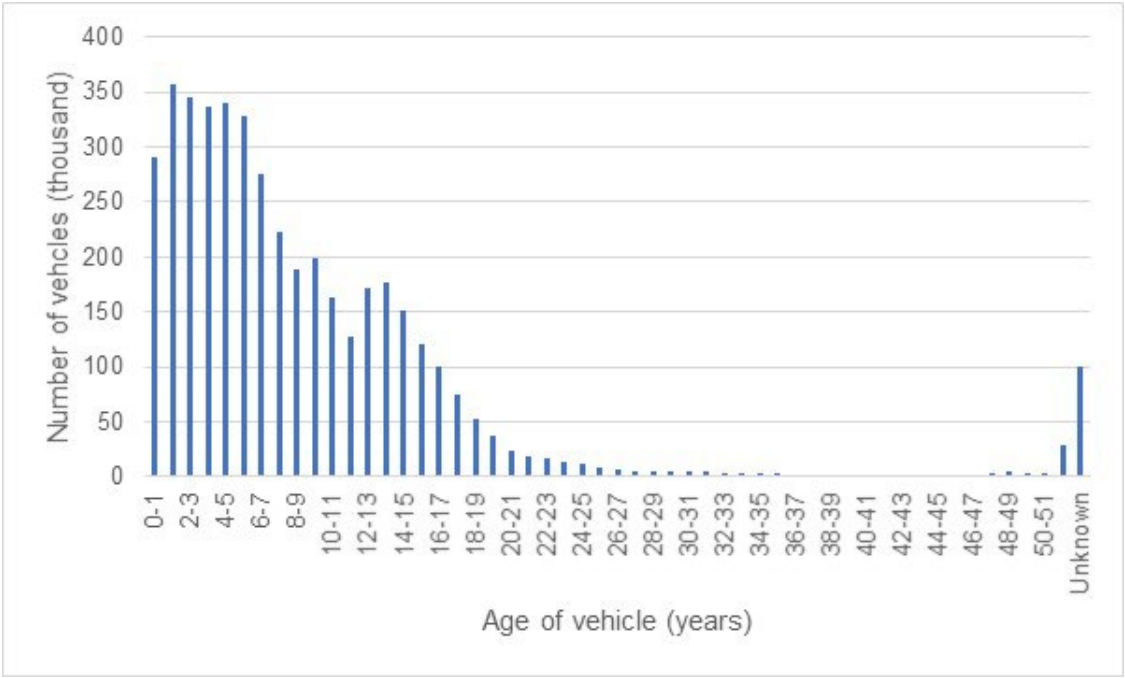
Figure 10.1 shows the number of HGVs licensed in the UK in 2020 by age of vehicle. **Figure 10.2** shows the same information for LGVs. The data indicates the long tail, with some very old vehicles currently licensed.

Figure 10.1: Age profile of HGVs licensed in the UK at end of 2020



Source: Department for Transport, 2021f.

Figure 10.2: Age profile of LGVs licensed in the UK at end of 2020



Source: Department for Transport, 2021g.

The average age of an HGV licensed in the UK at the end of 2020 was 7.6 years, while LGVs had an average age of 8.5 years (Department for Transport, 2021c, 2021d). As shown in **Table 10.1**, 30% of HGVs and 33% of LGVs are more than 10 years old, while 49% of HGVs and 53% of LGVs are more than 7 years old. Five percent of HGVs and 4% licensed in the UK in 2020 were more than 20 years old.

Table 10.1: Age of licensed HGVs and LGVs in the UK, at end of 2020

Vehicle age	HGVs	LGVs
Up to 3 years	27%	23%
4-6 years	26%	23%
7-10 years	19%	20%
11-15 years	13%	18%
16-20 years	7%	9%
More than 20 years	5%	4%
Unknown	3%	2%
Total	100%	100%

Source: calculated from Department for Transport, 2021c, 2021d.

Table 10.2 provides this same information for HGVs and LGVs licensed in Britain in 2020 with different vehicle age bands.

Table 10.2: Age of licensed HGVs and LGVs in the UK, at end of 2020

Vehicle age	HGVs	LGVs
Up to 5 years old	45%	38%
More than 5 up to 10 years old	27%	28%
More than 10 up to 15 years old	13%	18%
More than 15 up to 20 years old	7%	9%
More than 20 years old	5%	4%
Unknown	3%	2%
Total	100%	100%

Source: calculated from Department for Transport, 2021c, 2021d.

Table 10.3 shows the proportion of the total HGV and LGV fleet that registered for the first time (i.e. newly purchased) in the UK new each year between 2015 and 2020.

Table 10.3: Proportion of the LGV and HGV fleet purchased new and registered for the first time, UK, 2014-2020

Year	Proportion of vehicles registered for the first time	
	HGVs	LGVs
2014	7.5%	8.9%
2015	9.5%	9.8%
2016	9.8%	9.5%
2017	9.6%	8.8%
2018	9.2%	8.6%
2019	10.3%	8.4%
2020	7.2%	6.7%

Source: calculated from Department for Transport, 2021f, 2021g.

Currently, the use of non-fossil fuelled HGVs and LGVs in the UK is extremely low. At the end of 2020, only 22,000 LGVs (0.5% of all LGVs) and 1,300 HGVs (0.3% of all HGVs) were battery electric, gas or hybrid (gas/electric and diesel) powered (Department for Transport, 2021h, 2021i).

If all vehicle owners replaced their HGVs and LGVs at the same rate, the years it would take to replace the entire current UK fleet at vehicle replacement rates of 7-10% per year are shown in **Table 10.4**. The time it would take to replace the entire UK fleet would be 10-15 years.

Table 10.4: Time it would take to replace the entire current UK HGV and LGV fleets if all operators had the same vehicle replacement rate

% of vehicles replaced each year	Years taken to replace entire fleet
7%	14.3 years
8%	12.5 years
9%	11.1 years
10%	10.0 years

However, vehicle owners have different vehicle replacement rates, with small businesses typically keeping vehicles for longer than large businesses as well as often purchasing second hand vehicles. Larger businesses often have vehicle replacement cycles of 3-7 years. By comparison, the average replacement cycle of members of the Road Haulage Association, the trade association representing 7,500 SME road freight businesses, is 12 years (RHA, 2018). Therefore, the SME HGV and LGV vehicle fleet is considerably older than that operated by large businesses.

Therefore, if left to market forces, replacing the entire HGV and LGV fleet will take considerably longer than the 10-15 years shown in **Table 10.4**, given the different rates at which operators replace their vehicles and their propensity to buy second hand vehicles.

The UK Government has announced that only new zero emission tailpipe LGVs, HGVs up to 26 tonnes and HGVs over 26 tonnes will be sold from 2030, 2035 and 2040, respectively (Department for Transport, 2021j; Department for Transport and OLEV, 2021). While battery electric LGVs are already available, many barriers to their uptake exist, especially for SME

operators, including higher capital costs than fossil fuel powered vehicles, limitations in recharging point availability both at depots and in public locations, and concerns about vehicle range limits. In the case of HGVs, especially for the heavier vehicles and those used for longer distance operations, it will be several years until vehicle are available. Much work remains to be done in terms of vehicle and infrastructure development, be it a hydrogen, battery electric or Electric Road System pathway that prevails (Ainalis et al., 2020). It is expected that by 2050 most LGVs in the UK will be zero emissions, with most being battery electric and some possibly powered by hydrogen fuel cells (Lyons et al., 2021). However, given the long vehicle replacement cycles of SMEs, the UK LGV fleet may not be entirely net zero by 2050 unless the UK Government provides scrappage grants to help smaller freight operators and/or fossil fuel sales are reduced to the extent that operators can no longer feasibly use fossil fuelled vehicles. The HGV fleet in the UK is even more likely to not be completely zero emission given the current uncertainty about the fuel choice and means of energy provision, the unknown vehicle capital costs, and the long replacement cycles of some operators, especially SMEs.

At vehicle replacement rates see in recent years (of 7-10% per year – see **Table 10.4**) this implies that if all vehicle operators had the same replacement rate, the entire LGV fleet would be zero emission by 2040-2045, the entire HGV fleet up to 26 tonnes would be zero emission by 2045-2050, and the entire HGV fleet over 26 tonnes would be zero emission by 2050-2055. However, due to the slower vehicle replacement cycles of smaller businesses, at the end of 2020, 4% of LGVs were more than 20 years old, 12% of HGVs were more than 15 years old and 25% of HGVs were more than 10 years old (see **Table 10.5**).

Table 10.5: Proportion of HGVs and LGVs that would not meet UK Government zero emission target by 2050, based on 2020 UK fleet age

Vehicle type	Years between end of sales of new fossil fuel vehicles and zero emission target of 2050	Proportion of vehicles above this age in 2020
LGV	20 years	4%
HGV – up to 26 tonnes	15 years	12%
HGV – over 26 tonnes	10 years	25%

Note: split of current age profile of HGVs by gross weight not available, so entire HGV fleet age profile used.
Source: using data from Department for Transport, 2021c, 2021d.

Given the focus on preventing global warming of 1.5°C above pre-industrial levels which it is estimated could happen by the 2030s if insufficient actions is taken, much effort was urged at COP26 to quickly implement GHG emissions reduction measures that are already available (IPCC, 2018; Carbon Brief, 2021). In terms of road freight transport such transitional actions to improve fuel efficiency currently available include the operational and vehicle measures reviewed in **section 9.2** (operational measures include eco-driving, driver training and monitoring, vehicle route optimisation, load consolidation, while vehicle-related measures include vehicle aerodynamics, light weighting, low rolling resistance tyres, anti-idling devices and transitional lower carbon vehicle fuels).

In addition, UK legislation to reduce the CO_2 emissions (g/km) of new fossil fuel powered LGVs and HGVs will also result in GHG emission reductions in the non-zero emission fleet. By 2030, LGVs will be required to have CO_2 emissions that are 31% lower than the 2021 baseline. HGVs (over 16 tonnes) have been set CO_2 reduction targets of 15% by 2025, and 30% by 2030 compared with a 2019-20 baseline (Department for Transport, 2020, 2021k).

10.2 Connected autonomous goods vehicles

"Connected vehicles can communicate information with other vehicles, road infrastructure and devices, while autonomous vehicles can perform certain driving tasks without human input, such as braking and steering, with more advanced and future models having the potential to become 'self-driving'. Collectively, CAVs have the potential to deliver significant societal benefits to the UK, including reducing the number of collisions on our roads, improving access to travel for those who currently find it difficult, and increasing the efficiency of transport networks to make them safer, smoother, and more efficient" (Britain Thinks, 2021, p.13).

Six levels of autonomous driving have been defined from 0 to 5. At level 0 there is no automation, with a human driver totally in control of the vehicle. Level 3 is referred to as 'conditional driving automation', and level 4 as 'high driving automation'. While at level 5 ('full driving automation'), the vehicle is capable of driving itself everywhere in all conditions (SAE International, 2021).

CAVs are expected to have various social and environmental benefits including helping to reduce traffic congestion, improving fuel consumption and thereby reducing GHG emissions and local air pollutants, improving road safety, and enhancing vehicle utilisation, thereby reducing the total vehicles required to be produced (Paddeu et al., 2019). Fuel savings are the most commonly mentioned benefit of goods vehicle platooning on longer distance journeys using CAVs due to more efficient driving. However, the extent of these fuel savings depend on factors including vehicle technology, distance between vehicles, congestion levels, vehicle speed and weather conditions. Different trials provided fuel savings of 3–11% (Paddeu and Denby, 2021). The world's first approved level 3 car became available on a lease basis in Japan in 2021 (Honda, 2021).

Research and trials are proceeding into applying the connected autonomous vehicle (CAV) concept to goods vehicles. These include platooning trials, in which HGVs travel together over long distances on a motorway (Paddeu and Denby, 2021), Ocado trials of an autonomous grocery delivery van in an urban environment in London accompanied by a human (Burgess, 2017; Oxbotica, 2017) to Nuro's regulatory exemption from the US Department of Transportation and the National Highway Traffic Safety Administration (NHTSA) to trial a small, battery electric, fully autonomous last-mile delivery vehicle (known as the R2 – a level 4 CAV) on public roads in a neighbourhood in Houston, Texas with a permitted speed of up to 25 miles per hour (Bhattacharya 2021; Ferguson, 2020). Trials of the Nuro R2 are now also taking place in California and Arizona (Nuro, 2020). At present, human supervisors are required to follow, travel in or remotely observe such CAVs to monitor their performance and ensure safety on public roads and public places during trials (Nuro, 2019). Some companies have also developed small CAVs that operate on pavements (such as Starship) but these raise regulatory and safety concerns. Stakeholder workshops with freight transport operators have identified their concerns about using CAVs that share pavement or road space with the public in busy, urban locations (Paddeu and Parkhurst, 2020). Autonomous vehicles and robots are already widely used in warehouses, distribution centres, factories and on private premises such as mines and quarries (Flämig, 2016).

CAVs have higher capital costs than standard goods vehicles due to the equipment they require. Fully autonomous vehicles require GPS systems for vehicle positioning, LIDARs and video cameras for monitoring the vehicles' surroundings, ultrasonic sensors for monitoring close objects, odometry sensors for distance measurement, connectivity features to exchange information with the outside environment (including other cars or infrastructure) and on-board computing systems. However, the costs of this technology are expected to fall rapidly as development progresses and mass production takes place. On the other side of the equation, CAVS are predicted to result in improved vehicle utilisation and to substantially reduce vehicle operating costs when human drivers are no longer required, given that driver-related costs

can represent 30-60% of goods vehicle operating costs (see **section 7.1**). One study has estimated that fully autonomous goods vehicles will lead to falls in the total cost of vehicle ownership of 15-30% (Wadud, 2017).

The timescale for level 5 implementation and the circumstances and operating environments in which such goods vehicles would be used remains unclear. A research report commissioned by Nuro that has considered only LGV-type CAVs for deliveries of online shopping to residential addresses in urban areas has developed three scenarios for uptake based on expert interviews and existing studies to identify trends in vehicle regulation, the cost of CAVs, online shopping penetration, customer behaviour and willingness to pay. The scenarios were: (i) conservative – very limited use of CAVs for delivery of online shopping by 2035, (ii) gradual – more rapid uptake of CAVs for delivery of online shopping by 2035, and (iii) disruptive - high uptake for CAVs for delivery of online shopping by 2035 (Steer, 2020).

There is even less certainty about the likely uptake of fully autonomous LGVs and HGVs across all subsectors of road freight transport. However, whenever such fully autonomous goods vehicles (level 5) are introduced they are likely to have important implications for the demand for goods vehicle drivers. Given the higher capital costs of such vehicles, they are likely to be beyond the means of many SMEs. Therefore, at some point in the future, the use of fully autonomous goods vehicles is likely to result in a substantial reduction in road freight transport SMEs, especially for micro and small businesses, both through the inability of those with goods vehicles to afford them and through the reduction in the demand for goods vehicle drivers for those who are self-employed contractor drivers without their own vehicles. Human are expected to still be required for various depot tasks and goods handling that robots are either incapable of or cannot provide economically, but such employment is more likely to be associated with the larger companies that will be operating CAVs than SMEs.

10.3 Other factors likely to lead to a reduction in road freight transport SMEs

Several other factors are likely to result in a reduction in road freight transport SMEs. Unless the UK Government and businesses manage to address factors including pay rates, working conditions, roadside facilities, training and insurances costs and public perception of HGV driving (see **section 4.4** for further discussion) it is likely to continue to prove difficult to retain and recruit drivers, and the average HGV driver age will continue to increase. In such circumstances, as these HGV drivers, some of whom own SMEs either with or without employees, decide to retire there is likely to be a gradual contraction in the number of road freight SMEs, especially micro and small businesses. This is likely to be less of a problem in relation to SMEs that predominantly or exclusively operate and drive LGVs, as these vehicles can be driven on conventional car driving licences, therefore requiring no specialist training and are far less commonly involved in long-distance operations and the anti-social hours and need for rest and overnight facilities associated with it.

Zero tailpipe emission LGVs and especially HGVs (discussed in **section 10.1**) are likely to lead to higher capital costs associated with such goods vehicles. Both the reluctance of SMEs to secure external finance to fund such acquisitions and of financial lenders to provide it are also likely to be deterrents to their uptake by smaller road freight transport businesses and hence lead to a reduction in SMEs. Connected fully autonomous vehicles (CAVs – see **section 10.2**) are also likely to lead to higher vehicle capital costs as well as reducing the need for human drivers.

11. Conclusions

11.1 The importance of SMEs in the UK

SMEs (i.e. business with up to 250 employees) accounted for 99.9% of UK registered and unregistered businesses, 61% of business employment and 52% of business turnover in the UK at the start of 2021. SMEs of all sizes are therefore of fundamental importance to employment and the economy in the UK.

Micro businesses alone (i.e. with 0-9 employees) accounted for 95% of all UK registered businesses, 32% of employment and 21% of turnover at the start of 2021 (BEIS, 2021a). Small businesses (i.e. with 10-49 employees) accounted for approximately 4% of all registered businesses, 6% of employment and 6% of turnover, and medium-sized businesses (i.e. with 50-249 employees) accounted for approximately 1% of all businesses, 13% of employment and 16% of turnover (BEIS, 2021a).

Many SMEs have faced difficult economic and trading conditions since early 2020 (i.e. during the period of the Covid-19 pandemic and Brexit) with turnover, cash reserves and confidence in business survival falling (ONS, 2020, 2022; BEIS, 2021b). Between January 2019 and January 2021, the number of SMEs in the UK fell by 5%, with self-employed business worst affected in terms of closures, employment levels and turnover over this period.

11.2 The number, growth and innovation of road freight transport SMEs

In March 2021, there were 105,205 registered businesses in the road freight transport sector in the UK (60% of which were in the freight transport by road subsector, 37% in the post and courier subsector and 3% in the removals subsector. The vast majority of these registered road freight businesses (88%) had 0-4 employees. This compares with 79% of all registered businesses in the UK with 0-4 employees in 2021 (ONS, 2021).

There were approximately 30,000 registered freight transport by road and removals businesses with employees in the UK, with a total of 286,000 employees and a total annual turnover of £31.8 billion. Those registered freight transport by road and removals businesses with 1-9 employees (i.e. micro businesses) accounted for 86% of these businesses, 33% of all these employees and 23% of this annual turnover, while those businesses with 10-49 employees (i.e. small businesses) accounted for 12% of these businesses, 23% of all these employees and 26% of this annual turnover. Therefore, jointly, registered micro and small freight transport by road and removals businesses with employees accounted for 98% of these businesses, 56% of all these employees and 49% of this annual turnover. Medium-sized businesses with 50-249 employees accounted for 2% of all registered freight transport by road and removals, 19% of employment and 24% of annual turnover in 2021. The average number of employees in registered freight transport by road and removals businesses with employees (10 employees) was less than that in UK registered businesses with employees as a whole in 2021 (16 employees) (BPE, 2021).

It has been estimated that approximately 65% of registered businesses in the road transport sector had no employees in 2021, while 35% had employees. Self-employment among registered businesses in 2021 was far higher in the post and courier subsector (approximately 85% of all businesses) than in the removals and freight transport by road subsector (55% of all businesses). In addition, there were 20,000 unregistered post and courier businesses with no employees in 2021 and an unspecified number of unregistered removals and freight transport by road businesses.

Despite the number of self-employed businesses, analysis shows that there is far greater market concentration (in terms of the proportion of total turnover generated by large

businesses) in the post and courier subsector than in the removals and freight transport by road subsector.

The number of registered road freight transport businesses in the UK increased by 76% between 2010 and 2019, compared to a 29% increase among all businesses in the UK. Most of this growth occurred in the smallest businesses with 0-4 employees – the number of these road freight transport businesses grew by 91% between 2010 and 2019 (ONS, 2021). Analysis of HGV operator licence data indicates that growth in these micro road freight transport businesses between over this period was accounted for by businesses that operate LGVs or operate no goods vehicles of their own at all (i.e. they are individuals who drive for other road freight transport businesses) rather than among businesses that operate HGVs. Much of this growth in these road freight businesses with 0-4 employees is likely to be related to the growth in subcontracting and self-employment in many road freight transport operations. In some cases this occurred due to the tax advantages for drivers and medium and larger businesses as well as the employment flexibility for the latter of treating regular drivers as self-employed as well as the substantial growth in the delivery of parcels and packages linked to the rise in online shopping and the demand for drivers that accompanied this growth.

UK business data for 2022 and beyond may show a decline in the number of registered road freight transport businesses with 0-4 employees due to changes that the UK Government made to tax legislation in April 2021 (known as IR35) that removes the tax advantages for self-employed drivers who regularly work as drivers for medium and large road freight businesses.

Survey work has indicated that the proportion of SMEs in UK transport, storage and communication reporting business growth each year between 2013 and 2020 was lower than that for all SMEs (BVA, BDRC 2021).

Rates of innovation are low among transportation and storage SMEs in the UK. Only 16% of transport and storage SMEs with employees reported introducing new or significantly improved services in 2020, compared with 13% of all UK SMEs with employees. Only 5% of transportation and storage SMEs with employees were estimated to have invested in research and development in each of the years from 2018-2020, compared with 15-20% of all SMEs with employees (BEIS, 2021b).

Research indicates that road freight transport SMEs tend to have embraced Information and communications technology (ICT) to a far lesser extent than large freight transport and logistics businesses. Medium-sized road freight transport businesses are more likely to have adopted ICT to support their more extensive logistics services and supply chain functions than small and micro businesses.

11.3 Goods vehicles operated by SMEs

Those businesses operating HGVs in the UK require an operator licence. In 2020/21, 23% of vehicles were held on licences with five or fewer vehicles, 35% of vehicles in fleets of ten or fewer vehicles, and 49% of vehicles in fleets of twenty or fewer. This indicates the importance of small vehicle fleets. Fleets of 21-50 vehicles accounted for 4% of licences and 19% of vehicles, while fleet of more than 50 vehicles accounted for 2% of licences and 32% of vehicles in 2020/21.

Between 2012/13 and 2020/21 the number of licences and HGVs issued on operator licences with one vehicle and those with 2-5 vehicles fell (licences by 32% and 6%, respectively, and vehicles by 38% and 12%, respectively). By contrast, both the number of licences and HGVs on them increased a little for fleet sizes of 6-10 and 11-20 vehicles and by far more for medium- and large-sized fleet (i.e. 21-50 vehicles and more than 50 vehicles). Therefore, over this

period the importance of smaller HGV fleets has been diminishing. As a result, the number of HGVs per operator licence has been increasing over the last twenty years.

Analysis indicates that approximately 40% of the registered businesses providing road freight transport services to others in Britain in 2020 operated HGVs (and possibly LGVs as well). Meanwhile, 60% of these registered businesses providing road freight transport services to others operated only LGVs or no goods vehicles (instead driving the vehicles of other businesses) rather than HGVs.

It has also been estimated that approximately 8,500 businesses providing road freight transport services to others in Britain in 2020/21 operated a single HGV, while 20,000 businesses providing these services operated HGV fleets of 2-5 vehicles.

Given that the number of HGV operator licences and the goods vehicles held on them diminished between 2010 and 2019 for fleets with up to five HGVs, it is likely that the growth in the number of micro road freight transport businesses (with 0-9 employees) that took place over this period was accounted for by businesses that operated LGVs or operated no goods vehicles of their own at all, rather than HGVs.

LGV fleet sizes have been estimated using LGV licensing statistics and the findings of a Department for Transport survey of LGV keepers and their use carried out in 2019/20 (Department for Transport, 2021d, 2021e). This indicates that fleets of one vehicle accounted for 62% of all LGVs registered in the UK in 2020, fleets of 2-5 vehicles for 15% of LGVs, fleets of 6-10 vehicles for 6% of LGVs, and fleets of more than 10 vehicles for 17% of LGVs. This indicates the importance of LGV fleets of up to 10 vehicles (which are estimated to account for 83% of all LGVs licenced.

In addition to the road freight transport SMEs providing their services to others, it is important to recognise that many users of LGVs and HGVs do not offer freight transport services to others. Instead they either use these LGVs and HGVs for their own goods transport within their businesses which are engaged in some other activity (such as manufacturing, wholesaling or retailing) or they use LGVs to provide services other than goods collection and delivery (including many services such as building, plumbing, lighting, equipment maintenance and repair). Analysis also indicates that in Britain in 2020/21 approximately 15,000 restricted operator licences were in issue to licence holders with a single HGV, and 12,000 restricted licences were in issue to licence holders with two to five HGVs. These 27,000 small businesses used HGVs for their own restricted purposes rather than providing road freight transport services to others. Meanwhile, studies have indicated that only approximately 15% of the 4.2 million LGVs licensed in the UK are used by road freight transport businesses to collect and deliver goods. The other 85% are licensed to businesses and private individuals in other sectors who primarily use them to move tools, equipment and materials in the provision of a service, for commuting and for non-business use (Department for Transport, 2021b; Freight Transport Association, 2018). The vast majority of LGVs in the UK are operated in small fleets (it has been estimated that fleets of up to 10 vehicles account for approximately 80% of all LGVs licenced in the UK in 2019/20) and hence probably operated by a very large number of small businesses.

11.4 Trading and operating conditions facing road freight transport SMEs during Covid-19 and Brexit

Due to the high levels of competition in the road freight transport sector it has generated low profit margins for many years. Prior to the Covid-19 pandemic average profit margins in the sector were 2-3% per annum. However, an assessment of the UK's 2000 leading road freight transport operators in 2021 found that their average profit margin in the latest financial year

was only 1.7%, with an average growth rate of 0.7%, and only 117 of these 2,000 businesses were achieving a better than 10% return on assets (Evans, 2021a, 2021b).

Survey work among UK SMEs in the transport and storage sector indicate that the majority of respondents experienced decreased annual business turnover in 2020, unlike in 2019 (responses for 2020 include the period following the onset of the Covid-19 pandemic and Brexit and therefore potentially indicate its impacts on respondents' operating and trading situation) The majority of respondents reported a 'shrinkage' in the annual turnover of their business in 2020 (BEIS, 2020a, 2020b, 2021b, 2021c). However, 67% of these businesses still managed to generate a profit or surplus in 2020, taking into account of sources of income including any received form UK Government-related Covid-19 financial support (the same as proportion as for all SMEs in the UK) (BEIS, 2020a, 2020b, 2021b, 2021c).

Between 2019 and 2021 (i.e. the period over which both Brexit and the Covid-19 pandemic have occurred) there continued to be very strong growth in registered micro businesses (0-9 employees) in the road freight transport sector in the UK (which increased in number by 42% over the period) with most of this taking place within the freight transport by road and post and courier subsectors. Over this two-year period, there was a 39% increase in the total number of registered business in the road freight sector compared to a 2% increase among all businesses in the UK (ONS, 2021).

Registered micro road freight transport businesses with employees in the UK (i.e. with up to 9 employees) increased in number by 38%, in employment by 50% and in turnover by 20% between 2019 and 2021. By comparison, all registered micro businesses with employees in the UK increased in number by 1%, had no change in employment and increased turnover by 7% over this same period (BPE, 2021).

Approximately 60% of UK transport and storage SMEs with employees surveyed reported that the Covid-19 related lockdowns in 2020 had no effect on their business, while 20-30% reported that operations were reduced and 5-15% reported that operations were increased. SMEs with employees in only four out of fourteen other UK sectors surveyed reported a lower rate of temporary closure than transport and storage SMEs. However, UK transport and storage SMEs with employees reported a higher rate of reduction in operations than SMEs with employees in the other of these fifteen sectors (BEIS, 2021b).

The most commonly reported workforce measures taken in 2020 since the Covid-19 outbreak at the start of that year by transport and storage SMEs with employees were: furloughing employees (62% of respondents), reducing the working hours of employees (54%), providing facilities for remote working (34%) , and asking employees to take on extra tasks (19%). Only 12% of respondents reported having taken no measures (BEIS, 2021b).

The most commonly taken non-workforce measures taken by UK transport and storage SMEs with employees to address the impacts of Covid-19 and its trading restrictions were (in order of importance): changing working processes, increased borrowing, drawing on reserves and postponed investment. The same four measures were also those most commonly taken by transport and storage SMEs without employees, but for these respondents the most often implemented was drawing on reserves, which was reported by 56% of respondents (BEIS, 2021b, 2021c).

The proportion of their workforce that UK transport and storage SMEs with employees reported having to furlough during 2020 as a result of the Covid-19 pandemic was similar to that reported by all SMEs with employees (BEIS, 2021b). Eighty-nine percent of transport and storage SMEs with employees surveyed received support from the Furlough Scheme. Forty percent of transport and storage SMEs with no employees received support from the Self-Employed Income Support Scheme compared with 15% of those with employees. In addition,

40% of transport and storage SMEs with employees and 30% of those with none reported using Covid-19 Government-backed loans (i.e. the Coronavirus Business Interruption Loan and Bounce Back Loan) in 2020 (BEIS, 2021b, 2021c).

A survey found that 15% of UK 'distribution' SMEs cited Brexit as a major business obstacle in 2020 (Klahr et al., 2021a). In another survey, 13% of transport, storage and communication SMEs reported having international staff in 2020, compared with 23% in 2017. This reflects the impact of Brexit and its international workforce implications on SMEs in the sector (BVA BDRC, 2021).

11.5 Road freight transport operating costs

Fuel and driver account for the greatest proportion of good vehicle operating costs followed by vehicle finance costs. Fuel costs typically account for 10-40% of total vehicle operating costs for businesses with employees and up to 60% of operating costs for businesses without employees. The fuel costs for a vehicle are directly related to its fuel consumption rate and the annual distance that it travels, so fuel costs account for a greater proportion of operating costs among businesses using heavier vehicles and/or involved in longer-distance work. Some micro and small businesses have longer vehicle replacement cycles than larger road freight transport businesses and/or purchase second-hand rather than new vehicles to help control the cost of vehicle financing.

Some of the key vehicle costs including fuel, drivers' wages and vehicle purchase prices have been rising rapidly in the UK in the last couple of years as a result of effects of Brexit, the Covid-19 pandemic and the Russia-Ukraine war. Total vehicle operating costs are estimated to have increased by 12-18% between the end of 2020 and the end of 2021.

These increases in vehicle operating costs are placing substantial pressure on road freight transport businesses. Some are far less able than others to pass on cost increases to their customers, depending on their size, sector and the nature of their contracts and relationships with those they provides their services to.

11.6 Vehicle maintenance and contraventions of road freight transport regulations by SMEs

Data analysed concerning vehicle maintenance and contraventions of road freight transport operation and operator licencing regulations indicate that the HGVs operated by road freight transport SMEs are likely to be less well maintained and operated than those used by larger road freight transport businesses.

Initial annual test fail rates for HGVs were inversely related to vehicle fleet size over the period 2013/14 to 2018/19 in Britain, with initial failure rates highest in single vehicle fleets and those of 2-5 vehicles. This indicates that, on average, the smaller the HGV fleet, the worse its level of vehicle maintenance.

Analysis of drivers' hours offences in Britain in 2019 and 2020 indicates that goods vehicle drivers in smaller fleets (i.e. fleets of 1-20 vehicles) tended to commit a greater proportion of offences relative to the proportion of total vehicles licensed in these fleets. Fleets of up five vehicles accounted for 23% of all goods vehicles but committed approximately 40% of all drivers hours offences in 2019 and 2020. Fleet of up to twenty vehicles accounted for 35% of all goods vehicle licensed but committed approximately 60% of all drivers hours offences. By contrast, fleets of more than 50 vehicles accounted for 32% of all goods vehicles licensed but committed 7% of all drivers hours offences in 2019 and 2020. (DVSA, 2021).

Analysis of the action taken by Traffic Commissioners against holders of goods vehicle operator licences and/or Transport Managers named on operator licences in the calendar year

2019 that have been made available online indicates that in terms of both all actions taken by Traffic Commissioners and the revocation of licences goods vehicle fleets of up to 5 goods vehicles are considerably overrepresented in relation to the proportion of all goods vehicles that are operated on them (Traffic Commissioners, 2022b).

11.7 Decarbonisation views and actions of road freight transport SMEs

Despite a lack of comprehensive data on greenhouse gas (GHG) emissions by SMEs it has been estimated that UK SMEs as a whole (i.e. businesses with less than 250 employees) emit approximately 50% of all business-related GHG emissions and approximately 30% of total GHG emissions in the UK (British Business Bank, 2021a).

Survey work among all SMEs in the UK and EU has identified the following barriers to decarbonisation: uncertainty about the regulatory and taxation environment, uncertainty about operations and technologies to tackle the impacts, the cost of decarbonisation actions, availability of finance, lack of knowledge about where to obtain information and help, availability of suitably skilled and knowledgeable staff, and lack of belief that it will make a difference (Broadway Initiative, 2021; European Investment Bank, 2020). A UK survey of SMEs found that lack of time and money were given as the main barrier to act on improving energy efficiency (cited by 46% of respondents as a barrier compared to 15% or lower for other barriers) (Carbon Trust, 2020).

Among road freight transport SMEs specific additional barriers to decarbonisation include their small profit margins, their focus on day-to-day operations and survival rather than longer-term strategy, their disinclination to use external finance, their propensity to purchase second-hand goods vehicles rather than new ones, and their long vehicle replacement cycles compared to large road freight transport businesses.

11.7.1 Awareness of and views on fuel efficiency and decarbonisation

In interviews with UK road freight transport SMEs during which issues of importance to their businesses were discussed, climate change and the contribution of road freight transport to GHG emissions were not raised by interviewees. Some did, however, mention the administrative and cost burden of rules and regulations they have to comply with (including Low Emission Zones / Clean Air Zones), and high fuel prices. When interviewers raised the issue of the environmental impacts and GHG emissions of road freight transport, some interviewees felt that it was an important issue, but most felt that were too many other, more important issues for them to deal with at present (Crush and Reynolds, 2021).

In this same research, the term ‘emissions’ tended to result in negative feedback from interviewees with them referring to the costs of vehicle upgrades to meet compliance requirements. The term ‘fuel efficiency’, when raised, also tended to result in some negative comments; although interviewees tended to acknowledge its importance, they perceived this topic as already well disseminated and understood. Only a minority of interviewees analysed data to improve fuel efficiency and fuel prices in their businesses (Crush and Reynolds, 2021).

Another UK survey was carried out in 2020 among SMEs in various sectors into levels of awareness of the UK government’s target to reach net zero by 2050 and the impacts of climate change on business. This work found that transportation and storage SMEs were among the four sectors with the greatest levels of awareness. This same survey work also found that, despite this level of awareness, only 45% of Transport and Storage SME respondents had prioritised decarbonisation in their strategies (the second lowest of eight SME sectors (British Business Bank, 2021a).

Survey work carried out in 2020 with road freight transport SMEs from a wide range of European countries found that two-thirds of respondents rated decarbonisation as having a 'high' or 'very high' priority, and three-quarters of them said that fuel efficiency was of 'high' or 'very high' importance to them in their daily operations, and almost 90% of them viewing it as of 'high' or 'very high' importance in their long term strategies (Toelke and McKinnon, 2021).

However, when asked whether environmental efforts provide a business opportunity half of these same European road freight SMEs respondents saw little or no business opportunity. Responses varied with vehicle fleet size, with approximately 70% of businesses with fleets exceeding 100 vehicles seeing a 'moderate', 'large' or 'very large' business opportunity in their environmental efforts, while only 40% of those with fleet sizes of less than 20 vehicles held this opinion (Toelke and McKinnon, 2021).

Overall, 43% of European road freight transport SMEs reported that they had no capability to calculate their businesses' transport-related GHG emissions, while 32% said they could this at a business level and 25% said they could do this as a customer level. The findings indicated that the smaller the business, the less likely it was to be able to measure its GHG emissions, with approximately 60% of respondents with fewer than 10 vehicles having no GHG calculating capabilities, compared with approximately 20% of those with more than 100 vehicles (Toelke and McKinnon, 2021).

Another survey of senior managers in both large and small European businesses comprising freight and logistics providers, shippers and other service providers found that the, "likelihood of a business having a sustainable logistics strategy is partly a function of size. The proportion of businesses with such a strategy was twice as high in the over €1 bn revenue category as in the under €50 m category" (McKinnon and Petersen, 2021, p.6)

11.7.2 Current and future decarbonisation actions

In qualitative interviews with UK road freight transport SMEs, interviewees were presented with several possible actions that operators could implement to reduce their carbon emissions. Interviewees felt that eco-driver training and the use of vehicle telematics offered greater potential for them than vehicle adaptations and alternative fuels. The former were generally viewed as having better fuel saving benefits, and lower payback periods and capital costs. Many of the small and medium sized businesses (more than 10 employees) interviewed were found to already be conducting in-house driver training to maximise fuel efficiency. However, micro businesses (up to 10 employees) were less likely to be doing so, due to a lack of time and resources, and also to be less likely to be using vehicle telematics (Crush and Reynolds, 2021).

Survey work carried out in 2020 with road freight transport SMEs from a range of European countries found that there was greater awareness and implementation of operational measures than vehicle-related measures. Interviews identified that operational measures were preferred by these SME businesses due to their speed and ease of implementation. The findings showed a close statistical correlation between awareness and implementation rates. The monitoring of fuel consumption, eco-driver training and driver performance tracking had the highest awareness and implementation rates, with 77%, 69% and 60% of respondents having adopted these, respectively. Road freight transport SMEs with larger fleets reported having higher levels of awareness and implementation of operational measures those with very small vehicle fleets. While businesses with larger fleets also had higher awareness and implementation of vehicle-related measures these differences were far less marked than for operational measures (Toelke and McKinnon, 2021).

Therefore these two studies indicate that road freight transport SMEs prefer operational to vehicle-related measures as means by which to improve fuel efficiency and thereby

decarbonise. SMEs have identified eco-driving/eco-driver training and the use of telematics to monitor driver performance (such as information about vehicle speed, acceleration, braking, location and fuel consumption) as their preferred measures for achieving this objective, given the level of fuel savings they offer and the relatively low capital costs and short payback periods associated with them.

Given the focus on preventing global warming of 1.5°C above pre-industrial levels which it is estimated could happen by the 2030s if insufficient actions is taken, much effort was urged at COP26 to quickly implement GHG emissions reduction measures that are already available (IPCC, 2018; Carbon Brief, 2021). In terms of road freight transport, it is important that the UK-Government works closely with road freight transport SMEs and other stakeholders to ensure that transitional actions are taken by SMEs to improve fuel efficiency using currently available operational and vehicle-related measures.

11.7.3 Challenges and barriers to decarbonisation

Several barriers to the uptake of actions that would reduce GHG emissions were identified in interviews with UK road freight transport SMEs. These included their lack of time availability, their low profitability, their lack of resources for capital investment and their lack of understanding that GHG reduction extends beyond the vehicle used and its age and fuel (Crush and Reynolds, 2021).

Survey work among UK transportation and storage SMEs cited their two most important barriers to net zero actions as (in order of importance): (i) feasibility, (ii) costs, with them rating (iii) capacity/willingness to act, and (iv) information as far less important barriers (British Business Bank, 2021a).

A survey of road freight transport SMEs from various European countries found that only 30% of respondents said they were well informed to make sound decisions about fuel economy measures, while 60% felt their knowledge was limited and 10% felt that that they had no knowledge of the subject. Responses provided when asked about the appropriate fuels for their future vehicle operations indicated substantial uncertainty (Toelke and McKinnon, 2021).

The vast majority of transport and storage SME respondents in another UK survey carried out in 2020 (83% of those with employees and 87% of those with no employees) stated that they do not make use of information or advice (BEIS, 2021b, 2021c).

Road freight transport SMEs in qualitative research most frequently mentioned trade associations as their source of information (from the Road Haulage Association (RHA) followed by Logistics UK). Other information sources mentioned included trade magazines, email bulletins from government bodies including the DVSA and Traffic Commissioners, and internet and social media sources with the drivers' forum Truck Net UK mentioned by several. Micro businesses were found to be likely than larger businesses to depend on word of mouth for information. Some interviewees expressed mistrust that central government fully understands or appreciates their situation (Crush and Reynolds, 2021).

Survey work has indicated that just less than half of transport and storage SMEs with employees in the UK provide on or off the job training to staff. The proportion of transport and storage SMEs provided training to employees was lower than that for all SMEs in the UK (BEIS, 2020a, 2020b, 2021b, 2021c). This is a further potential barrier to the wider understanding and uptake of GHG emission related actions.

More consideration is required of how best to address the time, resourcing and business pressures faced by road freight transport SMEs when attempting to engage and communicate

with them and in efforts to disseminate fuel efficiency and GHG emission reduction information and advice to them.

11.7.4 Enablers of fuel efficiency and decarbonisation

A survey of SMEs in the UK asked respondents about enablers that would be helpful policy levers to encourage more decarbonisation action by SMEs. Across all respondents regardless of sector, a tax incentive was seen as most helpful (by 64% of respondents). In order of importance according to all respondents: information, external finance (including grants and loans) and clearer standards and regulations were also all rated as helpful by at least half of the respondents. By contrast, training about low-carbon solutions was not seen as helpful by the majority of respondents (British Business Bank, 2021a).

Among SME respondents in the transportation and storage sector a tax incentive was seen as the most helpful enabler (by 71% of respondents), external finance including grants and loans (by 62%) and more information on emission reducing options (by 53%) (British Business Bank, 2021a).

When asked about the type of incentive that would be most likely to motivate their uptake or greater involvement in decarbonisation initiatives, financial incentives were found to be more popular among interviewees from UK road freight SMEs than prizes or independent accreditation schemes (Crush and Reynolds, 2021).

European road freight transport SMEs were presented with a list of 14 internal and external factors that can influence business decarbonisation actions and investment efforts. They were asked to select the five that were most important in their businesses. The highest ranking response was cost saving potential (mentioned by approximately 80% of respondents), followed by customer demand (approximately 60%), vehicle manufacturers/suppliers (approximately 50%), culture and company values (approximately 45%), expected return on investment (approximately 40%), EU-level legislation (approximately 40%) competitors (approximately 40%), national legislation (approximately 30%), leadership/management (approximately 30%), public opinion (approximately 25%), employees (approximately 20%), associations and initiatives (approximately 10%) (Toelke and McKinnon, 2021).

Efforts by which to achieve greater fuel efficiency and GHG emissions reduction among road freight transport SMEs will require greater consideration by all stakeholders (i.e. government, SME and larger road freight transport businesses, other customers, trade associations, vehicle manufacturers and researchers).

11.8 Goods vehicle acquisition and external finance among SMEs

The main requirement for finance among road freight transport SMEs (especially in the case of micro and small businesses) is to acquire HGVs and LGVs.

While goods vehicles can be acquired either through outright purchases or external finance (including finance leasing and hire purchase arrangements) provided by finance lenders, smaller road freight transport businesses are far more likely to buy vehicles outright than larger businesses, that typically enter into vehicle financing arrangements. In addition, smaller road freight transport SMEs are also far more likely to purchase second hand vehicles than larger businesses.

A survey in 2020, reported that 44% of HGVs in the UK had been purchased outright (either new or second-hand), 33% had been purchased using an operator lease or hire purchase scheme, while the remaining 23% were either rented or similar (BVRLA, 2020).

As already explained (see **section 11.3**), it is estimated that LGV fleets of up to six vehicles account for approximately 80% of all LGVs licensed in the UK in 2020, with 60% of LGVs in a fleet of a single vehicle. The vast majority of LGVs are therefore likely to be used by small and micro businesses. A survey of registered keepers of LGVs found that 72% of these vehicles had been purchased outright (33% of which were purchased new and 39% of which were purchased second-hand), while only 28% of these vehicles had been acquired using operating leases or hire purchase arrangements (21% of which were acquired new and 8% of which were acquired second-hand) (Department for Transport, 2021d). Another survey found a lower proportion of LGVs had been purchased outright and a higher proportion acquired using financing arrangements, but this survey is likely to have included fewer micro and small businesses (BVRLA, 2020).

Survey results indicate that the most widely used sources of external finance by transport and storage SMEs are credit cards, followed by bank overdrafts, leasing/hire purchase, and loans. Approximately 35% of transport and storage SMEs reported using no sources of external finance in 2019 and about 30% in 2020. Only approximately 30% of transport and storage SMEs with employees and 10% of those with no employees used leasing/hire purchase schemes, in 2019, indicating their low usage for vehicle acquisition among SMEs (BEIS, 2020a, 2020b, 2021b, 2021c).

Like SMEs in the UK in general, transport and storage SMEs are disinclined to make use of external finance. This is reflected in 2020 survey results that indicate only approximately 20% of transport and storage SMEs expected to make use of any external finance in the next three years (BEIS, 2021b, 2021c). Another UK survey carried out at the end of 2020, with a wider sample including communication (i.e. computing, media and publishing) as well as transport and storage businesses, also found that a sizeable proportion of these SMEs were disinclined to use external finance, with only 33% of respondents stating that they were happy to do so. This survey also found that 83% of transport, storage and communication respondents stated that their current plans are based on what they can afford themselves, ourselves", 78% agreeing with the statement, "We will accept a slower rate of growth rather than borrowing to grow faster", and 74% agreed with the statement, "Because the future feels uncertain we are being very cautious with our plans for the business". Only 41% of respondents were prepared "to take risks to be more successful" (BVA BDRC, 2021).

Views among transport, storage and communication SMEs on using external finance to grow the business have worsened over time, with 47% stating they were happy to do so in 2015 compared with only 34% in 2020. This mirrors the worsening change in view of using external finance among all SMEs in the UK) (BVA BDRC, 2021).

Despite the dislike of using external fiancé that exists among many road freight transport SMEs, the relatively high price of goods vehicles can result in them having higher borrowing costs than SMEs in many other sectors (British Business Bank, 2021b). Among those transport, storage and communication SMEs that have made use of external finance, their concerns about their ability to repay this borrowing has increased considerably during the quarters of 2020, with 41% of respondents citing concerns in Q4 compared with 11% in Q1 2020. This level of concern about repayments in Q3 and Q4 2020 was far greater among transport, storage and communication SMEs than all UK SMEs (BVA BDRC, 2021).

In terms of obtaining financial advice, a survey found that 61% of SME respondents in the distribution sector agreed with the statement, "I know where to obtain information on the types of finance and specific providers available" (Klahr et al., 2021a).

In relation to accessing external finance to support net zero objectives, a survey of UK SMEs found that 38% of those in the transportation and storage sector would do so via an external loan. This was higher than for SMEs in any other sector, and reflects the substantial capital

cost investment for goods vehicles (British Business Bank, 2021a), especially if a sizeable second hand market has not emerged by the time this investment is necessary to meet UK Government regulations.

Given that SMEs replace their vehicles less frequently than large road freight transport operators and their greater propensity to purchase second-hand vehicles this means that the SME LGV and HGV fleets will take far longer to replace. Analysis based on the age of currently licensed LGVs and HGVs in the UK indicates that 4% of LGVs and 12-25% of HGVs are older than the time difference between the UK-Government's announced date for the ending of the sale of new fossil fuel goods vehicles and 2050. This indicates that if current replacement cycles continue in the future this proportion of goods vehicles operating in the UK in 2050 will not be zero tailpipe emission vehicles. This indicates the need for the UK-Government to work closely with and assist road freight transport SMEs in their vehicle replacement to zero emission goods vehicles.

11.9 Stakeholder actions for greater decarbonisation among road freight transport SMEs

In order for road freight transport SMEs to reduce their fossil fuel use, acquire cleaner and ultimately zero tailpipe emission vehicles and hence decarbonise their operations it is necessary for them to take required actions and to be assisted in doing so by other stakeholders that can assist and influence them. These stakeholders include: (i) governments (international, national, regional and local) and governmental bodies that licence and monitor goods vehicle operators, (ii) goods vehicle manufacturers, financiers and second-hand vehicle retailers, (iii) Customers of road freight transport SMEs (including retailers, manufacturers, construction and quarrying companies who use their services and larger freight transport businesses that make use of self-employed contractor drivers), (iv) trade associations that represent freight transport and logistics businesses and small businesses in general, (v) researchers and other bodies studying and assisting in road freight transport decarbonisation. Actions that can be taken by each of these stakeholders are provided below.

Road freight transport SMEs

- Familiarise themselves with decarbonisation targets and requirements in order to incorporate necessary planning into their strategies.

- Implement low-cost, fast payback measures to improve the fuel efficiency of operations if not already done so.

- Disseminate the importance of fuel efficiency and decarbonisation to other road freight transport SMEs on online freight message boards and by word of mouth.

Governments

- Provide simple, direct communications to road freight transport SMEs that gives information and advice about fuel efficiency and decarbonisation (especially comparisons and case studies of alternative measures that can be taken and contact points) ensuring that business benefits and payback periods of actions are emphasised.

- Include details of vehicle adaptations and alternative transition fuels as well as operational measures in the information and advice provided.

- Provide information about decisions made concerning fuel source for zero emission tailpipe HGVs and the planned refuelling and other infrastructure to support this.

- Continue to provide electric vehicle recharging point grants and information and consider how to assist depot electricity grid upgrade costs.

- Devise grants and subsidies for eco driver training, vehicle telematics and vehicle replacement schemes and simple, straightforward application procedures.

- Ensure that training schemes are designed to meet the needs and availabilities of SME personnel.

- Ensure that future road freight transport legislation takes account of SME perspectives and impacts (especially those of micro and small businesses).

- Work closely with trade associations that represent road freight transport SMEs to improve engagement.

- Continue to tighten GHG emission standards for light-duty (LGV) and heavy-duty (HGV) vehicles to ensure vehicle manufacturers continue to innovate and improve performance of fossil fuel vehicles.

- National government and national governmental bodies are likely to be of most importance in the above efforts, but other levels of government implementing road transport schemes that affect freight transport SMES, especially urban governments, need to also be adopting this approach.

Goods vehicle manufacturers, financiers and second-hand vehicle retailers

- Provide simple, direct communications for use by road freight transport SMEs that gives information and advice about vehicles, vehicle adaptations and vehicle fuels ensuring that their costs, business benefits, payback periods and residual values are made clear.

- Make this vehicle-related information available to second-hand vehicle sellers so that they can also make it available to road freight transport SMEs.

- Ensure that their customer focus, reach, financing packages and promotional offers are targeted at and suitable for road freight transport SMEs as well as larger businesses.

Customers of road freight transport SMEs

- Larger road freight businesses using self-employed contractors on a regular basis should seek to place them on the payroll as employees to improve their job security, and provide vacation and sick leave entitlements.

- Retailer, manufacturers, construction, larger freight businesses and other customers should provide road freight transport SMEs with contracts of sufficient duration to ensure security and at the same time include decarbonisation requirements within these contracts.

- Provide financial support to road freight transport SMEs that are used to help them afford the capital costs of vehicle-related upgrades.

Trade associations

- Disseminate information and advice about fuel efficiency and decarbonisation produced by themselves, government and researchers to road freight transport SMEs.

- Represent the needs and interests of road freight SMEs in their dealings with all levels of government.

- Continue to develop and update their road freight transport decarbonisation policies taking careful account of the needs and situation of SMEs.

- Work with financial institutions and industry bodies, vehicle manufacturers and representatives of second-hand vehicle retailers to help develop and broker suitable vehicle and vehicle adaptation finance arrangements for SMEs.

- Disseminate information about the outcomes and products to emerge from this work on vehicle and vehicle adaptation financing arrangements.

Researchers and other bodies studying and assisting in road freight transport decarbonisation

- Ensure that the situation and needs of SMEs is taken into account and addressed in broader road freight transport research.

- Conduct specific research into road freight transport SMEs, their operations and behaviour (especially in relation to fuel efficiency and decarbonisation) to fill this specific research gap.

- Examine the most appropriate mechanisms for engagement, communication and knowledge sharing with road freight transport SMEs, as well as the types of information and advice required by them to bring about greater fuel efficiency.

- Study the suitability of external finance arrangements for vehicle acquisition and adaptation by road freight transport SMEs, as well as the types of assistance and incentives most likely to achieve greater fuel efficiency and uptake of cleaner goods vehicles amongst them.

- Provide the outcomes of research and advice direct to road freight transport SMEs via online websites, together with providing this information to trade associations for them to disseminate to SMEs.

- Investigate the views, operations, behaviours and fuel efficiency of SMEs that operate LGVs and HGVs but which are not providers of road freight transport services to others.

11.10 Other important considerations and actions in decarbonising goods vehicles operated by SMEs

Research indicates that eco-driving/eco-driver training and the use of telematics to monitor driver performance are the two most attractive means of reducing GHG emissions currently available to road freight transport SMEs given their fuel saving level of fuel saving potential and the relatively low capital costs and short payback periods associated with them (see **section 11.6.2**). Given the importance of preventing global warming of 1.5°C above pre-industrial levels in the coming years, it is essential that the UK-Government works closely with road freight transport SMEs and other stakeholders to ensure these transitional actions are taken by SMEs to improve fuel efficiency, especially in this period before zero tailpipe emission HGVs are available and widely used.

In addition to the road freight transport SMEs providing their services to others, many users of LGVs and HGVs do not offer freight transport services to others and do not consider themselves to be road freight transport SMEs. Instead they either use these LGVs and/or HGVs for their own goods transport within their businesses which are engaged in some other activity (such as manufacturing, wholesaling or retailing) or they use LGVs to provide services other than goods collection and delivery (including many services such as building, plumbing, lighting, equipment maintenance and repair) (see **section 11.3**). Achieving improved fuel efficiency and the decarbonisation of these LGVs and HGVs that are operated by SMEs that are not road freight transport operators represents another substantial challenge for the UK Government and other stakeholders.

Fully connected autonomous vehicles (CAVs) will become available at some point in the future. CAVs are expected to have various social and environmental benefits including helping to reduce traffic congestion, improving fuel consumption and thereby reducing GHG emissions and local air pollutants, improving road safety, and enhancing vehicle utilisation, thereby reducing the total vehicles required to be produced (Paddau et al., 2019). The timescale for the implementation of fully autonomous vehicles (referred to as level 5 CAV implementation) and the circumstances and operating environments in which such goods vehicles would be used is currently uncertain. Therefore, whether the availability of such level 5 CAVs will coincidence with the phasing out of the sale of new fossil fuel goods vehicles or before the net zero GHG emissions commitment of 2050 is currently unknown.

CAVS are predicted to result in improved vehicle utilisation and to vastly reduce vehicle operating costs when human drivers are no longer required, given that proportion of vehicle operating costs that drivers account for. However, CAVs are likely to have considerably higher capital costs than standard goods vehicles due to the equipment they require. Given the higher capital costs of such vehicles, they are likely to be beyond the means of many SMEs based on their current vehicle acquisition methods and behaviours. Therefore, at some point in the future, the use of fully autonomous goods vehicles is likely to result in a substantial reduction in road freight transport SMEs, especially for micro and small businesses, both through the inability of those with goods vehicles to afford them and through the reduction in the demand for goods vehicle drivers for those who are self-employed contractor drivers without their own vehicles.

Appendix 1: Details of surveys of road freight transport SMEs made us of in this report

Reference	Summary of survey method and coverage
BEIS, 2021b, 2021c.	The Longitudinal Small Business Survey (LSBS) is carried out annually by telephone and involves two parts. 3,486 UK small business owners and managers took part in the 2020 SME Employers LSBS (which includes businesses with 1-249 employees), of which 205 worked in businesses in the Transport and Storage SIC code (H). 1,264 respondents had no employees, of which 65 were businesses in the Transport and Storage SIC code (H). SIC code H includes businesses involved in cargo handling, non-road freight transport and passenger transport as well as road freight transport. Survey work took place between September 2020 and April 2021.
British Business Bank, 2021a.	Nationally representative computer-assisted telephone interview (CATI) survey of business owners and senior managers from 1,200 UK SMEs (with 0-249 employees) in August and September 2021. The survey mostly consisted of close-ended multiple choice questions, with a limited number inviting open-ended answers. SME respondents were categorised into eight industry sectors: Transportation and Storage, Agriculture/Primary, Manufacturing, Construction, Wholesale and Retail, Accommodation and Food Service Activities, Business Services, Other services. Transportation and Storage includes cargo handling, non-road freight transport and passenger transport as well as road freight transport.
BVA BDRC, 2021.	SMEs in in the survey meet the following criteria: annual turnover of less than £25m, not more than 50% owned by another business, and not run as a social enterprise or as a not for profit organisation. The respondent was the person in charge of managing the business's finances. The survey includes 4,500 UK SMEs every quarter (18,000 per year). The survey was carried out Jan-Dec 2020. The 'Transport, storage and communication' sector category makes up 11% of the sample (2,000 SMEs per year) and comprises SIC code H (Transportation and storage – which includes cargo handling, non-road freight transport and passenger transport as well as road freight transport) and SIC code J (Information and communication – which includes publishing, media and computing businesses). Results are weighted to ensure that each quarterly survey wave is representative of all SMEs.
Crush and Reynolds, 2021.	A combination of telephone and in-person qualitative interviews carried out in 2020 about barriers to action, views on emissions reduction measures and potential communication methods to reach road freight SMEs in the UK operating HGVs (7.5 tonnes and above). Sole traders and businesses with less than 50 employees included. Of the 40 participants, 27 had up to 10 employees, eleven had 11-49 employees and two had more than 50 employees.
Klahr et al., 2021a.	The survey engaged 4,125 UK SME businesses. The unweighted profile of the respondents by number of employees were: no employees: 42%, Micro (1-9 employees): 37%, Small (10-49 employees): 15%, Medium (50-249 employees): 6%. One of the sectors into which businesses were categorised was 'Distribution' (which included the following SIC codes: Wholesale and retail trade; repair of motor vehicles and motorcycles (G); Transportation and storage (H); Accommodation and food service activities (I). This Distribution sector therefore contains a far broader definition of businesses than those only working in road freight transport operations. The 'Distribution' sector accounted for 21% of the unweighted respondents. Survey work took place between August and November 2020. Survey work took place between August and November 2020.

Klahr et al., 2021b.	The survey engaged 1,763 UK SME businesses that had been recipients of the UK Government's Covid-19 Bounce Back Loan Scheme. The unweighted profile of the respondents by number of employees were: no employees: 23%, Micro (1-9 employees): 61%, Small/medium (10-249 employees) One of the sectors into which businesses were categorised was 'Distribution' (which included the following SIC codes: Wholesale and retail trade; repair of motor vehicles and motorcycles (G); Transportation and storage (H); Accommodation and food service activities (I). This Distribution sector therefore contains a far broader definition of businesses than those only working in road freight transport operations. The 'Distribution' sector accounted for 20% of the unweighted respondents. Survey work took place between August and November 2020.
McKinnon and Petersen, 2021.	A survey of 92 senior managers in European shippers, logistics providers and providers of other services, with annual turnovers ranging from €10 million to many billions of euros. Sixteen respondents were from medium-sized businesses with annual turnovers between €10-50 million. representing many large European based users (i e shippers) and providers of logistics services, with annual turnovers ranging from many billions of Euros to under 10 million. The survey was carried out in September 2020.
Toelke and McKinnon, 2021.	Comprised three survey elements: (1) An online survey of 811 freight transport operators with fleet sizes of 1-250 goods vehicles from 32 European countries. (2) Detailed, online survey exploring attitudes, awareness and commitments on subject of decarbonisation. With 30 road freight transport operators from Austria, Denmark, Germany, Ireland, the Netherlands and the UK. (3) Interviews with 6 road freight transport operators from Austria and Germany which provided qualitative information on support mechanisms needed to promote wider adoption of decarbonisation practices. These surveys and interviews took place between May and June 2020.

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