

The Dynamics of Freight Transport Development

A UK and Swiss Comparison

PHILIPPE THALMANN



THE DYNAMICS OF FREIGHT TRANSPORT DEVELOPMENT

To my Father, who loves trains and travelling

The Dynamics of Freight Transport Development

A UK and Swiss Comparison

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List of Abbreviations

BLS	Bern-Lötschberg-Simplon
BR	British Railways, British Rail since 1965
BRB	British Railways Board
BRS	British Road Services
BTC	British Transport Commission
CH	Switzerland
climCO ₂	Climate relevant carbon dioxide
CO	Carbon monoxide
CO ₂	Carbon dioxide
EC	European Community
EU	European Union
EWS	English Welsh & Scottish Railway
GB	Great Britain
GDP	Gross domestic product
Gtonne	Gigatonne, one billion tonnes
GV	Goods vehicle, light or heavy
GWh	Gigawatt-hour, one billion watt-hour
HGV	Heavy goods vehicle (gross weight > 3.5 tonnes)
km	Kilometre; 1 km = 0.6214 mile
ktonne	One thousand metric tons; one metric tonne = 0.9842 British ton
kWh	Kilowatt-hour, one thousand watt-hour
LGV	Light goods vehicle (< 3.5 tonnes)
Litra	Swiss information service for public transport
MCB	Management Consortium Bid Ltd
MP	Member of (national) Parliament
Mtonne	Megatonne, one million tonnes
NEAT	New Railway Links through the Alps
NFC	National Freight Corporation, National Freight Consortium since 1982
NMS	Network Management Statement
nmVOC	Non-methane volatile organic compounds
NO _x	Nitrogen oxides
NR	Network Rail Ltd
OPRAF	Office of Passenger Rail Franchising
OS1	First oil price shock (1973-1974)
OS2	Second oil price shock (1979-1981)
Pb	Lead

PM	Particulate matter
RES	Rail Express Systems
RfD	Railfreight Distribution
RHE	Road Haulage Executive
SAEFL	Swiss Agency for the Environment, Forests and Landscape (OFEFP in French, BUWAL in German)
SBB	Swiss Federal Railways company, created in 1902
Sesa	Suisse Express S.A.
SNCF	Société Nationale des Chemins de Fer
SO ₂	Sulphur dioxide
SRA	Strategic Rail Authority
TJ	Terajoule, 10 ¹² joules
TWh	Terawatt-hour, 10 ¹² watt-hour
UK	United Kingdom
VAT	Value-added tax
VOC	Volatile organic compounds
WWI	World War I
WWII	World War II

Foreword

Transport networks and the important freight flows moving along them represent no doubt relevant characteristics of our global economy and its functioning. Transport as the movement of goods and people in an always more differentiated space has become such a central and at the same time common feature of modern economies and societies, that one tends to neglect research into its overall relevance. Just as there is little academic interest in inquiring the fundamental role of money, language or other facilitators of exchange and mobility for the development of our societies, transport, and especially freight transport, tends to be a domain of specialized research in various branches of academia.

Welcome, hence, Thalmann's effort to discuss the issue from the perspective of economic history. Looking at transport economics literature, there is little evidence of economic history approaches to the problem (in spite of 1993 Nobel Prize winner Robert Fogel's counterfactual work on the role of railways for American economic development). The historical approach permits the author to first describe and then analyse the important changes in technology, policy and regulation of the (freight) transport sector against the background of economic development over the last two centuries. The profession, when discussing current issues in e.g. the role of the state and regulation in the railway sector, often neglects or ignores some lessons that might be learned from a rather remote past. In this sense, chapters 2 and 5 presenting the history of freight transport in Great Britain and Switzerland are a fascinating source of evidence in their own right.

The comparative analysis of two vastly diverging realities over such a long time is a second strong point of this book. It is no doubt enriching to follow the author in his arguments, always having in mind the two distinct cases. To the reader this might seem rather easier than having to digest the comparative evidence across 12 or 15 vastly different EU countries, as is the case for a relevant part of the applied research on the issue that we tend to get on our desks nowadays. The two countries offer ample occasion for interesting comparisons, as they represent contrasting experience. Looking only at recent history, Great Britain has been a pioneer with regard to the liberalisation of the transport sector while Switzerland is a latecomer in the area. Switzerland has one of the highest rail shares in passenger and freight transport whereas in Great Britain the role of rail is more marginal. Switzerland has also been making important efforts to introduce true costing. The reader will find evidence on these and many other interesting differences in the book.

As every applied research should, this book has also policy relevance. Thalmann offers not only a profound analysis of the development and with that

numerous clues to success and failure in performance, but he extends his observation on the issue of environmental externalities of transport. It is no doubt one of the merits of this book that it provides the reader with comparative statistics and a discussion of the policy approaches to the problem. Freight transport on land is dominated, in a modern logistics context, by frequent small shipments in a highly flexible and fast environment, and hence by road transport. The ensuing problems in terms of congestion, pollution and accidents represent a relevant challenge for a competitive development in respect of the environment, i.e. sustainability.

The effort undertaken in the present study to verify the role of competition and liberalisation, protection and subsidies, infrastructure investments and regulation in the history of two countries will no doubt help the reader to compare his own conclusions with the conclusive perspectives offered by the author.

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Chapter 1

Introduction

Context and Issues

Through economic and political integration, Europe is evolving towards a network economy in which flows of people and particularly of goods become essential. Switzerland cannot but participate in this evolution, given the weight of international trade for its economy and its central location in Europe. The consequence is heavy pressure on the Swiss transport system to increase its capacity and performance. At the same time, the growth of transport attracts critical attention for its social, financial and environmental consequences.

Several problems must be resolved relatively quickly in order to create favourable conditions for the economic and social development of the country:

- Efficient structures: railways reform and management of road transport.
- Fair and correct prices: internalisation of transport external costs.
- Financial soundness: financing of public transport infrastructure.
- Popular support: protecting the most sensitive regions like the Alps.
- European integration: negotiations with the European Union.
- Environmental protection: limits on toxic emissions and nuisances.
- Sustainability: increase of safety, rational use of energy, slowing down global warming.
- Performance: provision of mobility and response to transport demand.
- Spatial integration: regional and urban planning.

Most of the problems concerning the transport sector relate to its social costs in its widest sense. In Europe the social costs appear to be unacceptably high – a low estimate is some 4 to 5 per cent of GDP (ECMT, 1998). The European transport sector is confronted with severe capacity constraints of all kinds. Furthermore, average growth figures of mobility in Europe of 50 per cent and greater for the next 20 years are foreseen. The greatest part of this growth takes place on roads.

Road transport already accounts for about one quarter of the man made gases that are contributing to global warming. Of more immediate concern is the enormous local damage in terms of air pollution, noise, landscape degradation and time wasted in traffic congestion. The conventional solution to this problem – building more roads – is extremely costly. Sustainable development requires great

efforts foremost in the transport sector, in particular more efficient energy use. Sustainability also encompasses economic and social dimensions, legitimising concern for continued mobility and economic development.

The most striking impact of transport is accidents. In 2001, more than 30 000 people were injured and nearly 544 lost their lives on Swiss roads, one-fifth of them pedestrians (Swiss Federal Statistical Office). The figure relative to Western Europe is equally catastrophic, with over 30 000 deaths per year. In comparison, railways caused one hundred times fewer casualties.

An important part of freight transport in Switzerland is transit by road. Although numerous studies have proven that mass road transport is damaging, Switzerland must accept connections between EU countries through its territory. The only sustainable solution is to transfer more transit freight to the railways. New infrastructure is called for and is being built. This is not sufficient. The reform of the railways' organisation should bring greater efficiency and competitiveness. Intermodality is facilitated. Long-term financial resources are reserved for the transport system. When these resources originate in taxes on road freight, they help restore a level playing field. All these changes are part of international efforts to restore the attractiveness of the railways, an effort to which this book testifies by reporting on the evolution in Great Britain, a country in which the railways have a lot of catching up to do and are doing just that.

The Contribution of this Book

Clearly, the dynamics of freight transport in Switzerland are very complex, being part of larger economic and social, as well as national and international systems. Understanding these dynamics is an essential step before proceeding with building costly new pieces of infrastructure and implementing organisational reforms. The goal of this book is to contribute to this understanding, with a view to helping decision-making on infrastructures and transport policies. The dynamics are not shown with the help of a complex simulation model – other teams of researchers have done so – but by looking back at two centuries of (freight) transport history. Showing what was possible in the past – e.g. competing private rail companies and a dominance of rail freight – may suggest to decision-makers what is possible in the future, provided it is shown why earlier solutions failed and changes occurred.

The goal of this book is ambitious. Although plenty of data on quantities shipped is available, there exists very little information on the position of freight transport within society and the economy. There exists no systematic data on prices or tariffs. The scientific literature is quite sparse regarding global views of transport in Switzerland. Hopefully, more can be learned about the dynamics of Swiss freight transport by examining Great Britain.

Switzerland and Great Britain are interesting case studies for the rest of Europe, as they are pioneers today in different areas:

- Switzerland is moving further than other countries towards true costing of road transport, including external costs. It also has the highest proportions of rail freight in Europe.
- Great Britain started very early with privatisation and the separation of infrastructure and operation, i.e. with the application of EU directive 91/440/EEC.

The reason for investigating British transport history back to the 1800s is that the country was a pioneer of the railways, and the first to manage this new transport system. By assumption, studying periods makes more sense than merely comparing dates and facts, especially for understanding the dynamics of evolution. GB is still setting the pace for Europe, in some regards. Observing its experiences intently might help to avoid detrimental developments and to create and foster desirable innovations. This is one goal of the present book.

This book structures and interprets the history of freight transport in Switzerland and GB from different angles: the unfolding of events and political decisions and their driving forces; the statistical data and its regularities; the environmental impacts. Such background information is necessary to forecast the future evolution of transport, although no such exercise is attempted here.

Inland waterways, pipelines, airfreight and other special transport modes contribute to freight movement. They may be significant for some regions and particular industries or goods. However, they are far less important and mobilise far fewer resources and attention than road and rail, particularly in Switzerland. The analysis in this book therefore concentrates on road and rail transport.

Book Outline

This book has three parts and 9 chapters. The first part examines the situation in Great Britain, the second in Switzerland, and the third compares and concludes.

Chapter 2 in part I and chapter 5 in part II, trace the history of transport, particularly freight transport, in Great Britain and Switzerland respectively, with elements of general economics, technology, politics and transport policies. The chronology of these stories is structured along main periods identified from the historical events and the statistical analyses of chapters 3 and 6 respectively. The historical chapters show how the two countries answered the challenges of the 19th century – building a transport network for industry – the first half of the 20th century – rationalising this network and augmenting it with a second, road network – and the second half of the 20th century – competition between rail and road. Analysis of Britain's recent history is particularly interesting as it allows assessing one of the most radical experiments in privatisation and competition on the

railways. Switzerland stands out in international comparison by managing to maintain a high share of rail freight.

Chapter 3 gathers the existing British data on freight transport and displays it graphically with a view to revealing general trends and structural breaks in the chronology. It helps to identify the main time periods in the history of freight transport since the 19th century. Chapter 6 performs the same exercise for Switzerland. The two chapters adopt the same structure for easy comparison: rail freight, road freight, and total freight. Gathering the statistical data and analysis in these chapters meant that they could be kept out of the historical chapters. However, the historical and statistical chapters should really be read in parallel. Or better, readers more inclined to historical developments could read the historical chapter first, while more quantitative readers could begin with the statistical chapter.

Chapter 4 analyses British environmental data, particularly data on air pollution. The data concerns total emissions and emissions from transport, as well as energy consumption. Again, chapter 7 repeats the exercise for Switzerland.

Chapter 8 in part III is devoted to comparing in tandem the history, freight statistics and environmental impacts in Great Britain and Switzerland. It draws some general lessons about transport organisation and policy from this comparison. Chapter 9, finally, offers general conclusions on freight transport history and perspectives in Switzerland and Great Britain.

PART I
GREAT BRITAIN



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