



UTOPIA AND GOODS TRANSPORT OBSERVATIONS AT DECOUPLING ECONOMIC GROWTH AND DEMAND FOR TRANSPORT

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1. Introduction

Freight transport used to receive comparatively little attention in transport economic research, for various reasons. First, freight transport holds a smaller market share in transport production than total passenger transport. Moreover, this smaller share is in the hands of a limited number of players. From a political point of view, measured in terms of potential voting power, the sector would therefore appear to be a lot less significant. Furthermore, the nature of freight transport is rather complex, while the availability of data is relatively limited. In short, the sector was in danger of academic neglect.

In recent years, however, this situation has gradually changed. In the scientific literature, research into aspects of freight transport has gained in significance (see among others Blauwens et al, 2001, and Hensher and Button, 2000). Political interest has also grown, witness the research into variables that influence demand for freight transport (Meersman and Van de Voorde, 1999) initiated by the European Conference of Ministers of Transport (ECMT).

The European Commission White Paper (2001) attributes great significance to various transport-related issues. One of the most striking assertions in this document has, for that matter, begun to lead a life of its own. The claim concerns the future relationship between evolutions in transport (including freight transport) and economic growth, in the context of the debate on a necessary integration of transport issues into a sustainable development policy. The European Commission (2001, p. 15) refers primarily to freight transport when it argues that transport growth should be gradually decoupled from economic growth. In this manner, one wants to attain the new equilibrium between transport modes envisaged by the European Council of Gothenburg.

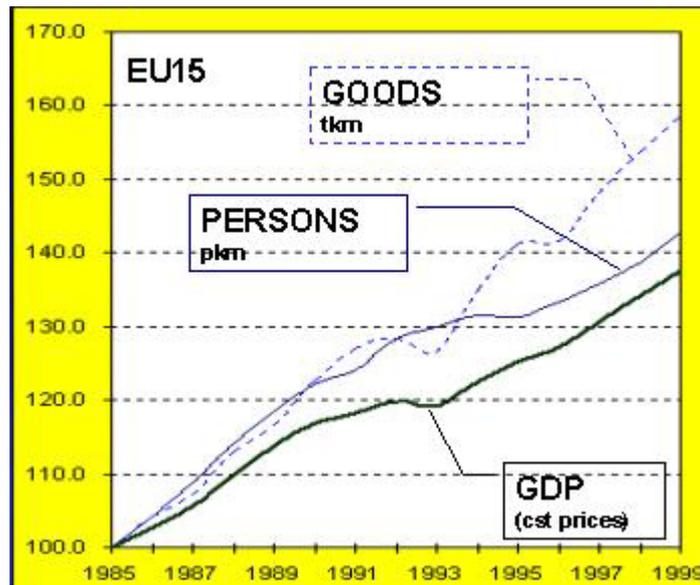
The question arises, though, whether breaking the link between economic growth and transport growth is at all possible. After all, economic growth translates almost automatically into an increase in freight traffic. Future enlargement of the European Union will undoubtedly result in new traffic flows, and not just in the border regions. Therefore, additional investment in infrastructure is advisable, with a view to, for example, avoiding saturation of the major traffic arteries and making or keeping peripheral regions accessible. In other words, what is at issue is not so much the unlinking of transport growth and economic growth as a different distribution between the various modes.

In this contribution, we shall explore in greater detail the issues pertaining to future freight transport. Any adequate transport policy must inevitably be based on knowledge about the past and the present. Could we have foreseen recent trends? And what may we expect in the future? We shall also deal explicitly with these questions in the light of the European White Paper and the future transport policy proposed in it.

2. What can we learn from the past?

Diagram 1 illustrates quite clearly how freight transport experienced spectacular growth between 1985 and 1999. Growth of GDP in constant prices was enormous, but transport grew even more quickly, especially freight transport, which recorded an annual growth rate of almost 3%.

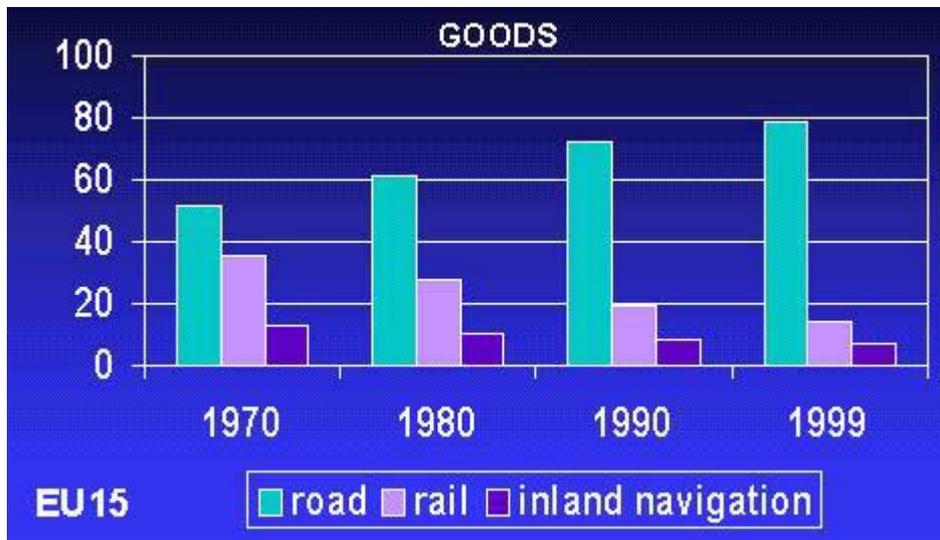
Graph 1: GDP Growth versus Commodity and Passenger Transport Growth



Source: European Union, 2002

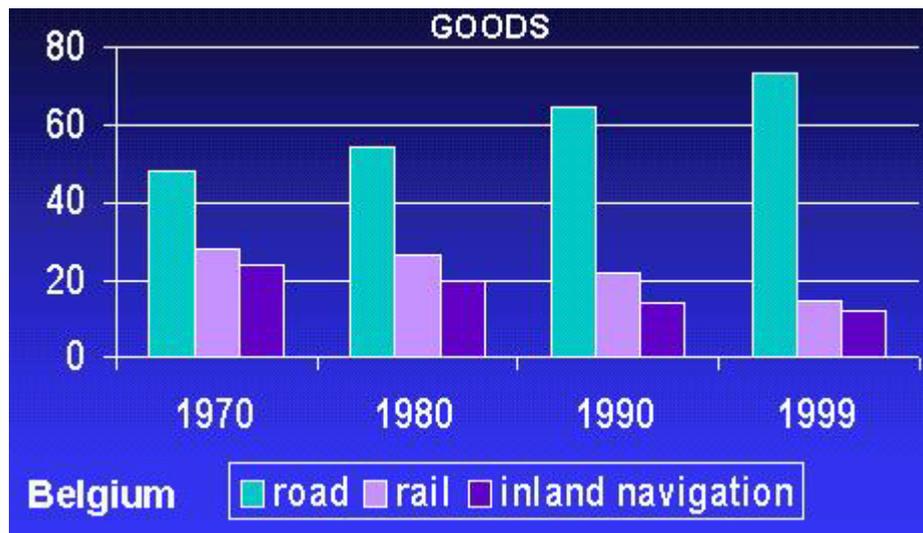
Within the freight transport sector, road haulage grew faster than such competing modes as inland navigation and rail transport. Diagrams 2 and 3 illustrate the dominance of road haulage between 1970 and 1999.

Graph 2: Shares for road, rail and inland navigation 1970 – 1999 EU-15



Source: European Union, 2002

Graph 3: Shares for road, rail and inland navigation 1970 – 1999 Belgium



Source: European Union, 2002

There are numerous reasons for the growing dominance of road transport in the period considered (Blauwens et al, 2001, pp. 40-41). First and foremost, industrial location policy underwent considerable change. Production centres were moved to specific industrial zones that often lacked good connections with the rail network and inland waterway infrastructure.

Furthermore, there was a strong trend toward new production structures, as a result of which transport was integrated into the production logistics of enterprises. The higher the value of the goods involved, the more important speed and flexibility in transport (cf. limited transport costs in comparison to overall production and distribution costs). Concepts such as just-in-time production implied smaller stocks, but greater demand for regular, flexible and qualitative transport services.

Finally, the nature of the goods produced has also changed. There has been a marked decline in the production of bulk goods (e.g. raw materials, semi-finished products), goods with a high specific gravity and a modest value added. The evolution towards finished products with a high value added was mainly to the benefit of road haulage.

3. Predictions revisited

The question arises to what extent this spectacular growth was predictable. In other words, could we have seen this evolution coming on the basis of the available knowledge at the time of forecasting? And which variables are to blame for the fact that predicted evolutions did not correspond to reality?

Answering these kinds of questions requires scientific insight into the determinants and the extent of growth in freight transport, preferably on the basis of an analytical tool that takes into account all relevant factors. Modelling of demand for freight transport is a complex matter, among other things because of specific transport requirements (volume, batch size, etc), the multitude of modes involved, the different internal structure per mode, and rapid developments in transport operations. Any analysis of demand for freight transport therefore requires a thorough knowledge of the underlying transport sector as well as insight into the relationship between the transport industry and the economy as a whole.

First and foremost, more research is needed into aspects of transport generation and attraction. More specifically, one needs to ascertain how these aspects are related to the immediate origin of demand for freight transport. Why are goods conveyed from one location to another? The answer to this question is of course closely related to the economic activity in the regions concerned. Production often requires a supply of raw materials and the removal of

intermediate or finished products. This in itself is an indication that freight transport is an almost direct consequence of economic activity. This undeniable relationship serves as a guide in the forecasting of freight transport demand.

In empirical research, several variables are put forward for estimating the significance of the relationship between transport and economic activity. The most obvious variables are undoubtedly GDP, employment, industrial output, and import and export trade. Previous empirical studies (Meersman and Van de Voorde, 1999) show that, in Europe, it is not so much growth of GDP that is the driving force behind growth in freight transport, but the increase in industrial output. These two variables do not always evolve proportionately, mainly because economic growth in many European countries is generated by the services sector rather than by industry or manufacturing.

It is interesting to see to what extent past forecasts, on the basis of old models, deviate from reality. Tables 1 and 2 provide an overview of results for the period 1990-1999 on the basis of models developed in Meersman and Van de Voorde (1999). Three scenarios were considered: a weak economy with an annual growth of 1%; an average economy realising an annual growth of 3%; and a strong economy recording an annual growth of 5%.

Table 1: Forecasts of growth in freight transport, 1990-1999

Scenario	Forecast growth (%)	Actual growth (%)
Total: Scenario 1	3.69	32
Scenario 2	17.28	
Scenario 3	30.87	
Road: Scenario 1	8.08	50
Scenario 2	25.76	
Scenario 3	30.87	

Source: based on estimations in Meersman and Van de Voorde, 1999

Table 1 shows the forecast increase in freight traffic under the three scenarios. As it turned out, predicted growth in all three scenarios, including that of a strong economic performance, was smaller than actual growth. The model underestimated reality in all cases. This may be due to various factors. First, there was growing trend towards globalisation. Furthermore, the 1990s were marked by more deregulation, privatisation and liberalisation of the transport market. This has undeniably led to lower freight rates. Other relevant factors are the developing trade towards Eastern Europe and technical evolutions, including new stock and logistical policies in many companies.

A similar phenomenon can be observed in road haulage (cf. Table 1). Table 2 compares forecast growth and actual growth between 1990 and 1999 in four countries and under two scenarios (an annual growth rate of 1% and 3% respectively). Despite the correct prediction that growth would vary considerably in these four countries, one notices that in the case of Germany and the Netherlands the growth rate was nevertheless seriously underestimated.

Table 2: Predicted growth in road transport (freight) in Europe, 1990-1999

Country	Scenario	Forecast Growth	Actual Growth
Germany	1%	38.49	87
	3%	63.95	
France	1%	12.6	34
	3%	34.4	
The Netherlands	1%	18.85	53
	3%	29.63	
UK	1%	6.54	15
	3%	20.73	

Source: based on estimations in Meersman and Van de Voorde, 1999

The above tables illustrate quite clearly how road haulage in particular responded strongly to increases in industrial production. In the short-term, this effect may have been enhanced by growing international trade and rising GDP. Important infrastructure developments at the supply side certainly did not impede this development. In most countries, the growth in road haulage was to the detriment of rail transport and, to a lesser extent, inland navigation (see Meersman and Van de Voorde, 1999, p. 43).

4. Assessing the future

In the 1960s and 70s, the literature focused almost exclusively on the positive relationship between transport on the one hand and economic activity, employment and welfare on the other. This relationship has since changed quite fundamentally. Transport, including freight transport, is increasingly linked with factors such as environmental nuisance and inadequate spatial planning. While these aspects are hotly debated, there is usually agreement on one issue: taking correct policy measures requires knowledge of future transport demand.

In most European countries, slower growth of industrial production may lead to slower growth in freight transport, as these two variables are undeniably related. However, one may reasonably expect that trends such as further globalisation, the increasing significance of the services sector in Western Europe, and the changing business environment in Central and Eastern Europe (e.g. EU enlargement) will generate further growth.

The extent of this growth will, of course, vary for different goods categories and, indeed, for different geographical connections. Shifts will undoubtedly occur in interregional transport patterns. On a number of axes, including the West-East axis, transport will increase more strongly than on others. Here, the problem arises of growth poles in newly emerging markets, which are catching up in terms of economic performance, with or without help from the European Union (cf. policy towards so-called lagged regions). In this respect, there is much to be learnt from previous experiences after the accession of Spain and Portugal to the EU.

One may expect that seaports, as nodes in the generation of traffic flows towards the hinterland, will continue to gain in significance. To illustrate by how much port traffic might increase, Table 3 provides an overview of estimated growth rates in loadings and unloadings in the port of Antwerp.

Table 3: Estimated growth (in %) in loadings and unloadings in the port of Antwerp (base year: 1997)

Annual Growth in import / export	General Cargo (loadings)		General Cargo (unloadings)		Bulk (loadings)		Bulk (unloadings)	
	2005	2010	2005	2010	2005	2010	2005	2010
3%	7.67	16.25	1.11	11.64	27.04	36.39	22.00	27.69
4%	12.58	24.02	8.41	22.76	32.73	45.03	26.27	33.60
5%	17.49	31.79	15.72	33.89	38.41	53.67	30.53	39.51

Source: Meersman, H., Moglia, F. and E. Van de Voorde, 2002, p. 45

It is worth noting in this respect that shifts may be expected to occur in the European logistics chain. It is by no means unthinkable that some import flows of raw materials, general cargo and especially containers -which have thus far passed through the relatively large ports of the Hamburg-Le Havre range- will in the future be attracted by such Southern European ports as Gioia Tauro, Cagliari and Taranto. This would occasion a dramatic spatial shift in hinterland transportation. Moreover, there would be important consequences in terms of infrastructure capacity utilisation, demand for new infrastructure, the technologies applied and the modal choice. With respect to the latter, the question arises whether modal shifts should or could be stimulated, so that the market share of the road haulage sector might shrink.

Equally important, for that matter, is the question of whether existing infrastructure would be able to cope with such growth and a changed market structure. Should infrastructure, including road networks, be expanded or should one promote a shift to alternative modes, such as combined transport and short-sea shipping? Such issues require an analysis of available capacity and capacity utilisation per mode and per geographical relationship. Certainly the Belgian experience is that significant shifts from road transport to other modes will only materialise in the case of extreme price changes (Meersman and Van de Voorde, 1996).

However, the spectacular growth in transport, particularly freight transport, also brings with it a number of problems that should not be underestimated. In economic terms, growing congestion on roads generates extra costs for freight transport, not in the least through time loss. Moreover, undesired and adverse effects on living conditions (e.g. measured in terms of road safety, the isolation of certain regions etc.) and the environment are an increasing burden on society, a burden that more and more people believe should be borne by the originator.

So where has transport processing gone wrong recently? One often refers to the inadequate price structure and to bad timing of many political measures. In addition, there have been the delays in the completion of infrastructures for so-called Trans-European Networks (TENs), an undeniable consequence of a lack of public and private funding.

How can one accommodate the growing need for freight transport and infrastructure? In order to be able to answer this question, insight is required into the effective growth in demand for freight transport. It is not our intention to put forward new forecasts in the present contribution. We shall, however, briefly consider the forecasts put forward in the recent White Paper by the European Commission (2001). Assuming that economic growth and transport are unlinked, and mobility is retained by a more efficient use of other transport means, road haulage is predicted to grow by 38% between 1998 and 2010, compared to 50% without intervention. The forecast rise in GDP, by comparison, is 43%. By way of illustration, predicted growth in passenger transport under the same assumptions and for that same period is only 21%.

This is precisely what the European Commission (2001) means by breaking the link between economic growth and transport growth: a transport sector that grows at a slower rate than the economy. But achieving this goal will require a very considerable effort.

The European White Paper (European Commission, 2001) discusses these efforts in greater detail. The starting point is a striving for sustainable transport, which is translated into a number of measurable indicators: transport growth, shifts towards more environmentally friendly modes, full internalisation of costs, and decoupling of transport growth and economic growth (e.g. measured in terms of GDP). However, one is quite aware that today's reality is very different: anticipated economic growth will undoubtedly result in greater demand for personal mobility and freight transport services. Enlargement of the European Union is set to trigger larger exchanges of goods, and there is a need for additional investments, including in transport infrastructure.

As regards breaking the automatic link between economic growth and growth in freight transport, the solution is sought not so much in a reduction in transport, but in a redistribution between modes. The focus is on a package of measures that will have an immediate impact on the modal choice, more specifically measures that will make road haulage less attractive. In practice, the proposed measures will make road transport more expensive (e.g. by a full internalisation of external costs through fiscal policy), increase the efficiency of other modes (e.g. by eliminating bottlenecks) and revitalise them (e.g. by investment aimed at intermodality, technology, quality, safety and efficiency).

To an extent, the White Paper ties in with the European policy of fair and efficient pricing. The message of this policy is clear to see: a full internalisation of external costs of all modes, the application of the marginal cost principle, and funding of necessary investments.

As regards the promotion and revitalisation of modes that compete with road haulage, here the focus is on rail and water transport (i.e. inland waterways and short-sea shipping). It is clearly the intention to improve the image of these modes, through investment in quality (cf. the policy on maritime safety and the policy aimed at the reflagging of ships to Community registers through tonnage-based taxation) and in better interfaces between the modes concerned. Shipping can be integrated perfectly into the concept of Trans-European Networks by, for example, improving access to the port services market. There is an urgent need for true intermodality, based on those modal characteristics that might influence the behaviour of transport users and shippers: integration into a so-called one-stop shop, encouraging the emergence of freight integrators, giving priority to technical harmonisation and interoperability between systems, and stimulating innovation (including financially).

5. Conclusion

"The opportunities are so great that we cannot fail to make the best of efforts to see that our policies work and provide the transport system that we need for the 21st century" (Loyola de Palacio, 26 May 2000)

The political discourse on transport seems rather naïve and vague, and lacks any real commitment to achieving results. It should be clear by now that the economic growth envisaged by any authority, including that of the EU, will inevitably lead to an increase in freight transport. The much-hailed 'decoupling' of growth in these two areas can only be interpreted as an attempt to break the automatism whereby percentage growth in freight transport (particularly road haulage) is always greater than economic growth.

If implemented fully, the package of measures proposed in the White Paper by the European Commission (2001) may succeed in breaking the link between economic growth and transport growth. But even then, with such substantial growth over quite a short period of time, there will continue to be transport problems. If, on the other hand, the proposed measures are not or only partly implemented, (transport) chaos looms as more bottlenecks will emerge. In such an event, anticipated economic growth may be undermined. Therefore, there is an urgent need for the development and implementation of a scientific tool that will allow us to systematically assess the relationship between economic activity and (freight) transport.

6. Bibliography

Blauwens, G., De Baere, P. and E. Van de Voorde, 2002, *Transport Economics*, Editions De Boeck Ltd, Antwerp.

ECMT, 1995, Round Table 99, *Transforming the Structure of the Freight Transport Sector*, Paris.

European Commission, 2001, *White Book. European Transport Policy till 2010: Time to Choose*, European Communities, Brussels.

European Union, 2002, *Europe in Figures*, <http://www.europa.eu.int>

Hensher, D.A. and K.J. Button (ed.), 2000, *'Handbook of transport modelling'* Amsterdam, Pergamon, 666 p.

Meersman, H. and E. Van de Voorde, 1996, 'Prognoses van de vraag naar goederenvervoer. Cijfers bij economische groei, modale keuze en vervoerbeleid', *Energie en Milieu*, pp. 131-136.

Meersman, H. and E. Van de Voorde, 1999, 'Is Freight Transport Growth Inevitable?', ECMT, *Which Changes for Transport in the Next Century?*, ECMT, pp. 23-48.

Meersman, H., Moglia, F. and E. Van de Voorde, 2002, *Forecasting Potential Throughput*, in: Huybrechts, M., Meersman, H., Van de Voorde, E., Van Hooydonk, E., Verbeke, A. and W. Winkelmanns, *Port Competitiveness. An Economic and Legal Analysis of the Factors Determining the Competitiveness of Seaports*, Editions De Boeck Ltd., Antwerp, pp. 35-66.

Ortuzar, J. de D. and L.G. Willumsen, 1995, *Modelling Transport (Second edition)*; John Wiley & Sons, Chichester.

Rathery, A., 1993, 'Traffic Flow Problems in Europe', *Transport Reviews*, pp. 1-23.

Tavasszy, L.A., 1996, *Modelling European Freight Transport Flows*, Trail, Delft.

Winston, C., 1985, 'Conceptual Developments in the Economics of Transportation: An Interpretive Survey', *Journal of Economic Literature*, pp. 57-94.