

Summary:

”Industry’s distance costs” – a fruitful concept?

The report discusses whether the concept ”Industry’s distance costs” can be turned into a suitable, operationable yardstick for Norwegian transport policy. We conclude that the meaning commonly assigned to the concept transcends the traditional domain of transport policy. The concept offers an enhanced understanding of the distance-related transaction costs incurred by the business community, while also exposing the limited influence of traditional transport policy in this area. The reason is that trading over a distance generates an array of costs over and above the actual transport of the traded goods.

The report also examines the correlation between freight rates and transport distance for small, domestic shipments of general cargo. Initially, we had a presumption that freight rates were determined also by market size, so that transports between the larger cities (with relatively large transport markets) would have lower unit rates than transports between scarcely populated areas. Although we see examples of such effects of market size, our data do not warrant clear-cut conclusions of this kind. However, we see that the dominating forwarders’ use of rail transport between the larger cities result in low unit rates on these relations. A large volume is a precondition for such transport solutions. In addition to this, the report offers a glimpse into the complex process of price formation in the domestic market for consolidated shipments of general cargo.

Distance costs – a conceptualisation

In the first part of the report we have consulted various strands of economic theory in search of inspiration to how physical distance affects the costs of doing business. In relation to the on-going work with the Norwegian Nation Transport Plan it is assessed that the Government aims at leading a *differentiated* transport policy. This means that one acknowledges that urban and rural areas have different freight transport challenges: In the larger cities, the main challenges are perceived to be *congestion related*, while in rural areas *distance related* costs are imposed on industry. Traditionally, Norwegian industry in ”peripheral” locations is perceived to experience a competitive disadvantage due to excessive *transport costs* compared to their more centrally located competitors. When introducing the term *distance costs*, it is important to give this concept an unambiguous definition, in order to avoid confusion. We also adhere to the idea that conceptualisation is the basis for the development of theory: Defining concepts imply elaborations over how they relate to *other* concepts, hence, theory. Consequently, the prime question is: What does the concept distance costs imply that is not covered by the concept transport cost? Without clear-cut definitions,

there is a chance that the concepts will be used interchangeably, thus conveying a view that a firm’s transport costs solely depend on how far from central markets one is located.

Trade theory, which could be believed to be concerned with the costs that actually arise from doing business, abstracts in general both from distance and consequently from the costs of overcoming this distance. We have perceived it as fruitful to define industry’s distance costs as *all costs incurred by geographical separation between the parties in a transaction*. This implies that transport costs are understood as part of the transaction costs originating in the act of doing business over a distance, but we firmly believe that these transaction costs can not be reduced to the pure transport costs. Transaction cost analysis originated on the academic border between economics and law, and is traditionally concerned with organisational aspects of the economic system. Thus, some transaction theorists view transport costs as transaction costs, others view them as production costs.

Within economic geography, an academic field which is concerned with the spatial organisation of economic activity, a research area has been to reveal the importance of regional-specific characteristics giving rise to competitive advantage. From this one may infer that *inter*-regional disparities give rise to spatial transaction costs. It is argued that such regional-specific competitive advantages are embedded in the socio-cultural and institutional qualities of the region, and the inferred transaction costs must therefore originate in the steps taken to *overcome* such interregional disparities.

Following this line of argument, we have landed on a definition of the concept “industry’s distance costs” as all costs that arise from doing business over distance, “the cost of not being there” so to speak. We have categorised these costs as socio-cultural factors, institutional factors, in addition to the more conventional transport costs. The following table provides examples of the different factors, without aspiring to be a comprehensive list.

Table S1: A categorisation of distance costs

Distance costs:	
Socio-culturally related transaction costs	Moral, beliefs, values, religion, language, codes for social conduct
Institutionally related transaction costs	Laws, rules, standards
Transport related transaction costs	Relatively easily quantifiable operational costs related to freight movements

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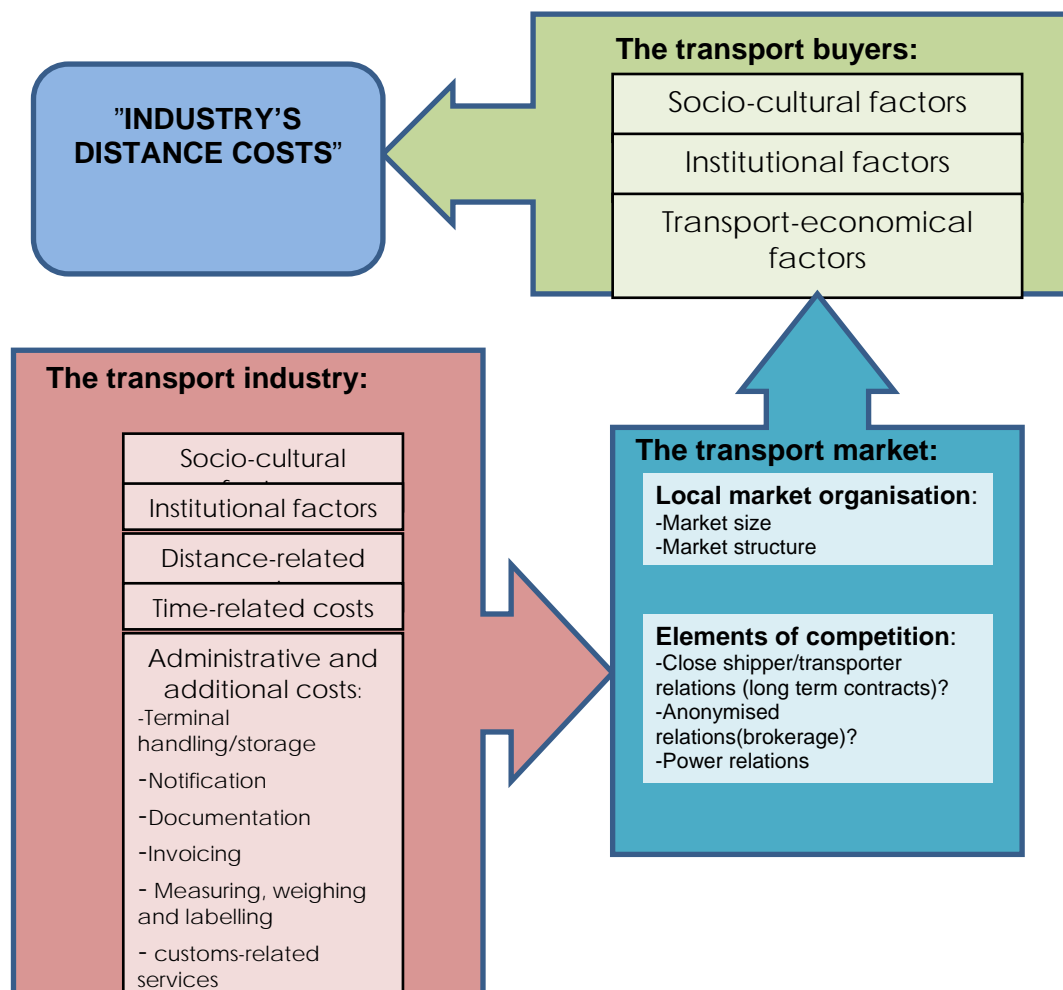
We argue that our definition offers a more comprehensive understanding of the costs incurred on industry when trading over distance, but we certainly also acknowledge that conventional transport policy execute limited influence over such matters. On the other hand, it might inspire to new approaches to the reduction of transport costs: Important knowledge is transmitted through the same social relations as the transactions are carried out through. Thus, transacting is a way of *learning*, and public support for competence-enhancing networks between different actors in the supply chain could be an important step towards innovation and the reduction of transaction costs. The Norwegian Ministry of Local Government and Regional Development has for several years promoted and supported such networks (Regional Development Plans), which could just as well

be envisaged on a sectoral rather than on a spatial level. A recent initiative of the National Roads administration, Forum for Local Freight Transports, may be interpreted as such an initiative.

Although our opinion is that the concept “distance costs” is more comprehensive than the concept “transport costs” for expressing the costs incurred on industry when trading over a distance, it nevertheless will include a host of cost elements that are not easily quantifiable. An example may be the cost of overcoming a language barrier. Thus, the concept “distance costs” covers several factors that commonly are perceived as external to the influence of transport policy. However, transport services are produced through the networking of various actors (forwarders, integrators, shipping companies, hauliers, customs and port authorities, etc.) who experience distance-related transaction costs of their own, i.e. internal to the transport industry. This affects productivity in the transport industry (and, hence, freight rates), and initiatives to reduce such transaction costs could well be a focal point of transport policy.

The figure below visualises the various elements that in our view make up industry’s distance costs: Transport buyers, i.e. “commerce” in general, experience a host of costs induced by socio-cultural and institutional incompatibilities. These incompatibilities, in addition to the pure transport costs, make up the distance-related transaction costs.

Figure S1: Factors determining industry’s distance costs



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Within the transport industry, between the various, networking firms whose efforts are combined to produce transport services, similar transaction costs will be generated. Such cost elements will in addition to the pure time- and distance-dependent transport costs make up the freight rates.

Correlation between transport distances and freight rates

In the second part of this report, we have studied relationships between transport distances and freight rates. The background is that we are uncertain of whether the assumptions that are commonly applied to transport analyses about such correlations are realistic. We find that unit prices expressed as NOK/kg declines with increasing shipment sizes, we see that unit prices expressed as NOK/km declines with increasing distances, and we have a hypothesis that unit prices also decline with aggregate volumes on specific relations. Our interest in studying this in more detail is spurred by fragmented knowledge about long transports not being charged much more than short transports, commodities being transported long detours through several stages of transshipments before reaching its destination, etc.

In this part of the project, we have to a considerable extent relied on the general price quotes of the dominating Norwegian integrators. Such price lists give very rich price information between every postal zone in Norway, and are therefore very detailed concerning geographical variances in transport costs. The drawback is that the rates are unrealistically high, but the transporters have willingly informed us that discounts in the size of 70% on these general rates are not uncommon. Another drawback is that the general rates are geographically symmetrical (outbound and inbound freights on the same relations are quoted the same price), and do therefore not reveal how directional imbalances affect price formation.

Our conclusion after this round of studied hundreds of freight transport relations is that there is a high correlation between transported distance and the general freight rates of the large integrators and transport companies. A limitation of the project is that we have mainly studied transports going out of Oslo. Still, we had expected to find more clear-cut indications that freight rates on relations with large aggregate freight volumes (like between the country’s major cities) are generally lower than on relations between “peripheral” areas. The study does not warrant such general conclusion. When we find that the freight rates offered by the larger integrators between the major cities are exceptionally low, we have reasons to presume that this is due to the large utilisation of rail transport on these relations, and we know that this helps to reduce freight rates. There is a long-standing argument in Norway that competition from rail freight helps to keep also road freight rates low, but we will argue that this argument has more actuality now than at the time it was firstly launched. Since then, Norwegian rail freight transport has gone through a series of changes, and now constitutes a competitive transport alternative on several major relations. Our freight rate information in this project indicate that the integrators’ cooperation with the major Norwegian rail freight undertaker as subcontractor on certain major relations helps keeping freight rates on a low level.

To our knowledge, the discounts admitted by the transporters to regular customers are given as a percentage reduction of the general rates, on all relations. Consequently, price differentials between different relations remain un-altered. In our interpretation, this means that the general rates paint a realistic picture of rate differences between different relations, although the actual rates are unrealistically high.

Data on actual freight rates are collected from transporters and shippers alike. Our experience from this project is that both parties have been very open towards supplying such information, and that this way of gathering information is better and more cost-effective than estimating prices on the basis of transport costs, a method that is commonly chosen in transport research.

In order to study the relationship between aggregate freight volumes and freight rates on particular relations, we wanted to compare freight rates with data from Statistic Norway’s Lorry Survey. However, the Lorry Survey is not statistically reliable in the municipality level, so we used the “rurality index” of Johansen *et al* (2006) as a proxy for the activity level in the municipalities (and presumed relative size of aggregate freight volumes). The comparison between freight rates and transport distance returned a better fit than the inverse correlation between freight rates and rurality index. Still, the comparison showed that high freight rates adds to the misfortune of many rural municipalities

Our knowledge of how directional imbalances is converted into differentiated freight rates remains fragmented: While a transporter in the rural municipality of Flå is able to pass on the extra costs resulting from small inbound volumes (and hence a high degree of empty return runs) to his customers, an interviewed industry representative at Lyngseidet in Northern Norway claimed to profit on low freight rates on southbound transports due to strong competition between transporters for these loads. Still, at least commodity producing companies will normally depend on transports in *both* directions, as the in-transports of input factors will counter the outbound flows of fabricated goods, especially if one presume that both input factors and fabricated goods are traded on central markets. For the two commodity-producing companies in our survey, this was absolutely the case, but as input factors were mainly purchased “Free delivered”, freight costs on inbound goods were not explicitly visible.