

Key Drivers of Freight Demand

Freight Policy Advisory Panel
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Background

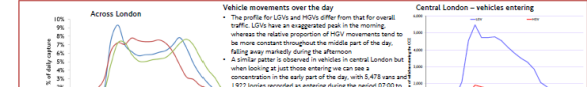
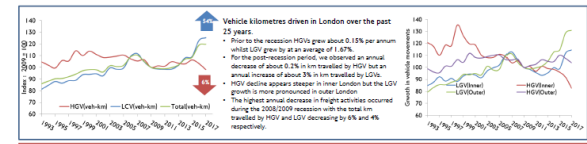
Last year we presented a series of potential explanations for the trends we have seen in goods vehicle kilometres over the past 25 years.

The purpose of this presentation is to provide an update on the findings of our modelling exercise into quantifying what drives freight demand in London.

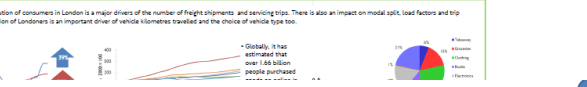
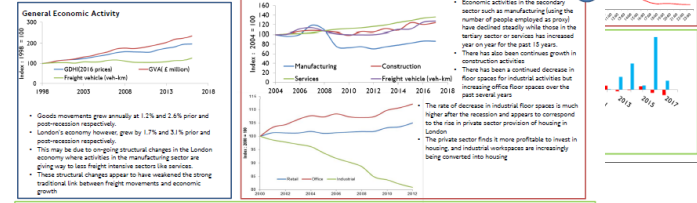
Contents:

- Recent freight movement trends in London
- Understanding the drivers of freight demand
- A note on online shopping
- Forecasting freight activity
- Next steps

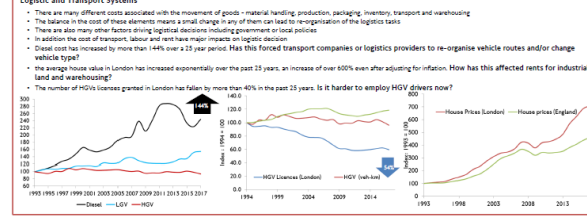
Trends in vehicle movements



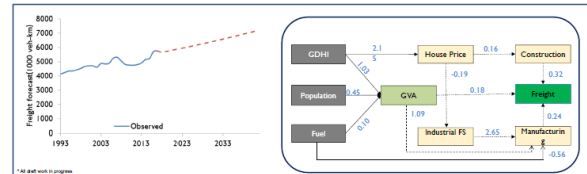
What is causing these trends?



What is causing these trends?



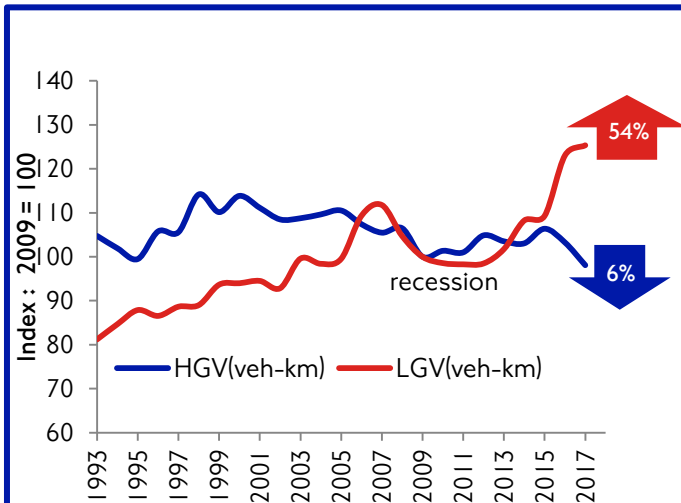
Quantifying these drivers of demand and improving our forecasts



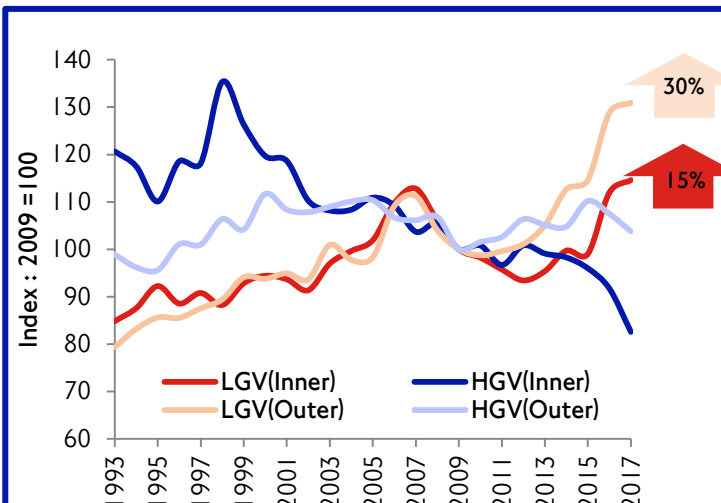
Recent trends in freight movements in London



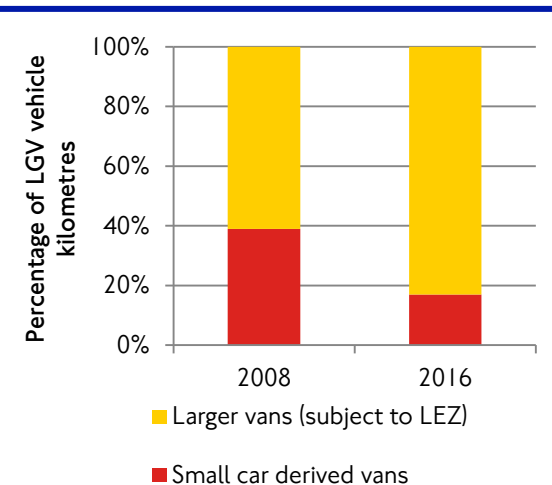
There is a diverging trend in vehicle kilometres between light and heavy goods vehicles in London



Trends in annual HGV and LGV vehicle kilometres since the early 90s have shown a 54% increase in LGVs and a 6% decline in HGVs



Since the recession vans in Outer London have grown at twice the rate as Inner London whereas the decline in HGVs is more pronounced in Inner London

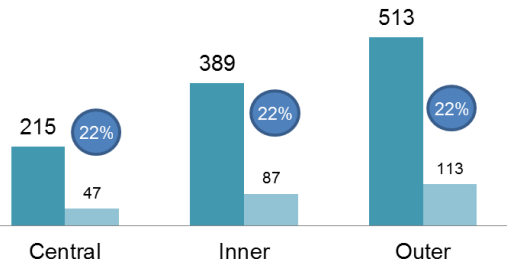


Vans in London have been getting larger. In 2008 60% of van vehicle kilometres were done by larger vehicles. In 2016 this had increased to over 80%

Over a half a million freight vehicles visit London each day and vans make up around 75% of freight vehicles over a 24 hour period

Freight vehicle daily count (000s)

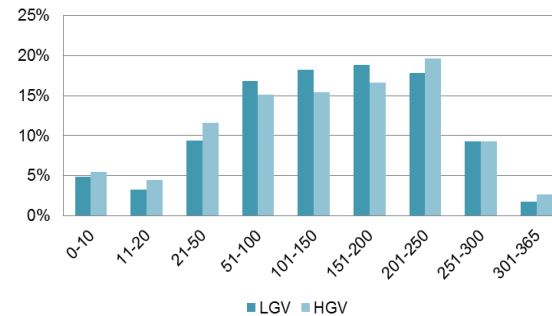
■ 24 hour ■ Morning peak



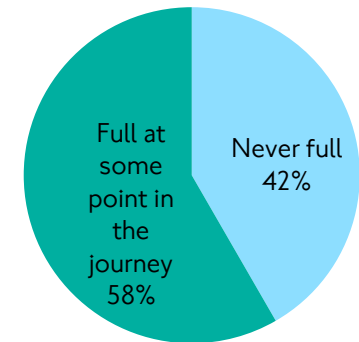
22% of goods vehicle flows are in the morning peak across London.

78% of vehicle flow is during the day (7am to 7pm)

Number of visits a year by vehicle - All London



Vehicles enter relatively frequently with around 50% entering London at least 150 times per year



A small survey of central London vans found that nearly 60% were 'full at any given time' on their journey.

Of those that were never full, around 25% achieved a maximum fullness of 50% or less

Understanding the drivers of freight demand



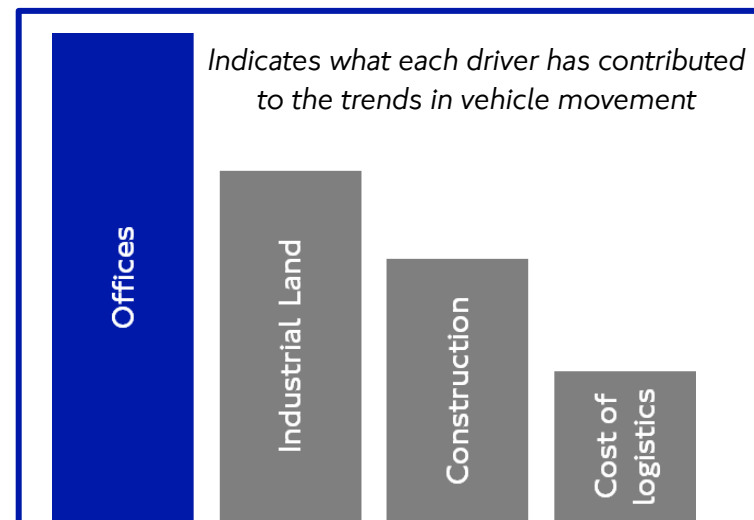
We have now quantified the key drivers of these trends in vehicle kilometres and considered the policy implications

- The work provides a theoretical basis for
 - Explaining historical trends in HGV and LGV vehicle kilometres
 - Future forecasts of HGV and LGV growth
- It provides evidence to help develop targeted measures to improve freight efficiency in London and support implementation of the Delivery and Servicing Action Plan
- It consolidates datasets on freight and servicing activity and associated factors



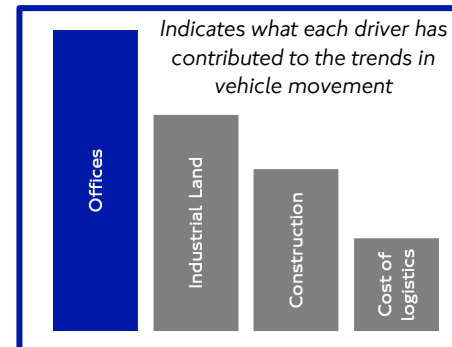
The main drivers can be categorised into four groups

1. **Office space:** Increases in office space can attract uncoordinated services and deliveries.
2. **Loss of industrial land:** The loss of industrial land, and specifically that used for logistics, means that freight vehicles need to travel further as logistics facilities move further from Central London.
3. **Construction:** This drives increased movements for HGVs and LGVs.
4. **Logistics costs:** Logistics companies operate at relatively low margins. Cost is one of the factors leading to increased total vehicle kilometres and influencing the increase in LGVs.



Macro-economic factors: Our model also captures macro economic trends such as population, household income, GPD, house prices and a variable to account for the rise in online shopping.

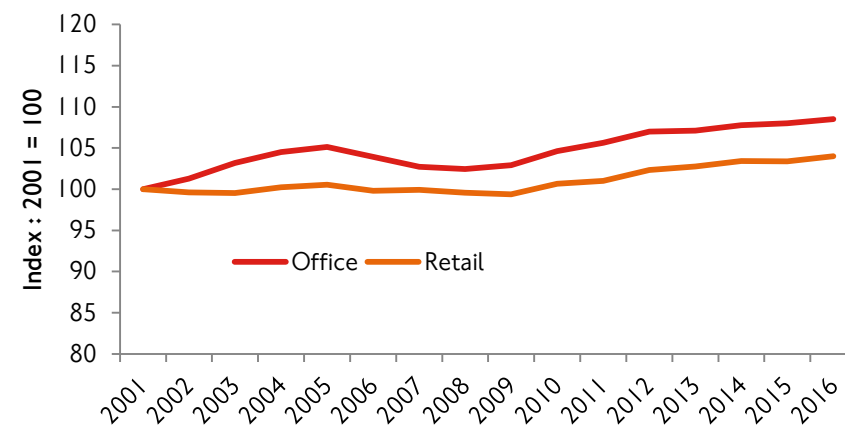
Office space: For every 10% increase in office floor space, freight vehicle kilometres could increase by 6.3%



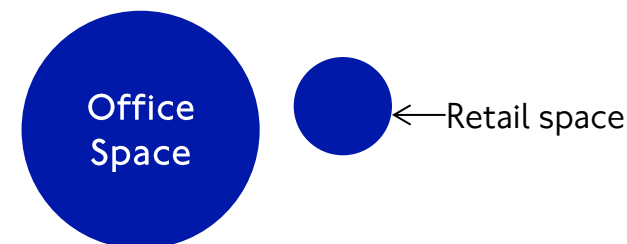
Findings:

- The structure of the economy is changing with manufacturing giving way to service activities. This is reflected by the increased demand for office floor space in London
- Freight and servicing of offices can be seen as the least efficient of the freight attracting industries. This is as a result of many different and often uncoordinated services and deliveries
- Difficulty locating correct addresses and a lack of dedicated loading and delivery bays for offices affect delivery efficiency

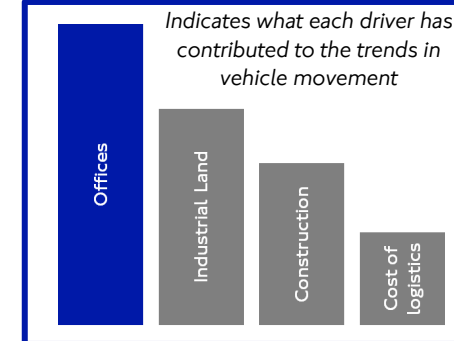
Floor space by industry



Relative efficiency of servicing office space compared to retail space



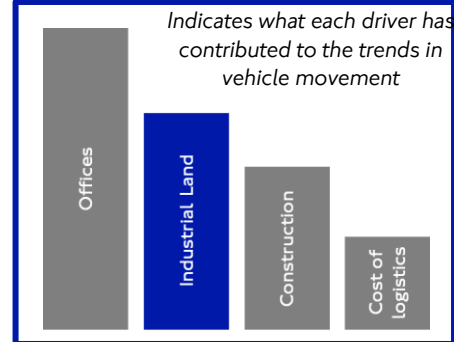
Office space: Improving the efficiency of deliveries and servicing of office space would be the greatest single contributor to reducing freight vehicle kilometres



Policy Implications:

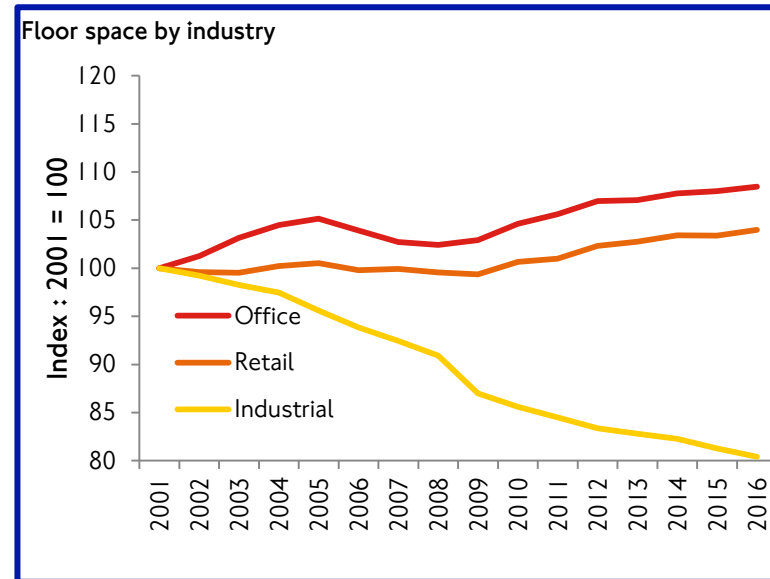
- Interventions that **improve coordination** in this sector could yield big benefits
- Actions on **routing and data sharing of 'true' addresses** would be incredibly beneficial, especially in Central London. The Freight and Servicing Action Plan has an action to address this
- **Delivery and Servicing Plan guidance** will be updated and for office space in particular all methods of improving efficiency are relevant – consolidation across companies in a single building or business district, mode shift for last mile deliveries and re-timing of large consignments if necessary
 - Plans will need to be enforced and reviewed to ensure that the benefits are maintained as road space in London becomes more oversubscribed. Lessons on limited kerb and road space can be learned from work being done by the City of London
- Developments such as 22 Bishopsgate should act as a proof of concept that conditions placed on deliveries from the application stage can be successfully implemented and monitored but it is still unclear how transferable this model would be to less constrained areas

Loss of industrial land: For every 10% reduction in industrial floorspace, freight vehicle kilometres could increase by nearly 4.5%

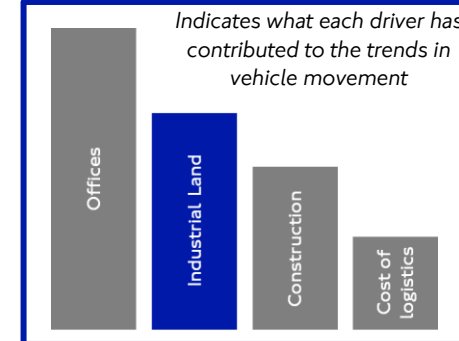


Findings:

- A 6-fold increase in average house prices and high demand for housing has historically crowded out industrial uses of land
 - Between 2001 and 2016 industrial floor space reduced by 20%
 - Freight facilities have had to **re-locate further away** from their customers
- This conversion of land has also led to the creation of **mixed use developments** with retail and office space created alongside homes that attract additional freight activity
- Protection of London's industrial capacity **does not just protect land for distribution and logistics**. "Industrial Floor space" also includes services that operate on industrial land; manufacturing and other industrial activities (micro breweries); transport; waste and utilities
 - Surveys of major industrial estates in London suggest that **services sectors accounted for 33% of jobs and 29% of floor space**. This will continue to grow unless it can be channelled towards Town Centres and mixed use developments instead



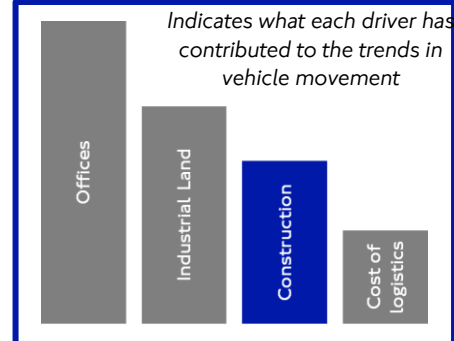
Loss of industrial land: Moving distribution and logistics activities outside of London is a common response to this shortage but there are other ways businesses could adapt (but support is required)



Policy implications:

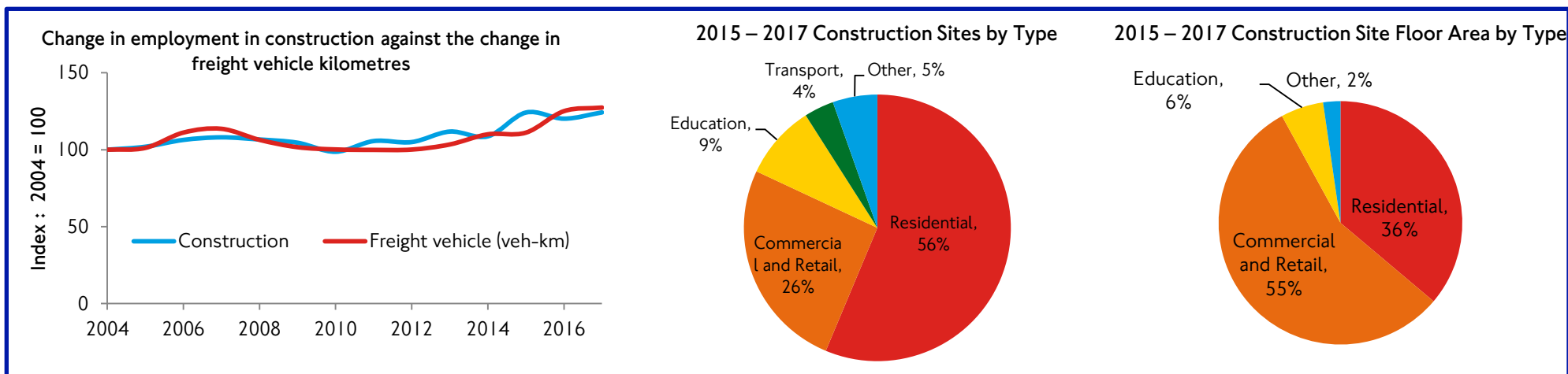
- Industrial rents in London are rising faster than those in the South East due to the demand for warehousing. This places greater pressure on businesses with the smallest margins
- Cost encourages companies to relocate entirely or adapt their business model to keep the bulk of their land requirements outside of London. Our model suggests that this **relocation** has caused an increase in vehicle kilometres
- **Intensifying** industrial activity on the same amount of land (i.e. increasing industrial floor space on the same amount of industrial land) requires intervention to overcome some practical barriers
- **Co-location** of industrial activity within residential developments is an option. While it could result in conflict between residents and commercial vehicles, it is especially appropriate solution for the services currently based on industrial land
- The use of publically owned land for distribution and logistics also can be considered

Construction: For every 10% increase in construction activity, freight vehicle kilometres could increase by nearly 3.5%

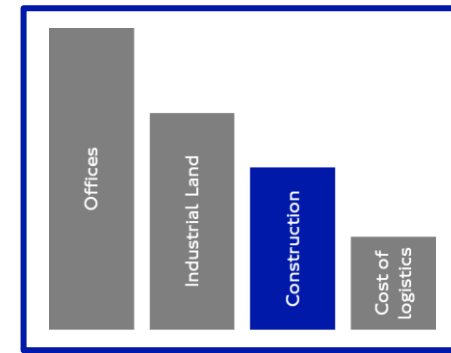


Findings:

- Economic growth and the increased demand for housing in the Capital has led to an increase in construction activity over the past few decades
 - more than a 25% increase in employment in the sector since 2004
- Whilst heavy vehicles are mostly associated with construction, LGVs are prevalent at sites, especially at smaller builds.
- It is thought that for every HGV required for a construction site 11 LGVs are also needed
- Whilst more sites are residential the largest sites are for commercial and retail purposes



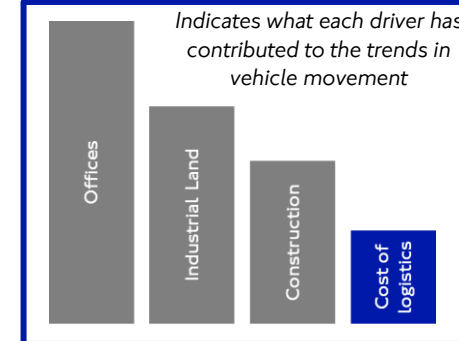
Construction: In 2017 City of London and Tower Hamlets accounted for 31% of construction activity and Westminster had the largest total number of sites



Policy Implications:

- Central London boroughs remain the **main boroughs for commercial and retail construction** sites
- Boroughs in the **CCZ / Inner London** will benefit most from efficiency improvements as they account for nearly two thirds of all construction sites and c.80% of total build size
- **Construction Logistics Plans** can be effective for reducing the impact of construction on the road network. However the focus should go beyond heavy vehicles
- Resource shortfalls limit the capacity to review, approve and monitor Construction Logistics Plans. There is also no centrally managed information on CLPs which makes understanding this sector difficult (especially the latter stages of construction with LGVs are more prevalent).
- Working with select Boroughs on enforcement of the plans would be advantageous. This could reveal if plans are being ambitious enough in the first place and the extent to which additional measures on LGVs specifically should be included

Logistics costs: For every 10% increase in fuel costs, freight vehicle kilometres could decrease by nearly 1.8%



- The industry operates under tight margins and companies must adapt their business models to address long term shifts in costs (as seen in the move out of London due to the shortage of industrial land)
- Operating cost are increasing and are affected by fuel, government policies and several other factors outside of the control of operators.
- The general trend in transport is toward LGV's which have a more favourable cost profile for many types of services. It will however always be more cost efficient to fill the largest vehicle and so the growth in LGVs will be dampened to a certain extent by these economies of scale
- Policies to improve safety and the environment must not be compromised. However, we often don't fully understand how cost and regulation might affect the ability of a company to be 'efficient'.
- We need to understand secondary impacts is important so we can design policies that simultaneously achieve safe, clean and efficient freight

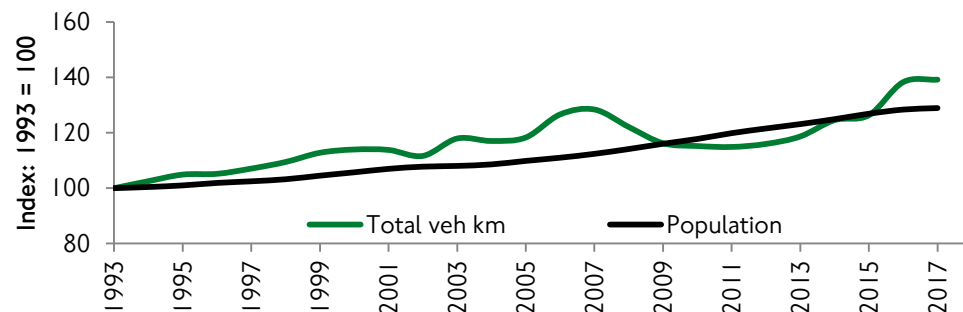
Other factors:

Online shopping

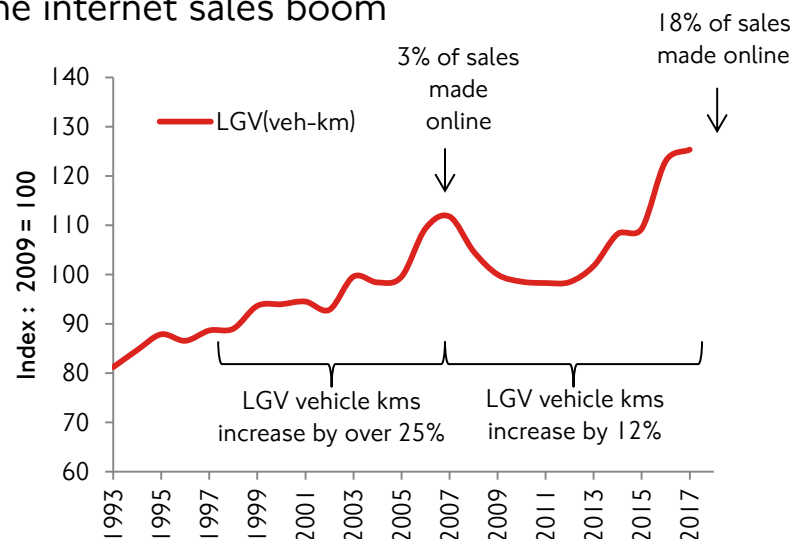


The growth in LGV vehicle kilometres pre-dates the online shopping boom

Population growth drives demand for goods & services. As the disposable income of Londoners increases they demand a greater variety of goods as well as simply buying more. These items often lend themselves to smaller consignments and smaller vehicles for transport



Growth in online sales increases the use LGVs but this van growth pre-dates the internet sales boom



Our analysis revealed a very weak relationship between online shopping and the growth in LGV activity. This supports national research

22% of Londoners receive at least one delivery per week

Only 50% of the people who received one delivery chose to use click and collect so there is scope to increase. From the limited data available we can see that they are more likely to

- be women
- be 65+
- have low income
- be part-time workers/retired

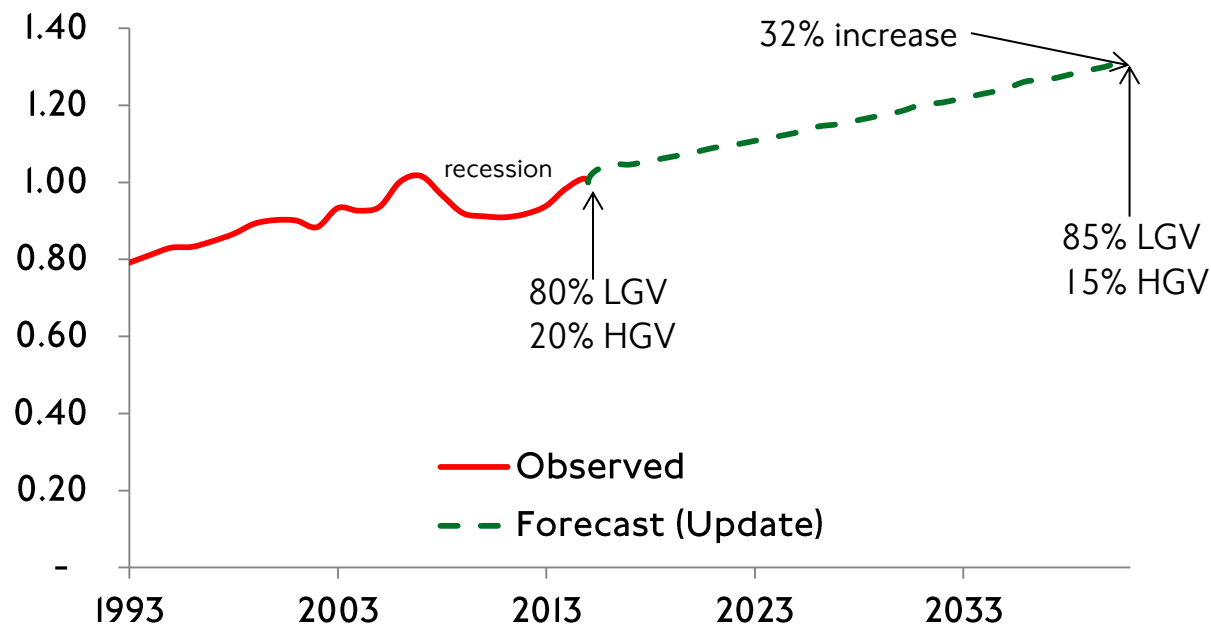
Click and collect is a growth area and further investigation is required to understand true end to end efficiency improvements

Forecasting Freight Activity



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Total freight, and in particular LGV vehicle kilometres will continue to increase faster than population growth without interventions



- 32% increase in total vehicle km without any interventions
- This compares to the c.20% assumed within the MTS if LGV growth was pegged to population increases.
- LGVs currently do c.80% of the total road freight vehicle km
- This could increase to around 85% by 2041

Drivers of this mode shift to LGVs are:

- Continued regulation on larger vehicles and a reduction in professional drivers drive greater LGV usage
- As warehousing moves further away from stores trips become longer and more frequent. Recent trends have seen an increase in large LGVs
- Economies of scale still favour (always more cost effective to fill larger Growth in LGVs will be dampened by these vehicles)
- Increasing internet sales into the future will favour growth in LGVs but the contribution to historical growth is weak given the strength of other drivers in the economy

Next Steps



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Analytical next steps

- **Land use:** We will explore how to construct a tool that could inform how different forms of consolidation, in different places, could help reduce total vehicle kilometres. The investigations in this area will support the Delivering London project but will require industry data on vehicle routing patterns.
- **Cost of logistics:** Work with industry decision makers to better understand, at industry level, the potential cost impact of our policies on business through identifying the decision makers at each stage of the chain and understanding cost margins.
- **Construction:** Following the completion of the “Construction Logistics Baseline Modelling” study determine what supplementary evidence could support the design of effective construction logistics plans, especially those that look at van movements.
- **Other areas:**
 - Work to determine a set of **industry and vehicle definitions** to be used in future work to ensure our research can be brought together more effectively. Your input to this would be very valuable
 - Contribute to the Department of Transport **van survey** and, depending on the outcome commission our own study on vans to add more information on London
 - Develop a more **targeted version of the 2016 Freight Travel Demand Survey** to focus on key such as areas undergoing transformational change. This will help us to better understand necessary access arrangements

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