

# Chapter 71

## Improving the Sustainability of Road Freight Transport by Relaxing Truck Size and Weight Restrictions

Alan McKinnon  
Heriot-Watt University, UK

### ABSTRACT

*Increasing legal limits on the size and weight of trucks allows companies to achieve a higher degree of load consolidation. This reduces the total number of vehicle-kilometres required to distribute a given quantity of goods, saving money and reducing environmental impacts. Proposals to legalise longer and heavier vehicles, (LHVs) have, nevertheless, generated intense debate, particularly in Europe where they are strongly resisted by railway and environmental organisations. This chapter reviews recent studies on this subject, presents an analytical framework and focuses on three critical issues: the extent to which loads can be consolidated in LHVs, their effect on the freight modal split and the possibility that the resulting reduction in road freight costs will stimulate additional traffic growth. Most of the recent studies support the development of LHVs, particularly those based on actual experience of their use in countries such as Australia, Sweden and the United States.*

### INTRODUCTION

Consolidating loads in larger and heavier vehicles is one of most effective ways of improving the efficiency of road freight transport and reducing its impact on the environment. Governments around

the world have therefore been under pressure from industry to relax truck size and weight restrictions and thereby reduce the number of trips required to move a given quantity of freight. There are, nevertheless, physical limits to the size and weight of trucks that can be accommodated within the existing road infrastructure and representatives of

DOI: 10.4018/978-1-4666-4852-4.ch071

competing transport modes have strongly opposed the introduction of larger and heavier vehicles. This has made the maximum weight and dimensions of trucks one of the most controversial public policy issues to arise in the field of logistics for many years. The contradictory positions on this issue are well illustrated by the European Shippers Council (2007) and German Environment Ministry (Umwelt Bundes Amt, 2007). The former argued that LHVs will *reduce fuel consumption and pollution, lower transport costs, contribute towards an increase in the available capacity utilisation of the primary road network, reduce the number of lorry trips per annum, and increase the competitiveness and sustainability of EU industry*. The latter asserts that *megatrucks do not contribute towards sustainable development of freight transport. Their use relieves neither the environment nor road infrastructure*.

This chapter reviews the evidence that has accumulated on this issue from both desk-based studies and operational experience in countries where larger and heavier trucks are allowed to operate. It examines the problems that researchers experience when trying to assess the net effects of allowing these vehicles onto the road. The discussion relates mainly to EU countries though makes reference to the use of these trucks in other parts of the world. It focuses on operational, economic and environmental issues. For detailed discussion of the implications for road safety and transport infrastructure readers should consult Knight et al (2008), TML et al (2008) and Leduc (2009).

This chapter is mainly concerned with a combined relaxation of vehicle size and weight restrictions in trucks that are both longer and heavier. It is, of course, possible for length and weight limits to be increased independently. In the UK in 2001, for example, the government raised the maximum weight of an articulated lorry (running on six axles) from 41 to 44 tonnes. It is currently considering an extension to the length limit within current weight restrictions. To maximise the economic and environmental benefit of relaxing legal limits

on truck capacity, however, it is often desirable to increase weight and size limits simultaneously.

The semantics of truck enlargement also requires some comment at the outset. Various terms have been used to describe bigger trucks. Some, such as ‘megatruck’, ‘monster truck’ and ‘juggernaut’, tend to be used by opponents of these vehicles and are fairly emotive. Others such as ‘high productivity vehicle’, ‘high capacity vehicle’, ‘super truck’ or ‘load efficient vehicle’ have much more positive connotations. Other expressions, such as the Australian ‘road train’, the US ‘long combination vehicle’ (LCV), the German ‘gigaliner’, European ‘Eurocombi’ and the British ‘longer and heavier vehicle’ (LHV) simply describe the vehicles. The last of these terms is now in common use and will be adopted in this chapter.

## **A BRIEF HISTORY OF LHVs IN EUROPE**

LHVs with lengths in excess of 20 metres and gross weights of over 50 tonnes have been operating in Scandinavia for over 20 years. Sweden, for example, set a 24 metre length limit for trucks in 1968 and allowed them to run at weights up to 51.4 tonnes in 1974 (Vierth, 2008). At the time of Sweden and Finland’s accession to the EU in 1996, special provision had to be made to allow these countries to continue to operate these vehicles which were much bigger and heavier than those permitted elsewhere in Europe. An EU Directive (96/53) was approved which granted all EU member states the right to operate longer vehicles so long as they conformed to the standard modular dimensions in existence at that time. This has since become known as the European Modular System (EMS). The main objectives of the directive were to avoid a proliferation of vehicle dimensions and promote the harmonisation of modules that could be transferred between modes. Although the 96/53 Directive allowed member states other

12 more pages are available in the full version of this document, which may be purchased using the "Add to Cart" button on the publisher's webpage:

[www.igi-global.com/chapter/improving-the-sustainability-of-road-freight-transport-by-relaxing-truck-size-and-weight-restrictions/94995](http://www.igi-global.com/chapter/improving-the-sustainability-of-road-freight-transport-by-relaxing-truck-size-and-weight-restrictions/94995)

## Related Content

---

### Sustainable Rural Tourism of Lower Danube Region in Serbia: Challenges and Realities

Snežana Šteti, Sanja Pavlović and Sara Stani Jovanović (2015). *International Journal of Sustainable Economies Management* (pp. 57-72).

[www.irma-international.org/article/sustainable-rural-tourism-of-lower-danube-region-in-serbia/130688](http://www.irma-international.org/article/sustainable-rural-tourism-of-lower-danube-region-in-serbia/130688)

### A Modified-SCD for Optimize Performance Rate at Polar Code

Prakash K Mand G S. Sunitha (2019). *International Journal of Green Computing* (pp. 1-21).

[www.irma-international.org/article/a-modified-scd-for-optimize-performance-rate-at-polar-code/232692](http://www.irma-international.org/article/a-modified-scd-for-optimize-performance-rate-at-polar-code/232692)

### Environmental Analysis of Construction Materials: Material Specifications for Green Built Environment

Aysem Berrin Cakmakli (2020). *Green Building Management and Smart Automation* (pp. 90-110).

[www.irma-international.org/chapter/environmental-analysis-of-construction-materials/231675](http://www.irma-international.org/chapter/environmental-analysis-of-construction-materials/231675)

### The Mediating Role of Job Satisfaction Between Work-Life Balance and Employee Retention

Soni Rath and Praveen Kumar (2023). *Climate Change Management and Social Innovations for Sustainable Global Organization* (pp. 241-262).

[www.irma-international.org/chapter/the-mediating-role-of-job-satisfaction-between-work-life-balance-and-employee-retention/330671](http://www.irma-international.org/chapter/the-mediating-role-of-job-satisfaction-between-work-life-balance-and-employee-retention/330671)

### Revisiting Project Definition/Initiation for Telemedicine Services: Insights From a Multisite Case of TeleStroke Services

Suzanne J. Wood, Cynthia M. LeRouge, Bengisu Tulu and Joseph Tan (2020). *Sustainable Business: Concepts, Methodologies, Tools, and Applications* (pp. 1215-1241).

[www.irma-international.org/chapter/revisiting-project-definitioninitiation-for-telemedicine-services/232848](http://www.irma-international.org/chapter/revisiting-project-definitioninitiation-for-telemedicine-services/232848)