Case Studies on Transport Policy 4 (2016) 29–37

Contents lists available at ScienceDirect

Case Studies on Transport Policy

journal homepage: www.elsevier.com/locate/cstp

Same–same but different? A comparison of food retail and distribution structures in France and Germany

Saskia Seidel[a,*], Corinne Blanquart[b], Verena Ehrler[a]

[a] DLR Institute of Transport Research, Berlin, Germany
[b] IFSTTAR, Production Systems, Logistics, Transport Organisation and Work—SPLOTT, Paris, France

ARTICLE INFO

Article history:
Received 2 December 2014
Received in revised form 25 August 2015
Accepted 14 September 2015
Available online 15 September 2015

Keywords:
Freight modeling
Food retail
Retail supply
Distribution
Data availability

ABSTRACT

When modeling international freight transport, it is tempting to assume logistical structures for national markets all over the world are almost identical, at least when it comes to specific market segments, e.g. food or fashion. This is not the case, though. Despite several parallels, there are some fundamental differences which are reflected in different logistics food distribution systems and which result in different freight transport demand.

The DLR Institute of Transport Research in cooperation with IFSTTAR France conducted a detailed empirical analysis of the food retail market in France and in Germany. Based on the data collected, the differences in transport demand structures for the same product are outlined. The implications of such differences for the requirements of international freight transport modeling are discussed in conclusion.

1. Introduction

With the continuous spread of the same labels across high streets all over the world, one could expect to encounter similar logistical retail structures everywhere, at least for similar market segments, e.g. food or fashion. Therefore, when modeling international freight transport, it is tempting to assume almost identical logistical structures within national markets and for the same market segments all over the world. However, this is not the case. Despite a globalization of brands, distribution structures within industry still vary significantly from one country to the next and even on a regional level such as Europe. As a consequence, different logistics distribution systems with different freight transport demand can be found.

With its high number of selling points, its important revenue volumes and its relevance for every-day life, the food retail market lends itself as an interesting market for a closer analysis of the impact of retail structures on distribution logistics and transport demand. Therefore, and against the described background, this paper takes a closer look at the food retail industry's structures, using the example of two neighboring EU countries, France and Germany, as they are among the European countries with the highest revenue in food sales.

Like most other retail industries, the food sector is characterized by growing market competition and increasing cost pressure. At the same time, fostered also by online experiences, customers' expectations towards instant availability of an interesting and diverse product assortment are rising continuously. As a consequence, the necessity of optimizing the efficiency of processes and logistics structures is growing, with retailers having to cope with the complex mixture of supply chains of local, regional and global sourcing at the same time.

This complexity of today's retailers' businesses is often further increased by their geographical spread. Furthermore, growing awareness of environmental concerns, demand for sustainable products and the need to optimize the efficiency of processes in order to keep costs at a minimum add to the challenges that the retail sector faces These are further enhanced by more transport-specific issues such as congestion, resulting difficulties to time deliveries and increasing energy prices, namely fuel.

These challenges and the competitive environment of the retail industries have resulted in distinctly different spatial patterns, both on an industrial as well as on a geographical level. This differentiation is due to the fact that retailers try to differentiate themselves from their competitors through their network structure, and that they try to optimize their logistics efficiency: "Retail and service networks are developing and as competition is increasing in the retail environment, the best location is one of the most critical criteria of network performance. This location criterion deals not only with the single store location but also with the global network location." (Cliquet 1998, 206).

* Corresponding author at: Rutherfordstr. 2, D -12489 Berlin.
E-mail address: saskia.seidel@dlr.de (S. Seidel).

http://dx.doi.org/10.1016/j.cstp.2015.09.001
2213-624X/

Based on an analysis of the structure of food retailers in France and Germany (Section 3), the present paper investigates their spatial distribution patterns, including logistics hubs, distribution centers and warehouses. These analyses build the basis for the following comparison of distribution structures of the French and German food retail industry. The paper closes with a summary of the findings and an outlook of the impact of the findings on international freight transport modeling and its related data sourcing.

2. Method

This research is based on empirical data, both existing (TradeDimensions) and the authors' own (empirical research in the format of structured interviews). In order to achieve a comparable data basis for the two markets Germany and France, TradeDimensions (2012) data was chosen as it is one data-source that contains data for both countries, covering about 92 percent of food points of sale (POSs) and distribution centers (DCs) and wholesalers linked to food POSs in Germany, as well as about 59 percent of POSs in France. The 92 percent for Germany include about 36,000 food POSs and 1163 related DCs and wholesalers. The 59 percent for France cover data of about 18,470 POSs and 360 DCs and wholesalers. Whilst all locations of big retailers are captured, it is important to bear in mind that small-scale supermarkets or "superettes" are often independent and therefore can be missing in the TradeDimensions data.

The TradeDimensions data is organized in three excel-spreadsheets (for France and Germany each). One table lists the POSs and describes them by using 39 different variables, including a variable for the type of format of the POS. A second excel file of the TradeDimensions data-set lists all DCs and wholesalers. The third table links the POSs to the warehouses by using an individual ID per POS, DC and wholesaler. This way, it is possible to identify each DC and warehouse supplying an individual POS. Then, using the information of the three tables, an adjacency matrix has been created for France and Germany, to describe the link between the POSs and the distribution centers in more detail (Bahoken et al., 2014).

Based on these data analysis, individual retail chains (rather than retail groups) and their spatial distributions were analyzed. In a next step, retailers' locations, relations between outlets and wholesalers, internal and external warehouses/distribution centers were investigated. For this purpose, locations of POSs and their related DCs were geo-referenced and visualized by the means of ArcGIS. Subsequently, the impact of these structures on the related freight transportation structures were described for France and Germany separately, followed by a comparison of their characteristics. The TradeDimensions data analysis was complemented with empirical research in the form of interviews, which were conducted with food retailers in France and Germany. All major food retailers in both countries were requested for an interview. In total, 23 interviews were held, of which about 15 were conducted in France and eight in Germany. Most of the interviews, held in the period from January to April 2012, were conducted on the phone. Questionnaires for France and Germany were identical. The interviews covered the full range of food retail formats, i.e. hypermarkets, supermarkets, discounters and others.

The following paper reflects this research work and compares the distribution systems in food retail in France and Germany. Differences of distribution structures and their impact on transport demand are discussed. The text closes with an analysis of the impact of such differences on the data sourcing for transport modeling and an outlook on what is needed in order to improve data sourcing for freight transport modeling.

3. The food retail systems in France and Germany

3.1. Characteristics of the food retail system in both countries

The increase in complexity of structures described in the introduction, combined with rising cost pressure and customer expectations in the food market, is a process that has been going on for a long time. The efforts to further improve distribution structures of food supply chains started about a hundred years ago: The first logistics initiatives took place early in the 1920s, when branch firms implemented a network of regional warehouses for the procurement of their stores. The first steps for creating these networks were taken by major food retailers (Paché and Crespo de Carvalho, 2002). With retailers usually being the last element prior to the end-consumer in an entire supply system, they are challenged with the need to align their logistics system to those of their suppliers and intermediaries in order to achieve efficient stock management and delivery systems. Consequently, big retailers began to build distribution centers where goods were bundled before their delivery to the points of sale and retailers' warehouses became the major node of the traffic and transport patterns. In the 1990s the organization of food distribution changed from mainly direct store deliveries to a just-in-time format (Fernie et al., 2000), enabled by the advancing developments and use of IT, forecasting and just-in-time deliveries. The downstream actors of the sector, retailers, progressively imposed the location, the volumes and the frequencies of the deliveries to rationalize and optimize the flows and to obtain a lasting competitive advantage (Blanquart et al., 2012). This centralization, combined with the outsourcing of services formerly provided in-house contributed to the creation of a market for third party logistics providers (Fernie et al., 2000). The establishment of delivery structures through retailers' central and regional distribution centers seems complete nowadays.

In theory, one would expect that food retail structures of France and Germany, two adjacent European countries, should be similar to each other. In reality though, several differences can be found instantly.

When comparing their food retail market structures, differences can be noticed already in their framework and basic characteristics (Table 1).

There are 21 percent more grocery shops in Germany than in France. In line with this, the number of employees is higher in Germany. It is noticeable that, despite these values, turnover in food retail is much higher in France.

Furthermore, there is a difference in the consumer habits between these two countries when it comes to the budget spent on

Table 1
Food retail – framework data 2012.

Country	Number of inhabitants in millions	Number of grocery shops/outlets	Number of employees in millions	Food turnover in billion €
France	65.43	31,970	0.5	183.7[b]
Germany	81.8	38,866[a]	1.2	161.7

[a] Without drugstores and specified stores.
[b] Without specified stores like bakeries or butchers. Source: HDE (2013), EHI Retail Institute (2013), Nielsen Company (2014), Eurostat (2013), INSEE (2012).