

Two Logistic Models: Logistics boosting productivity in Western Economies and failed in the Eastern Bloc

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Abstract

The aim of the paper is a logistic view on the economy and to account the logistic differences between the Western Economies and the Eastern Bloc which are interpreted by two different logistic models.

In the past 30 years logistics became a key factor in the process of industrial production in the Western Economies and the distribution of consumer goods. Logistic enabled to constitute a network of suppliers that supported the industrial production.

In this way logistics supported the division of labour at the different stages of industrial production. Suppliers could concentrate their production for different customers in large batches and could earn the effects of mass production, of the learning curve and of specialization.

The deep structure of specialized suppliers is a distinguishing mark of the economies of Western style and contrasts sharply to the structure of the communist economy in the former Eastern Bloc. The transport infrastructure was poor. So just-in-time delivery was impossible. No network of motorways existed, only short and unconnected strips. So no efficient transport by lorry was possible. The paper presents some data on long delivery times in the Eastern Bloc where it was impossible to earn the productivity effects of modern logistics. The paper presents a logistic model of the Eastern Bloc that exhibits the lack of transport infrastructure and consumer good industries.

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1. Introduction. The Growth of the motorway network in Europe

The decades of the economic miracle in Western Europe after 1950, also called “trente glorieuses” or “miracolo economico”, mark an evolution of the consumer-oriented economy in Europe, which not only addresses mass consumption but also the mass production and mass distribution of consumer goods.¹ Mass production, mass distribution and mass consumption constitute a system. The automobile industry and the automobile trade, which form the basis of mass motorization, play an important role within the consumer goods industry. The automobile cannot be viewed as only an important consumer good, but also as a product which enabled purchases in distant central markets and the comfortable transport of large amounts of consumer goods. It created the precondition for the focus on large scale entities in the retail trade.

In the decades following 1950, mass motorization strongly contributed to the economic miracle in Western Europe.² Automobile stock rose rapidly. In response to the insufficient road network and the increasing influence of the auto lobby on traffic policy, European countries gradually extended the motorway network, which unburdened the roads and cross-town links and promised fast and comparably safe driving.³ The length of the motorway network in the EU15 countries grew 11-fold during the period 1960 and 1998 from 4600 km to 49000 km.⁴

How the economic sectors heavy industry, transport infrastructure and consumer good industries interact the paper makes clear in a logistic model of the Western Economies (cf. figure 2). The paper is based on research gathered from personal interviews with key actors of the logistic trade, on archive documents and secondary sources.

2. Logistics boosting productivity in Western Economies

The extension of the motorway network has not only served the automobile, but also the rapidity and economy of truck traffic. It gave a decisive impulse to the truck-based logistic systems. In the political debate about expansion of the motorway system, two aspects - the transportation of people and the traffic of goods on the motorways – were viewed differently within European transport policy. In fact, German politics assigned goods transport to the railroad, and thereby pursued a twofold traffic policy: The motorway was mainly built for the automobile. However, this twofold traffic policy was short-sighted, as it did not address the economic rationalizing effects of truck traffic. Moreover, it impeded the development of logistics as a growing segment in the early phase of a service-oriented society: truck traffic decreased the costs and speeded up the transport of goods. In Germany, this aspect was not even considered in the research of economic effects of the motorway until 1970.⁵

In contrast to Germany, in Italy the aspect of rationalization of the goods traffic was one reason for the construction of motorways, and was appreciated as transport “modernization” since the railroad showed very poor performance.⁶ Capital investment in railway modernization focused on the area of passenger transportation, so that rolling material in freight haulage was no longer current. Moreover, the railway could not be integrated into a modern logistical concept of time-based competition, since the freight train did not run on schedule.⁷ In England, the M1 motorway connecting London to Leeds was

¹ Strasser 1998.

² For Sweden see Lundin (2004, p. 303-337). For Italy see Paolini (2005). For Germany see Klenke (1993). For France see Loubet (2001). For Great Britain see Thoms et al. (1998) and Merriman 2007.

³ Mom 2005, pp. 745-772. Ross 1998, p. 86. Gall 2005, Gall 2010.

⁴ Eurostat (2002a, p.1). Data for 1960 from World Road Congress (1969, p.51).

⁵ See literature report by Frerich 1974.

⁶ Bonino and Moraglio 2006.

⁷ Kerwer 2001, pp. 173-216.

planned in the 1950s and constructed in 1959. But the construction of motorways began with detour roads around the cities of Preston and Lancaster so that the cross-roads were cleared and goods traffic was accelerated. Charlesworth 1984 shows in his study the lobby work of the Chamber of Industry and Commerce.⁸

In the past 30 years logistics became a key factor in the process of industrial production in the Western Economies and the distribution of consumer goods. Logistic enabled to constitute a network of suppliers that supported the industrial production and large scale distribution in retail chains. Following effects can be identified. Logistics⁹

- carried out the transport from suppliers to the final production stage relying on transport infrastructure of high quality.¹⁰
- governed and coordinated the flow a material by accompanying flows of information relying on telecommunication networks, especially in the past 15 years on the Internet.
- enhanced the quality of delivery so that the material was delivered in the right amount and at the right time (just-in-time delivery).
- enabled to constitute world wide delivery chains in the context of globalization.

The development of truck traffic along the European motorway network is closely related to the evolution of modern logistical systems. Those evolved in the two main areas of the consumer-oriented economy: in the just-in-time delivery concept for automobile assembly facilities and in the build-up of modern distribution structures in the retail trade for the turn-over of goods in the already developed consumer goods industry. In this way logistics supported the division of labour at the different stages of industrial production. Suppliers could concentrate their production for different customers in large batches and could earn the effects of mass production, of the learning curve and of specialization. Known are specialized suppliers in the car industry, as producers of sun roofs, door locks and light systems. The reliable logistic networks gave incentive to outsource in a further step specialized production to suppliers – an effect that is called in logistic theory the “logistic effect”. All effects together boosted the productivity of industrial production. The transport policy of the European Union supported the development of logistics by expanding the network of motorways and made cross border traffic of trucks without stop possible.¹¹

If one includes the automobile industry into the branch of the consumer goods industry, one can assert the thesis that the consumer-oriented economy is based on modern logistics and vice versa. A consumer-oriented economy is characterized by a differentiated offer of mass customized goods in a consumer market where customers have a large choice of offers. The deliveries of goods are urgent. A rapid change of fashion and models on the consumer goods markets and time-based deliveries to the automobile assembly facilities require transports without delay. In European transport networks, this is only possible via truck, as door-to-door-transports without transfer, while the railway slackens in this system of time and quality competition.

The question concerning the development of distribution systems was put in context with the distribution of consumer goods, and was related to the expansion of department stores and the increasing presence of chain branches within the retail sector. For the first time, scientific marketing methods were implemented systematically in retail. Customer desires were to be scrutinized and, if necessary, sparked. Additionally, agile logistics had to deliver the goods to the store racks in time, in order to avoid empty racks which might cause antagonism and loss of customers, which is very easy on a consumer market that appears to have an almost unlimited offer of goods.

⁸ Merriman 2008, p. 67, Charlesworth, 1984, p. 35.

⁹ Christopher 2010.

¹⁰ For the motorway A6 in Italy see Michele Bonino and Massimo Moraglio, 2006.

¹¹ Stevens 2004. Giaoutzi and Nijkamp 2008.

The stores were supplied by hierarchical distribution systems that were composed of central and regional warehouses where the goods were stored. The warehouses together with the motorway developed to the essential infrastructure of the mass consumption society. For example, consider the motorway M1 in the UK linking London to Leeds. Its section from Milton Keynes (location of the warehouse of Amazon, cf. figure 1) to Nottingham developed to the preferred location for distribution logistics of consumer goods known as “golden triangle”.¹² In the academic theory of logistics, the location of production plants, as well as central and regional warehouses, was researched in order to minimize storage and transport costs and transport to the stores.¹³



Figure 1: Inside the warehouse of Amazon in Milton Keynes in 2009¹⁴

The Western European development program of the consumer-oriented economic system varied to a large degree from the structures of the Eastern bloc. With the exception of secured public or quasi-public sectors, the market economy regulated competition among producers and service providers. The consumer goods industry and especially the automobile industry were very well-developed. The logistics of the developed consumer goods markets could profit from a close motorway network, to built-up structures of external suppliers in the automobile industry, and productive, truck-based distribution structures for the supply of a large variety of consumer goods. The following figure 2 exhibits the logistical structure of the consumer-oriented economy with its important nodes car industry, truck transportation and the motorway network.

¹² Merriman 2007, p. 203.

¹³ ReVelle and Swain 1970.

¹⁴ Communication Amazon.

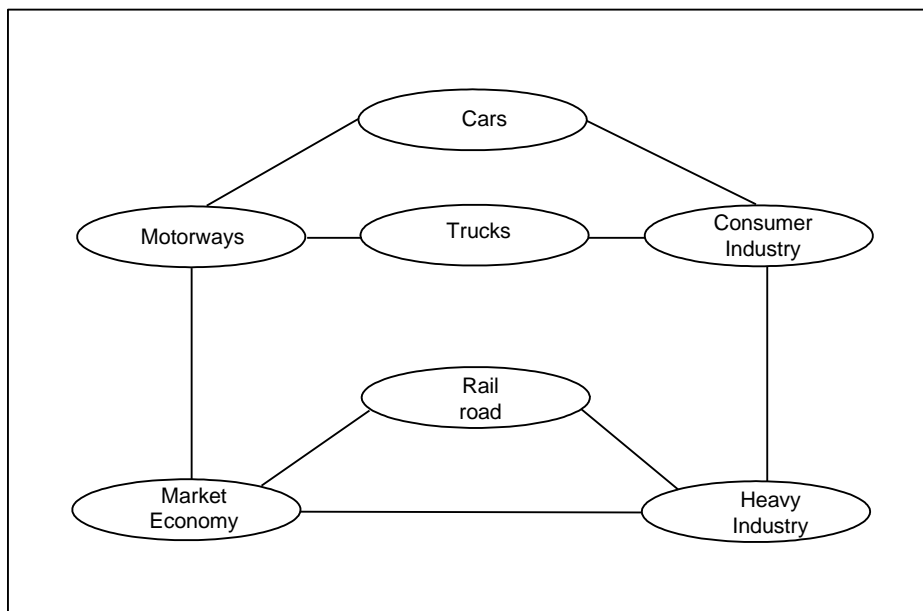


Figure 2: The logistical structure of the consumer-oriented economy.

3. The failures of Communist Logistics

The collapse of the Eastern bloc in the 1990s highlighted the different logistical structures in the East and West. In the following, the differences in transportation, logistics, and economic systems are to be revealed. The deep structure of specialized suppliers is a distinguishing mark of the economies of Western style and contrasts sharply to the structure of the communist economy in the former Eastern Bloc. The transport infrastructure was poor. So just-in-time delivery was impossible. No network of motorways existed, only short and unconnected strips. So no efficient transport by lorry was possible.

The state economy of the Eastern bloc eliminated competition, preferred heavy industry and relied on the railway carry out transportation (cf. figure 3).¹⁵ Since its emergence 175 years ago, heavy industry and railway have been mutually dependent. The heavy industry delivers the rails and the railway transports raw iron and steel blocs. The hauling capacity of railways in the Eastern bloc rose from 82 billion tkm in 1950 to 364 billion tkm in 1980. In Poland in the 1970s, trucks yielded only 19% of transport services.¹⁶ In the 1950s, centralized economies of the Eastern bloc could achieve significant production performance in basic industries and catch up with Western countries in both relative and absolute terms. But the system failed with the production of consumer goods, leading to crisis and stagnation in the 1960s and 1970s.¹⁷ Conglomerates of military and heavy industry (combined works) produced the largest share of consumer goods – merely as an additional service. The production was concentrated in combined works that not relied on supplier structures but produced every stage of production for a final product for themselves, down to the last screw. So only small batches were possible and no effect of the learning curve could be earned and no specialized suppliers could arise. Therefore production performance of consumer goods was only poor. Car production was also weak, a fact confirmed in the GDR by the grotesque delivery period of

¹⁵ Judt 2005, chapter 13.

¹⁶ Dienel 1997, p. 404. Kruszewski 1980, p. 36.

¹⁷ Kosta, 2005, p. 100. Reconstruction performance in the basic industry of the Eastern bloc fascinated many observers. As late as 1974, U.S. economic historian Thomas Hughes enthused, based on propaganda material of the Soviet Union, about the supposedly better adjustment of the Soviet Union's electricity daily load curve compared to the German network in the 1920s, see Huhges 1974, p. 155.

13 years for a Trabant car.¹⁸ The meager car production failed to transfer enough power to the car lobby for road construction to be pushed forward. The road network was in poor condition; since the 1920s, the problem of "lack of roads" had been repeatedly discussed in the Soviet Union, but the problem was far from being solved. As late as 1986, the 27th Congress of the CPSU called for all collective farms to be permanently connected to the district towns via roads.¹⁹ A car culture with service facilities such as workshops, spare parts supply, gas stations and rest areas could not develop under these circumstances. The lack of spare parts caused available transport capacities to fall even further. For example, in Poland in the 1970s, 25% of all truck capacity was disabled due to shortage of spare parts.²⁰ Motorways existed only on short segments – if at all. Ambitious plans drawn up in the 1950s for a system of motorway routes from western Russia to central Europe failed to ever materialize.²¹

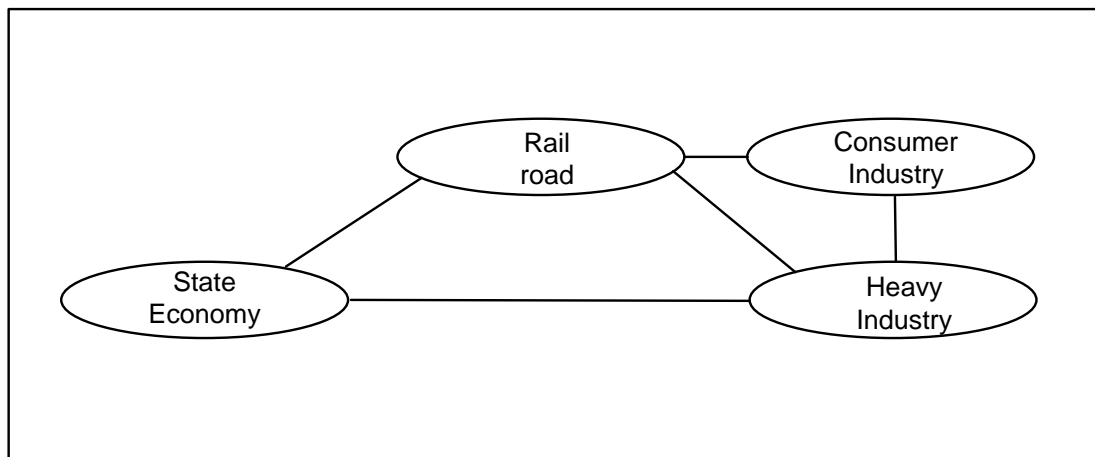


Figure 3: Logistic structure of the Eastern Bloc.

In the Eastern bloc, due to the lack of a developed consumer goods industry with associated truck-based distribution systems, no logistics in the modern sense existed – characterized by speed, precision and the handling of a large variety of goods – but merely the intermittent supply by rail of under-served markets, whereas the quality of supply was of secondary importance in an economy of scarcity. Punctuality of deliveries was disastrous and threatened the efficiency of spare parts supply. According to the “Workers and Peasants Inspection”, transit times of packaged goods by train in East Germany (GDR) were 17 to 58 days in the 1980s. According to the same source, the transport of express goods in the GDR, in the conurbation Karl-Marx-Stadt, had running times between 6 and 8 weeks, with many of the goods lying disorganized on platforms and exposed to the weather instead of stored safely in warehouses.²²

The Eastern bloc was poorly adapted to the logistics requirements of high value goods. In the GDR, many consumer goods were damaged during rail transport due to the lack of shock-resistant packaging.²³ But also in the transport of unprocessed crops from field to processing plant, Eastern bloc logistics displayed serious

¹⁸ Zatlin, 1996, p. 369. See also Zatlin 2007. Zatlin argues that the totally inadequate supply of motor vehicles destroyed public confidence in the economic policies of the SED and contributed significantly to the demise of the German Democratic republic (GDR). For the consumer culture in the GDR see Merkel 1999. See also Kopper, 2002, pp. 79-81. For the construction of new Autobahn lines in the GDR see Dossmann 2003.

¹⁹ Dokumente zum 27. Parteitag der KPdSU, German edition, Moscow, Progress Publishers, 1986, p. 227. Lewis Siegelbaum, 2008, Chapter 4.

²⁰ Mieczkowski, 1980, p. 298. Rosemarie Schneider, 1996, p. 190. About the lack of car culture in Russia, see also documents to the 27th Congress of the CPSU, p. 227.

²¹ Krueger 1961. Dossmann 2003 describes the construction of the motorway Berlin-Rostock in the GDR.

²² Schneider p. 201s.

²³ *ibid*, p. 203.

deficiencies in transport, handling and storage capacity. CPSU General Secretary Mikhail Gorbachev spoke in 1986 of losses between 20 to 30% in the transport chain.²⁴

The figure 3 exhibits the logistic structure of the Eastern Bloc. In this model of communist logistics no nodes of the motorway network, car and truck transportation appear. The model is flat and concentrates on railway and heavy industry where the consumer industry depends on railway transportation.²⁵

The low level of logistical services in the Eastern bloc leads to the conclusion that the communist parties only had a confined view of the infrastructure needs of an economy, due to their Marxist fixation on production. Transportation and warehouse management were viewed as services that were secondary to production, without considering that only sufficient transport and storage capacity allows the supply of the goods required for production:²⁶ Only these infrastructure services enable uninterrupted production and therefore 100% utilization use of production capacities. In addition, these infrastructure services lead to the structure of an economy based on the division of labor, which can exploit the learning curves and economies of scale provided by specialization.

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²⁴ Gorbachev, 1986, p. 51s.

²⁵ Vahrenkamp 2012.

²⁶ Berman and Alvstam 1987, p. 345.

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