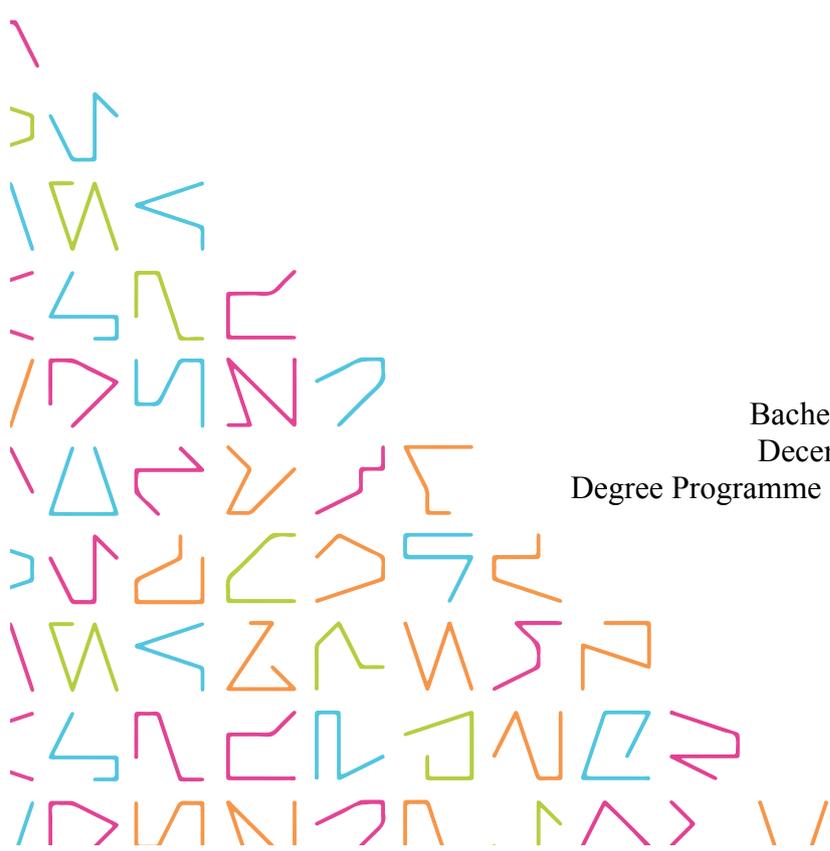


# OUTBOUND TRANSPORTATION MANAGEMENT ANALYSIS

Case Study: Fox Head Europe

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## **ABSTRACT**

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This thesis was made as a case study for Fox Head Europe. The purpose of this thesis was to find a more cost effective and efficient way for FHE to transport their merchandise to their customers.

The main objective of this thesis was to investigate if the carriers used were the best possible choices for the company in terms of cost and quality of service. The aim was to find out whether using these carriers was truly in the best interest of the company and their customers.

Secondary data and an open interview were used to compare the two main carriers used by FHE. The secondary data analyzed included the prices for each carrier, their transit times, and volume statistics. Open interviews with 6 customer service employees were conducted to ascertain how the customers felt about the carriers.

The results showed that while the main carrier was indeed the cheapest option in many countries in Europe, also the service level had room for improvements. The main carrier used had 10% of delayed deliveries, of which they caused almost half. In the interviews the majority to the customer service employees felt that there were much more issues with the current carrier in use than with the previous one. Half of the customer service employees would prefer switching back to the old carrier.

The findings indicate that the company should do something to better their outbound transportation choices. The service quality of the main carrier used for small shipments needs to be addressed with the carrier to set new standards for performance. If the carrier complies and makes efforts to improve their services, the carrier can be used in the future. If however the carrier makes no changes to their current service quality, other carriers with better quality services should be looked at.

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Key words: logistics, transportation, outbound transportation

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**GLOSSARY**

TAMK	Tampere University of Applied Sciences
FHE	Fox Head Europe
CSCMP	Council of Supply Chain Management Professionals
KPI	Key performance indicator
LTL	Less than truckload
B2B	Business to business
B2C	Business to customer
UPS	United Parcel Service of America
MX	Motocross

# 1 INTRODUCTION

## 1.1 Research Background

Transportation is not only one of the most visible aspects in logistics management; it is also a major operational cost factor. Organizations typically end up spending approximately half of their logistics costs on transportation management (Bhatnagar 2009, 133; Goldsby & Martichenko 2005, 27). Accordingly, making a more efficient and effective transportation management system has the potential for a company to save money, an underlying goal of most transportation managers. Unfortunately cost-cutting expectations originate from senior management, and do not always take into consideration the impact lowering transportation costs can have on other aspects of the supply chain. For example, saving on transportation costs can have an impact on purchase planning, inventory costs, and customer service.

Determining the right transportation company(ies) for a business is not only about finding the cheapest one(s), it is more about matching requirements with capabilities. While naturally cost has a major impact on which transport carrier a company will choose, there are other very important aspects to consider. Not only in transportation, but also in other purchases, cheap is often synonymous with low-grade or poor quality. This is not always true though, and there are many situations when quality services and products are obtained at low cost. However in many cases the product or service is cheap for a reason. This needs to be kept in mind by requisitioners and procurement officers when developing statements of requirements, going to market and technically evaluating potential carriers as business partners. A poor quality carrier will end up costing the company in extra work, and importantly will undermine the reputation of the company, as customers will not be satisfied with the service provided. (Goldsby & Martichenko 2005, 29)

For many companies customer service is closely related to transportation. Delivering the correct products to the right place at the right time is what customers expect, and if this expectation is not met, customers will not be satisfied, resulting in poor customer service levels. In a study conducted by United Parcel Service (UPS), online customers are 58% less likely to make a purchase if the transit time seems too long and 43% of

customers base post delivery satisfaction on whether the products were delivered on time (UPS 2016). So, how should a transportation carrier be chosen? The company should look closely into the transportation carrier's service level metrics. What are their capabilities, how long are their lead times, what percentage of boxes are delivered on time, how many boxes are lost or damaged? This is something companies must keep monitoring regularly, even after choosing a carrier. If the carrier fails to meet key performance indicators (KPI) and performs below expectations based on the contract, corrective action needs to be taken, including the possibility of looking for a more reliable carrier. Not only is this in the best interest of the company, but importantly it is also in the best interests of the end customers. In this thesis the focus will be on outbound transportation management at FHE and the impact it can have on customer service.

## 1.2 Case

Fox Head is an American company, founded in 1974, that produces clothing for motocross (MX) and mountain biking, and the lifestyle clothing market. Fox is one of the best know and bestselling brands of motocross clothing in the world, with numerous sponsorship agreements with some of the best MX riders around the world. Fox focuses on developing race gear that gives riders not only maximum comfort and ease of movement but also the utmost protection needed for targeted high-risk sports. Fox products are sold in over 50 countries around the world through distributors and partners. The Fox Head Europe (FHE) headquarters is located in Barcelona, Spain, and is responsible for all the sales and transportation within Europe.

While doing a full-time, continuous internship at FHE for five months it was observed that a lot of time went into monitoring shipments and dealing with carriers. The main responsibilities of the internship were tracking shipments, creating returns, and organizing shipments to and from a shoe repair shop FHE subcontracts to repair/replace motocross boot soles. During busy periods the volume of work restricted focus to these three main areas. There appeared to be considerable number of issues with the carrier FHE utilises for an estimated 80% of their outbound shipments. Were there better options for FHE? This carrier was usually the cheapest cost option for shipments, resulting in a high percentage of the workload; however, with a seemingly high number of delivery issues, was the cost parameter the best gauge of best value for money (BVM)? Accordingly, the Operations Manager, Mr. Joan Roca, was approached regarding a proposal to

look into FHE's outbound transportation operations to whether this carrier was indeed the cheapest option considering various service level factors. Acknowledging similar observations had been previously made by other staff it was agreed a study could be conducted.

### **1.3 Research Objectives**

The purpose of this thesis is to find the most efficient and cost effective way for FHE to move their merchandise between their warehouse in the Netherlands and their customers all over Europe; both pricing and service level will be factored in. Currently FHE uses four different carriers to transport goods to customers; however, the research will focus primarily on the two carriers used for shipments of under 25 boxes. Which carrier is contracted for each shipment depends on the size (quantity of boxes) of the delivery and the delivery location.

The aim of this thesis is to evaluate which carrier is best at meeting the requirements of FHE operations. The two main shipment under 25 boxes carriers will be evaluated against each other to determine which is the cheapest and whether the cheapest option is indeed the best option. Evaluation will determine if the predominant and cheaper carrier issues outweigh cost implications making it more cost effective to switch to another carrier with a better service level, but a higher base cost. Overall both the company and customers need to be satisfied, and the case study of this thesis will support a conclusion regarding whether FHE should continue as per the status quo, or take action to increase base transportation costs while increasing the service level.

### **1.4 Research Methods**

In order to work out if FHE should continue using the perceived cheaper base cost carrier, it needs to be established which carrier is indeed the cheapest carrier. This will be done by comparing the prices of the two carriers in terms of (1) parcel deliveries, (2) returns, and (3) LTL shipments. The first two price comparisons (1) and (2) will be made by country for the eleven countries that FHE regularly delivers to. For (3) LTL shipments, the price comparison will be done in the eleven countries, factoring in every

postal code that FHE regularly ships big shipments; those consisting of one to twenty pallets. In addition to the two carriers used for smaller shipments, the LTL shipment price comparison will include two other carriers that are only considered for bigger shipments.

After establishing which carrier is cheapest to where, the service level of the two small shipment carriers will be analysed. Firstly the carriers' transit times from FHE's Holland warehouse to the nineteen different European destination countries will be compared. Secondly the percentage of delays both carriers incurred since the beginning of January 2016 to the end of October 2016 will be examined. Thirdly, based on volume statistics provided by the carriers it will be determined which party was responsible for respective delays and the main reasons. Lastly, the opinion of the end customers and customer service employees at FHE will be considered.

## 2 THEORETICAL FRAMEWORK

### 2.1 Supply Chain Management

Supply chain and its management are still fairly new concepts, which is why there seems to be no agreed on definition that everyone accepts. (Skjott-Larsen, Schary & Mikkola 2007, 20-24; Goldsby & Martichenko 2005, 12) Professionals of different educational and work backgrounds seem to have different ideas on what processes are included and how it can be differentiated from logistics management. Supply chain management is defined by CSCMP as “the planning and management of all activities involved in sourcing and procurement, conversion, and all logistics management activities. Importantly, it also includes coordination and collaboration with channel partners, which can be suppliers, intermediaries, third party service providers, and customers.” (Vitasek 2013, 187) Supply chain management can also be defined as “The coordination of production, inventory, location, and transportation among the participants in a supply chain to achieve the best mix of responsiveness and efficiency for the market being served” (Hugos 2006, 4) While in logistics management activities are usually performed within a single firm, supply chain management activities are performed by several organizations - usually involving at least suppliers, manufacturers, warehouses, distribution centres, and retail outlets - working together to balance everyone’s different needs and demands. (Simchi-Levi, Kaminsky & Simchi-Levi 2004, 1; Lai & Cheng 2009, 41)

As mentioned above, supply chain management is the collaboration between the different participants within the supply chain all working towards the same goal: fulfilling the needs of the end customers while reducing inventory and operating expenses (Jespersen & Skjott-Larsen 2005, 13; Hugos 2006, 41). Every supply chain can be different and some are more elaborate than others but the usual stakeholders in a supply chain are the suppliers, the focal company and the customers. More extended supply chains can however also include the supplier’s suppliers and the customer’s customers. (Skjott-Larsen et al. 2007, 20) The stakeholders involved usually have very different and sometimes even conflicting needs, yet they all need to make decision individually and collectively about the following: what should be produced and how much? How inventory should be held and at what stages? Where should different facilities be located? Is there a need to

build new facilities? How should products be moved with the supply chain? How much information should be shared? (Hugos 2006, 5-6)

This collaboration and working together with the different players in a supply chain is something that is easy to preach by professionals but much harder to do in practice. In their book, *Lean Six Sigma Logistics*, Goldsby and Martichenko explain how to get sustainable results. A company needs to first have their own organization running perfectly before they should start with outside organizations. According to them this can be the hardest part of establishing a smooth integrated supply chain. It is far easier to bark orders at external organizations but, if everything is not connected together, the results will not be sustainable. However, if the company manages to get everything to sync up first inside their organization, then in the rest of the supply chain, the results could be a huge competitive edge for the company. (Myers 2010) Once a well running, collaborating supply chain has been established, there are fewer risks for competitors to come in the way. This is because once a working partnership is created, parties are less likely to make deals with external parties and will remain loyal even when temptations come along. With these kinds of supply chains an organization can compete in the market in a completely different level, supply chain against supply chain. (Goldsby & Martichenko 2005, 11-13)

## **2.2 Logistics Management**

Logistics management is a big part of the supply chain management within an organization. Logistics management is defined by Council of Supply Chain Management Professionals (CSCMP) as “that part of supply chain management that plans, implements, and controls the efficient, effective forward and reverse flow and storage of goods, services and related information between the point of origin and the point of consumption in order to meet customers' requirements.” Along with transportation management logistics management usually also includes warehousing, inventory control, order fulfilment, material handling, packaging and the planning of supply and demand. In some companies also procurement and sourcing, production planning and scheduling, reverse logistics, and customer service are included in the logistics management tasks. (Vitasek 2013, 117) According to Ballou (2004) the logistics activities can be sorted into two groups, primary and supporting activities. There are four primary activities, which help

most in the logistics management goals and objectives and represent the biggest costs. Ballou names them as customer service, transportation, inventory management, and order processing. The supporting activities are not necessary a part of every organizations logistics activities but support the primary activities in reducing costs and improving service. These are for example warehousing, purchasing, material handling, packaging, production scheduling, and information maintenance. (Lai & Cheng 2009, p.36)

The primary activities in logistics management are also considered the core logistics elements. This is because they crucial in completing logistics task and usually account for the most of the costs associated with logistics management. (Lai & Cheng 2009, 39)

- *Customer service* is all about getting the right product in the right quantity to the right location in good condition at the lowest cost possible. If this is not done correctly it directly affects the customer's idea of the company and the poor service they received. The unsatisfied customer will most likely not come back and might even cause other potential customers to stray away from the company if the bad experience is shared. If, however, everything goes smoothly and the customer is satisfied, they are more likely to return and encourage others to buy too as the service was deemed good.
- *Order processing* is considered one of the core elements because the activities involved in processing of sales orders are connected to when the customer can receive their shipment. These days more and more customers expect to receive their right away and do not want to wait for multiple days (Burnson 2016). This causes companies to struggle to shorten the amount of time it takes from the moment when the customer decides to make a purchase to when the shipment is delivered. If a company can achieve this with at a low price, people are more likely to buy which puts the company in front of other companies who cannot provide the service.
- *Inventory management* is about the company's ability to predict customer demand and potential rises in order to keep the stock levels as low as possible. Low stock levels save money however if they are too low the company will not be able to meet customer needs which will end up costing the company current and potential customers. The company needs to be able to forecast fluctuations

in demand and know how much inventory they should be keeping at which times and when to replenish stock.

- *Transportation* is crucial for all companies to move materials or finished products from one phase of the supply chain to another. Companies need to be on top of what needs to be moved where and what is the most efficient way to move it. This involves for example deciding the mode of transportation, routing, and lead time, so everything is where it needs to be when it is needed. If the company has issues with this the whole supply chain will be affected and costs are bound to go up. (Lai & Cheng 2009, 39)

The goal of logistics can be stated in many ways. The most basic description is found in the 7 R's of logistics: delivering the right product to the right customer at the right time in the right place in the right condition in the right quantity at the right cost. (Lai & Cheng 2009, 43) The goals of logistics management can also be described as increased efficiency, improved customer service, increased sales and improved relationships. In order to achieve these goals, logistics managers need to think about each goal individually and then collectively. Customer service can be improved by making sure that promises to the customers are kept, shipments are delivered on time and in good condition. Logistics management affects sales by either missing a sale opportunity because of lack of stock or late deliveries, or catching unexpected sales opportunities due to well planned logistics processes. Relationships with carriers should always be open and cooperative. Most companies prefer sticking to one or two different carriers so they can get better rates due to higher volume of shipments yet can still operate if one carrier is unable to perform. Last but not least, developing a cost effective transportation plan while reducing other costs can increase efficiency within the logistics management processes. (Bhatnagar 2009, 89-93)

Too many companies only focus on the reducing the cost of a single logistics process without taking into consideration the effect it will have on the others. Instead companies should focus on reducing the total cost of logistics. (Bhatnagar 2009, 95; Lai & Cheng 2009, 37) Logistics costs in an organization usually include costs such as inventory carrying costs, lot quantity costs, order processing costs, warehousing costs, transportation costs, and customer service costs (Bhatnagar 2009, 95). In most organizations the transportation costs represent almost half of the total costs in logistics management, while

inventory costs are the next biggest costs amounting to around one fifth of the total logistics costs. (Feemster & Tillman, 2010) Instead of just trying to lower the transportation cost, which will inevitably increase inventory costs, an organization should look into ways to decrease the total cost not just one cost. An organization should always keep in mind the trade-offs in logistics and figure out which ones suit the company and their target market the best.

### **2.3 Transportation**

Transportation management can be defined as the movement of goods from one place to another as it moves from the supplier to the final customer (Bhatnagar 2009, 133). Transportation management includes outbound transportation management, which refers to the management of transportations from company to customer, and inbound transportation management, which in turn is the management of transportations from supplier to company (Lai & Cheng 2009, 38-39) Transportation is an important part of the supply chain as it is not very common that goods are produced in the same place they are sold. Transportation allows goods to come a long way from suppliers, in sometimes completely different continents, to distribution centres from where they continue their journey to stores and final customers. Sometimes however the customer is not happy with the product and they want to return it in which case transportation is needed in reverse, from end customer back to company. Not only finished goods are being transportation, sometimes raw materials, or works in progress also need to be transported to the next process in manufacturing, any time even a small component of the final product needs to be moved from one place to another it part of transportation management. (Bhatnagar 2009, 133)

There are usually at least 3 participants involved in moving goods: the shipper, the carrier and the consignee. The shipper is the one that want to move the goods, the carrier is the one doing the actual moving and the consignee is the one who will receive the goods. From a wider perspective also the government and the public could be considered as participants in transportation decisions. The shipper and the consignee both have the same goal; transport the products as fast as possible for the less amount of money as possible. The carrier however is more concerned about delivering as many shipments as possible with the least amount of effort but for the greatest profit. The government can

impose regulations on transportation, for example regulating the amount of time truck drivers are allowed to drive without breaks, or even regulating the tariffs a carrier can charge. The government is most interested on the effect transportation has on the economy of their country. The public is more concerned about the impact transportation has on their lives. They want it to be cheap and accessible, however, they are also concerned about how it causes harm to the environment in the form of pollution and excess traffic that can cause annoying traffic jams or even dangerous accidents. (Bhatnagar 2009, 135-137)

The transportation part of the logistics processes one of the most visual parts as everything has seen deliveries being made, UPS cars, trucks on the highway, trains with bulk shipments, and some might even have seen a cargo ship. (Bhatnagar 2009, 133) There are a total of 5 basic transportation modes being used by companies all over the world: road, rail, water, pipeline, and air.

- *Water transport* is the oldest mode of transport; this can be seen in the fact the biggest historical cities were always built next to some sort of body of water. Water transport is cost effective and allows for the shipment of huge amounts of goods but it is also slow and access to a port is needed.
- *Rail transport* was commonly used for intercity shipments as in most places cities were connected with rail networks. Rail transport can be cost effective if large volumes or quantities need to be transported over long distances, however it does not offer the same flexibility as road transport.
- *Road transport* is one of the most used modes of transport due to its flexibility, availability and speed. It is best suited for small shipments that need to be transported for short distances. Roads lead to just about everywhere now a days and with the age of e-commerce customers are used to getting their products right to their home in little time. This is why most of the shipments made from distribution centres to customers are made with road transport.
- *Air transportation* is the newest mode of transport and commonly is not utilized as much as the other modes. This could be because it is expensive and not as available as other modes, additionally the capacity of one aircraft is limited to

little shipments. However it does offer the quickest deliveries, which makes it most suitable for small usually more valued shipments that are in a hurry.

- *Pipeline transport* offers a low cost and frequent mode of transportation for a limited customer base, as the transported products need to be in the form of gas liquid or slurry. (Bhatnagar 2009, 138-141)

As not all modes are suitable for all needs and purposes, companies need to decide for themselves which mode suits them best. The company needs to take into consideration their needs and the needs of their customers. Also the type of products and the amount of products they need to transport will impact which mode of transportation suits best, as different modes are best suited for different products and quantities. The whole idea is to get the right products in the right amount at the right time to the right place, at the lowest price possible. (Goldsby & Martichenko 2005, 10) So the company should look into ways they can achieve this. After the company figures out which mode of transportation is suited best they can start looking at different companies that provide these services at a cost that is good for the company.

Not only is transportation the most visible part of logistics but it is also the biggest single cost in logistics. Most organizations use around half of the total logistics costs on the transportation of goods. (Goldsby & Martichenko 2005, 27,29) Out of the total money spend on transportation by companies around the world the majority cost comes from motor transportation (Blanchard 2010, 79). In fact road freight transport per capita increased by almost 180 percent in Europe in the 30 years between year 1970 and 2000 (Jourquin, Rietveld, & Westin 2006, 114).

There are several factors that contribute to the total cost of transportation, these are the following: distance, volume, density, handling and liability. Distance is one of the biggest contributors to the price as it influences directly the amount of fuel and labour hours needed to make a delivery. If the distance between the collection address and delivery address is short the price is be lower than if the distance is longer. Some transportation companies give different rates for different postal codes within a country and others rates per country. However if the delivery address is in an area of the country where deliveries are not often made and outside of the bigger cities they will impose a remote or extended area surcharge to the base rates. Another factor contributing to the price of

transportation is volume and density, referring to the amount of boxes and the weight and size of the boxes. Some companies will also add an extra fee if special handling equipment is needed like a tail lift to unload and load pallets. (Bhatnagar 2009, 142)

Once the company has determined their mode of transportation and the possible costs it comes with, they need to work together with their chosen transportation company or companies to build a relationship that can be mutually beneficial, or better yet a partnership. In a partnership, the companies involved should take into consideration also the needs of others. For example the company can commit a certain amount of shipments for which they will use carrier and in return the carrier can give preferred rates to the company. This both companies benefit from the partnership. (Blanchard 2010, 84; Goldsby & Martichenko 2005, 31) If a company becomes the main client of a transportation company they might be entitled to receive extra benefits. Some transportation companies will treat the parcels of said company as priority or will even dedicate a certain amount of fleet just for that company. This allows for more efficient and certain deliveries as the service provided will be better than if the company was to just randomly use different transportation companies. (Goldsby & Martichenko 2005, 31-32)

Communication is always key in partnerships. Open communication can lead to better ideas and practices that allow both parties to stay satisfied. An example of this could be for example if the carrier wishes to increase the rates, the company can ask them why they feel a need for it and maybe there is something that they can help to decrease expenses of the transportation company. (Blanchard 2010, 85) Another way the company and carrier can work together is if company looks into where they are shipping the most and how often, this way there might be a possibility to consolidate shipments from less than truckloads to full truckloads. Even with a good partnership in place the company should perform monthly and yearly measurements on costs in order to keep all transportation costs in check. (Blanchard 2010, 79-80) In conclusion, to gain sustainable savings in transportation costs companies should work together with their transportation company instead of just trying to get the lowest rates possible. If a company is only concentrated on finding the cheapest possible option in most cases it will only lead to unsatisfied customers and need for more stock. (Goldsby & Martichenko 2005, 31)

As transportation is one of the biggest and most visible costs in logistics, most companies try to cut down the costs without thinking about the effects it could have. Transpor-

tation companies that cost less, most likely cost less for a good reason. These companies might have less equipment to handle their shipments or out dated equipment with poor management, also the drivers might be less qualified and less reliable. This all can cause more failed deliveries, more damaged or missing boxes, and more late deliveries which all affect the customer and their satisfaction. (Goldspy & Martichenko 2005, 29) And for most customers out there the most important thing is that the product is delivered on time. (Blanchard 2010, 90) Even if a company would not be overly concerned if a few customers were unhappy about receiving shipments late, they do not take into consideration the costs of fixing the mess of missing, damaged or late deliveries. If something goes wrong with a delivery someone inside the company needs to work on fixing it. The employee needs to spend time tracking the delivery, contacting the carrier and if this happens often then it will take many man-hours a week just managing the mistakes this low cost carrier is making. These man-hours take away from other tasks the employee could be performing. So if one employee uses even 2 hours a day on delivery issues and the hourly salary is 9 Euros, the company is paying 90 Euros a week just to solve issues with a low cost carrier. (Goldspy & Martichenko 2005, 29)

## **2.4 Customer service**

Customer service can be defined in several ways depending on from whose perception it is viewed. From an organizations point of view customer service is a set of activities performed by their customer-service department that deal with customers directly to ensure the customer's needs and expectations are being met. (Farahani, Rezapour & Kardar 2011, 199) In an logistics point of view customer service can be defined also as the 7 R's already mentioned before: providing the right customer with the right product at the right place, right time, and right cost in the right condition and right quantity. Director of supply chain management programs at the University of Wisconsin describes these as the "customer bill of rights" which the customer has the right to expect when making a purchase (Blanchard 2010, 134). These days customers have such high expectations on customer service that good is not good enough. Service needs to be great, and at a price that is little to nothing, which does not leave much room for profit for the company. (Blanchard 2010, 134)

Customer service elements can generally be grouped into 3 categories: pretransaction elements, transaction elements, and post transaction elements.

- *Pretransaction elements* create the environment of the customer service a company is promising to provide. The customer should be told what level and kind of service the company can provide to avoid unrealistic expectations. This can be done through a written customer service policy statement.
- *Transactional elements* include all the activities involved in processing an order. It is important to make sure the items the customer wants to order are in stock and the order is accurately filled and products are promptly processes and shipped to the customer.
- *Post transactional elements* are any services the company can provide after the customer receives the product. These can include installation, repair, and warranty services along with dealing with customers about possible claims or complaints. (Farahani et al. 2011, 202-204)

Getting new customers costs way more than keeping current customers. This is why most companies concentrate on keeping customers more than on getting new ones. (Farahani et al. 2011, 201) Once a customer makes a purchase, it is important to make sure their expectations were met, otherwise they will not return. Also most companies view their repeat customers as loyal customers that have lifetime value. This means if the customer is loyal they will keep coming back to buy more products and they should especially be kept happy, even if it means giving them for example a more expensive product in return, it is worth it in the long run. (Blanchard 2010, 142-143)

There is a high price to pay for customer service errors in an organization. If for some reason the customer is not satisfied it could mean a loss of business of that customer plus any one else the unsatisfied customer shared their experience to. With all the communication technology and social media at hand these days, a bad customer experience can be shared with so many it might ruin the whole image of the company. Bad experiences are shared more than good experiences. (Farahani et al. 2011, 201) It has been researched that unhappy customers are more likely to write reviews than happy ones.

(MarketingCharts 2013) If an organization cannot keep customers satisfied, they will find another organization that can. (Blanchard 2010, 144)

In addition to lost customers, companies lose money in returns done by unsatisfied customers or in deliveries gone missing or damaged. Whether the reason for the return was the companies own mistake or fault or just the fickle nature of the customer, the goods need to be picked up, processes back into the warehouse, and the customer paid back. If deliveries never made it to the customer they need to be reshipped if the customer still wants it, in which case the company needs to send the products again which costs the company double. If the products are damaged during transportation, the damaged items need to be collected and new items reshipped. The cost of missing or damaged deliveries however can sometimes be claimed from the carrier used, but the cost of processing orders or paying the customer back their money along with the time it takes to handle the case with the customer will be excess costs the company will have to pay for bad service. (Goldsby & Martichenko 2005, 29-31) However if customer requirements are met and customers are satisfied it takes away from the amount of time customer service agents would have to deal with complaints and angry customers. (Farahani 2011, 202)

It is always important for companies to work hard on their customer service, as without customer there is no business. However in some sectors the benefits are more visible than in other sectors. When a company cannot differentiate themselves with products or prices, like a pharmacy, customer service can be used to as their competitive tool to gain more market share and differentiate themselves from other pharmacies. (Farahani et al. 2011, 200) Customers who experience satisfying customer service will tell others about their great experience at the pharmacy and will make more people want to go to that pharmacy especially as it has great service while the other might not. Even in sectors where a company can offer better prices or better products, this might not be enough. These can easily be imitated by competitors while having excellent customer service is harder to imitate and will make for a loyal customer base that will stay with an organization even if another company might have tempting offers. (Farahani et al. 2011, 201; Goldsby & Martichenko 2005, 10-11)

Just as for example a retail company offers customer service to their customers, transportation companies also have to offer high-level customer service to the companies using them. For transportation companies, just giving the lowest price is not enough to

attract customers; they also need to offer quality services. Companies are not going to choose carriers that damage or lose half of their shipments or always deliver late, as then it is not good for their customer service. When it comes to carriers, they are usually cheap for a reason. Either they have limited or outdated equipment or overworked or untrained staff. (Goldsby & Martichenko 2005, 29) These all affect the service they will provide the company. This is why companies should never base their carrier choices solely on price. They should look into for example accessibility, speed, capacity, fuel efficiency, and reliability. Even after choosing a carrier it is important for the company to keep track of the service level provided by the carrier: how many parcels were delivered late in a month, and how many parcel were lost or damaged. If there are many then the company will be spending a lot of time fixing them and in addition it will hurt the customer service that the company is providing their customers. (Goldsby & Martichenko 2005, 31)

## **2.5 Reverse Logistics**

Reverse logistics is literally logistics in reverse. Instead of the products and information moving from manufacturer to customer they move from customer back to manufacturer. The author of Supply Chain Management Best Practices, David Blanchard defines reverse logistics as “the process of moving returned goods from their consumer destination for the purpose of capturing value or proper disposal. It includes processing returned merchandise due to damage, seasonal inventory, restock, salvage, recalls, and excess inventory as well as packaging and shipping materials from the end user or reseller. (Blanchard 2010, 139)

More and more products are being returned these days (Skjott-Larsen et al. 2007, 291). According to the Supply Chain Consortium the top six reasons for commercial product returns, accounting to almost 75 percent of all reasons for returns, are the following: customer ordered a wrong product or size, customer changed their mind about the purchase, customer returned the product for no reason, the product did not fit the description, the product did not fit the expectations of the customer, or the company delivered the wrong product. While usually the returns are not the company’s fault and represent a huge excess cost for the company, they usually accept them in order to keep the customer satisfied. (Blanchard 2010, 136-137) While returns come at big costs to organi-

zations, they do not need to be a complete waste. Information about damaged products coming back can be gathered and sent to departments in charge of product quality in order to prevent future issues with said products. Some returned products can be resold, others can be taken apart for spare parts. (Skjott-Larsen et al. 2007, 293-295)

All product returns can be put into 3 groups: end-of-life returns, end-of-use returns and commercial returns. End-of-life returns are in some market sectors mandatory and regulated by either EU directives or national legislation. This is true for example for electronics, batteries, tires, and cars. Depending on the item the organization can either repair and resell the items or take the items apart for spare parts, this way the company can still profit from them. If the product however cannot be repair or taken apart of parts then it will be destroyed. End-of-use returns often refer to leased items that are returned to the lessor and can then be returned to a secondary market if no serious damage was made. Commercial returns can be any physical item bought and then returned for any reason including the customer was not satisfied with the product, the product was defective, or because the company shipped wrong products. Depending on the product and the reason for the return, these returns can be put back to stock, taken apart for spare parts, or destroyed. (Skjott-Larsen et al. 2007, 293-295)

Most companies view these returns as a necessary evil with doing business as if the customer knows they can easily return something they regret buying, they are more likely to make a purchase (Macdonald 2013). However a study revealed that up to 9% of returns made by customers are fraudulent. Fraudulent returns can be seen as a customer buying a dress, wearing it once, and then returning it to the store, or buying a pair of headphones then retuning the item once they are on sale. It could also be buying multiple pairs of sweaters of all colours and sizes and then just trying them on at home and returning the rest. (Garg 2016) These fraudulent returns can really hurt a company financially as not all items can be put back to sale and they can lose money on items returned after a discount. Some companies try to prevent this by setting return policies that are only valid for a few weeks or by not accepting all returns if the product does not look right. These procedures can however cause other “honest” customers to not buy from the company, as they do not have as flexible return policies as others.

## 2.6 Sustainable Logistics

Sustainable logistics has emerged alongside the increasing globalization and technological innovations that are reshaping the way companies handle their logistics processes. Sustainable logistics essentially strives to improve logistics from a societal, ecological and economical standpoint. The goal is to take into consideration the 3 P's: the planet, the people, and the profit. Taking the planet into consideration refers to the affects logistics processes have on the environment. This means taking into consideration for example the waste, emissions and fuel as they are polluting the air and causing global warming. On the other hand the people also need to be taken care of, for example people should experience job satisfaction, and have safe work environments and access to sufficient health care. Lastly the company should still be able to grow, profit and compete with other companies. If a company can successfully meet all these goals they will have a much better chance of succeeding in the fiercely competitive world we live in. (Macharis, Melo & Woxenius 2014, xiii-xiv)

Sustainable logistics management pushes companies to think about the affect their business processes have on others and to do something about it. In terms of green thinking the company could try to find ways to cut down their CO<sub>2</sub> emissions or their consumption of fuel and find more sustainable and green solutions. They could find better ways to eliminate waste of any kind in all aspects of their supply chain. Some companies might feel like this will hurt their profit however there are companies that have successfully become more sustainable and are thriving. (Waters 2013) This can be achieved through collaboration throughout the supply chain and by small things such as the size and material of packaging, choosing a more "green" mode of transportation, or even trying to consolidate shipments in order to have less transportation. An additional way to be more sustainable is to reduce waste; this could mean proper recycling or reusing materials or components. (Morana 2013, 56-58)

The societal aspect of sustainable logistics refers to the wellbeing of people. It includes both the people inside the company and the people outside the company. The employees of a company should have a safe and healthy place to work. The company should respect the rights of everyone and practice acceptance to reduce discrimination. The employees should be treated fairly and equally and they should feel satisfied and appreciated in the company. The company should have morals and ideals that are practiced by

everyone. When employees feel this way the company will also benefit as they will have less employee turnover, which in turn saves money that would go to for example training. Additionally it is widely known that happy employees work harder than unhappy employees. (Morana 2013, 112-126) When the people inside of the company are happy it is easier to please the people on the outside. Outsiders will view a company that takes good care of their employees as a good and moral company. This will take the company for attractive for customers and potential new employees. (Morana 2013, 127-130)

### 3 CASE STUDY

#### 3.1 Case Company

Fox Head Europe (FHE) is the European branch for the American company Fox Head. Fox Head produces clothes for motocross, mountain bike, and lifestyle. In fact they are one of the leading manufacturers of motocross clothing and are known worldwide for their fox head logo. The European headquarters is situated in Barcelona, Spain. FHE has one warehouse in the Netherlands from where they ship to all over Europe. The logistics provider XPO owns the warehouse, and provides additional logistics services to FHE including everything from unloading and loading to picking and packing. FHE has an open book contract with XPO where they pay an additional 13% markup for all expenses. In the warehouse there is one FHE employee and a fixed XPO team of 15 people. During peak seasons temporary workers are used, amounting to usually around 40 people in total. In the near future FHE will move their warehouse to another XPO warehouse to have more space as business is forecast to expand.

In the FHE Barcelona office there are approximately 50 employees working industry standard departments such as marketing, product development, traffic, customer service, IT, accounting and e-commerce. The team responsible of all logistics operations in FHE is the Traffic Department that consists of up to five employees. One employee is in charge of inbound deliveries, one in charge of outbound deliveries, and one in charge of samples. In addition there is an Operations Manager and often a short duration intern to help out with all tasks.

FHE has suppliers all over the world. There are suppliers all over Asia, in Vietnam, China, Taiwan, Indonesia and Cambodia. In addition there is one supplier in Portugal, one in Turkey, a few in the US, and one in El Salvador. A process of tendering is used to find the best and cheapest suppliers to produce certain products. Ultimate the US office decides where different merchandise will be manufactured. Once a supplier is chosen and merchandise produced, the goods are then transported, usually by sea freight, to the warehouse in the Netherlands. A freight forwarding company called Expeditors takes care of most inbound transportations. The traffic team in the Barcelona office closely monitors the movement of inbound merchandise to make sure everything is go-

ing to done in the agreed time frame; in the future Expeditors will take over this function.

For outbound deliveries from the warehouse to customers FHE uses 4 different carriers: carrier A, carrier B, carrier C and carrier D. For small shipments of 25 boxes or less, FHE normally uses either carrier A or carrier B. For bigger shipments ranging from one pallet up to 20 pallets FHE uses any of the four carriers depending on which is the cheapest. FHE operates with these carriers on an agreement basis and does not have formal contracts. Carrier A is the predominant carrier for small shipments and returns as in most countries it seems to offer the cheapest rates, while carrier B is usually only used in a few countries where it is cheaper. The Traffic Department monitors these outbound deliveries, often assigned to the resident Intern, as in the case of the author. In my case responsibility included track and manage all outbound transportation and scheduling collections for returns.

The two primary carriers being focused on are carrier A and carrier B. Carrier A operates in 35 countries with a workforce of 30,000 employees. Carrier A has over 800 different locations in Europe and approximately 27,000 pick-up parcel shops, to make deliveries fast and flexible (Carrier A 2016). Carrier B on the other hand has a fleet of 14,000 vehicles and more than 400 packaging facilities in Europe. Carrier B employs greater than 45,000 people in Europe and in addition has approximately 16,000 access points for quick and flexible deliveries (Carrier B 2016).

### **3.2 Case Study: Price Comparisons**

Step one was to determine if FHE was using the cheapest available carrier for each delivery in Europe. In order to find out which carrier is cheapest for which countries, price comparisons of all the carriers for each country FHE delivers to needed to be conducted. To conduct the comparison two types of information were required: the rate agreements of all carriers FHE uses and the list of locations in Europe where FHE has retailers. The rate agreements will list prices, and equally importantly any extra charges not included in the standard prices. Carrier A prices are inclusive of taxes and other fees; however, there is a list of postal codes where an additional remote area surcharge is applied. Carrier B prices exclusive of a 5% fuel charge, and like carrier A they have a list of postal

codes where an extended area surcharge or remote area surcharge will be applied. Carriers A and B also have separate prices for returns. The return prices for carrier B do not include the additional label price needed to pay on each box. Carrier C prices include everything besides an additional tail lift charge if needed for unloading. Carrier D does not include their 10% fuel charge in their prices and they have a tail lift charge if needed.

Carrier A has their rates per country and number of boxes. Carrier B has their rates per zones (one country can have one or two zones) and weight. Carriers C and D have their rates per postal codes and weight. In order to compare the prices together for each country, the average weight of parcels and average number of boxes per pallet was calculated. Accordingly prices are not a 100% accurate for all carriers and are subject to minor margin of error if the shipments are not what are considered “average shipments”.

To determine which carrier is the cheapest option for each retailer location, the list of FHE delivery addresses was used in conjunction with the respective carrier charge per delivery location. The remote and extended area surcharges also needed to be factored in.

To visualise, comparisons data is displayed in table format. Larger shipments were considered first, based on postal code area and quantity of pallets (Picture 1). For this data in-line with input from the Operations Manager it was determined that one pallet consolidates 12 boxes. The prices of smaller parcel shipments and returns were put into tables illustrating the price per quantity of boxes for each country (Picture 2). Any remote or extended area based on postal code had the applicable surcharge applied. A separate table was generated stating the prices with the extended/remote area surcharges included.

Postal Code		10				12			
KGS	Quantity of pallets	Carrier D	Carrier C	Carrier A	Carrier B	Carrier D	Carrier C	Carrier A	Carrier B
701 - 800	1	€156,20	€142,61	€122,52	€116,35	€161,70	€152,87	€122,52	€116,35
1251 - 1500	2	€260,70	€193,91	€245,04	€232,69	€270,60	€208,28	€245,04	€232,69
2001 - 2500	3	€345,40	€244,19	€367,56	€349,04	€357,50	€268,81	€367,56	€349,04
2501 - 3000	4	€386,10	€345,76	€490,08	€465,38	€398,20	€370,39	€490,08	€465,38
3501 - 4000	5	€468,60	€460,67	€612,60	€581,73	€475,20	€493,51	€612,60	€581,73
4001 - 4500	6	€509,30	€518,13	€735,12	€698,07	€514,80	€555,07	€735,12	€698,07
5001 - 6000	7	€590,70	€599,18	€857,64	€814,42	€590,70	€641,25	€857,64	€814,42
5001 - 6000	8	€590,70	€623,81	€980,16	€930,76	€590,70	€666,90	€980,16	€930,76
6001 - 7000	9	€643,50	€673,06	€1 102,68	€1 047,11	€643,50	€719,23	€1 102,68	€1 047,11
7001 - 8000	10	€697,40	€697,68	€1 225,20	€1 163,45	€697,40	€745,90	€1 225,20	€1 163,45
8001 - 9000	11	€750,20	€746,93	€1 347,72	€1 279,80	€750,20	€798,23	€1 347,72	€1 279,80
8001 - 9000	12	€750,20	€771,55	€1 470,24	€1 396,14	€750,20	€823,88	€1 470,24	€1 396,14
9001 - 10000	13	€801,90	€820,80	€1 592,76	€1 512,49	€801,90	€878,26	€1 592,76	€1 512,49
10001 - 11000	14	€851,40	€851,58	€1 715,28	€1 628,84	€851,40	€911,09	€1 715,28	€1 628,84
11001 - 12000	15	€899,80	€912,11	€1 837,80	€1 745,18	€899,80	€976,75	€1 837,80	€1 745,18
11001 - 12000	16	€899,80	€941,87	€1 960,32	€1 861,53	€899,80	€1 008,56	€1 960,32	€1 861,53
12001 - 13000	17	€949,30	€1 003,43	€2 082,84	€1 977,87	€949,30	€1 073,20	€2 082,84	€1 977,87
13001 - 14000	18	€997,70	€1 034,21	€2 205,36	€2 094,22	€997,70	€1 106,03	€2 205,36	€2 094,22
14001 - 15000	19	€1 045,00	€1 094,74	€2 327,88	€2 210,56	€1 045,00	€1 170,67	€2 327,88	€2 210,56
14001 - 15000	20	€1 045,00	€1 124,50	€2 450,40	€2 326,91	€1 045,00	€1 202,47	€2 450,40	€2 326,91

PICTURE 1. Price comparison table for LTL shipments

Quantity of boxes	Carrier A	Carrier B (zone 1)	Carrier B (zone 2)	Quantity of boxes	Carrier A Extended	Carrier B extended
1	€8,10			1	€16,60	
1-6 kg		€6,83	€6,83	1-6 kg		€27,73
8-20 kg		€11,95	€14,13	8-20kg		€35,03
22 kg		€11,96	€14,14	22kg		€35,04
24 kg		€11,96	€14,93	24 kg		€35,83
26 kg		€11,95	€16,03	26 kg		€36,93
28 kg		€14,04	€17,13	28 kg		€38,03
30 kg		€14,98	€18,25	30 kg		€39,15
32 kg		€15,91	€19,30	32 kg		€40,20
34 kg		€16,84	€20,33	34 kg		€41,23
36 kg		€17,81	€21,37	36 kg		€42,27
38 kg		€18,74	€22,41	38 kg		€43,31
40 kg		€19,69	€23,44	40 kg		€44,34
2	€16,20	€17,53	€19,39	2	€33,20	
3	€24,30	€26,30	€29,09	Less than 50kg		€40,29
4	€32,40	€35,07	€38,78	More than 50 kg		€47,95
5	€40,50	€43,84	€48,48	3	€49,80	
6	€48,60	€52,60	€58,17	Less than 50kg		€49,99
7	€56,70	€61,37	€67,87	More than 50 kg		€71,90
8	€64,80	€70,14	€77,56	4	€66,40	€95,90
9	€72,90	€78,90	€87,26	5	€83,00	€119,88
10	€81,00	€87,67	€96,95	6	€99,60	€143,85
11	€89,10	€96,44	€106,65	7	€116,20	€167,83
12	€97,20	€105,20	€116,35	8	€132,80	€191,80
13	€105,30	€113,97	€126,04	9	€149,40	€215,78
14	€113,40	€122,74	€135,74	10	€166,00	€239,75
15	€121,50	€131,51	€145,43	11	€182,60	€263,73

PICTURE 2. Price comparison table parcel deliveries

As the tables were crafted for the use of the Traffic Department at FHE they consist of confidential information, which is why graphs with the carrier names hidden were made to illustrate the results.

### 3.2.1 Parcel deliveries by country

Parcel deliveries refer to all shipments of less than 25 boxes made from the FHE warehouse in Eersel to a customer. These shipments are done by either carrier A or carrier B depending on which one is cheaper to a specific country. In this section, we will be

comparing the pricing for 11 different countries FHE regularly delivers to, in order to find out which carrier is indeed the cheapest option and by how much.

### France

Carrier B divides France into 2 different zones, Zone 1 and Zone 2, while carrier A has the same prices for all of France. Both carriers also have a list of extended areas where surcharges apply. Figure 1 below shows how carrier A is cheaper than carrier B no matter how many boxes are in question. However the price for one box with carrier B only applies when the box weights 8-20kg. If in the box weighs less, then the price is actually 19% cheaper than the price for one box with carrier A. If the box is between 8 to 26kg carrier B is 48% more expensive than carrier A. Any heavier than that and the difference between prices goes higher and higher, with a 40 kg box the difference is 143% in Zone 1. When there are more boxes than 1 carrier B is 8% more expensive in Zone 1 and 16% more expensive in Zone 2. For extended areas, carrier B was more expensive than carrier A for any amount of boxes. Concluding that FHE should use carrier A for all their deliveries to France, except in cases when they are delivery only one box that weights 6kg or less to a non extended area.

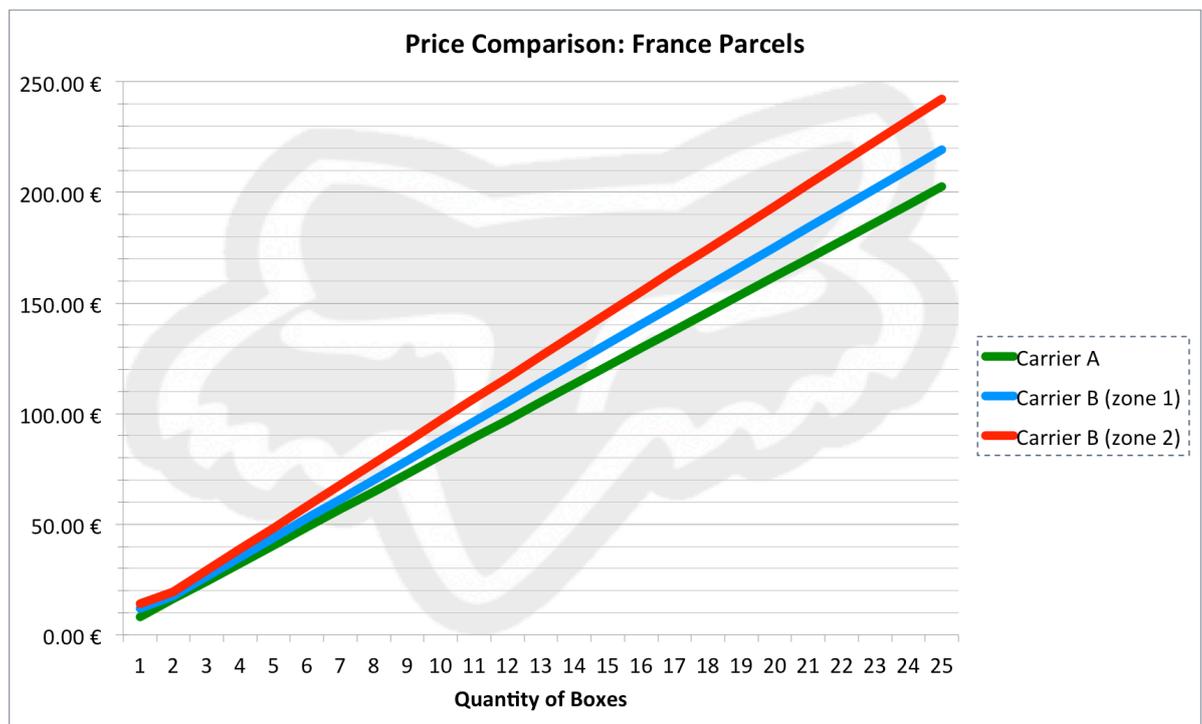


FIGURE 1. Price comparison between carrier A and carrier B for parcel deliveries in France

## Germany

Carrier A has the same prices for most of Germany, while the rest are considered to be in a remote area where remote area surcharges apply. Carrier B divides Germany into two zone, zone 1 and zone 2, and additionally has a list of extended areas where extended area surcharges apply. As seen in Figure 2 carrier A is cheaper than carrier B for every quantity of boxes. What cannot be seen is that the price for one box with carrier B in both zones only applies to boxes that are around 10 kg, every one box that weights between 8 kg and up is however still more expensive than with carrier A. However if a box is between 1 to 6 kg it is 2% cheaper with carrier B in both zones. When there is more than one box, carrier B is around 15% more expensive than carrier A. In the extended areas carrier B is again more expensive than carrier A. For one box the difference is about 43% while for 4 boxes or more the difference is 28%. This means that FHE should be using carrier A instead of carrier B for all their deliveries made to Germany, except if there is only one box that weight 6kg or less that is going to a non extended area.

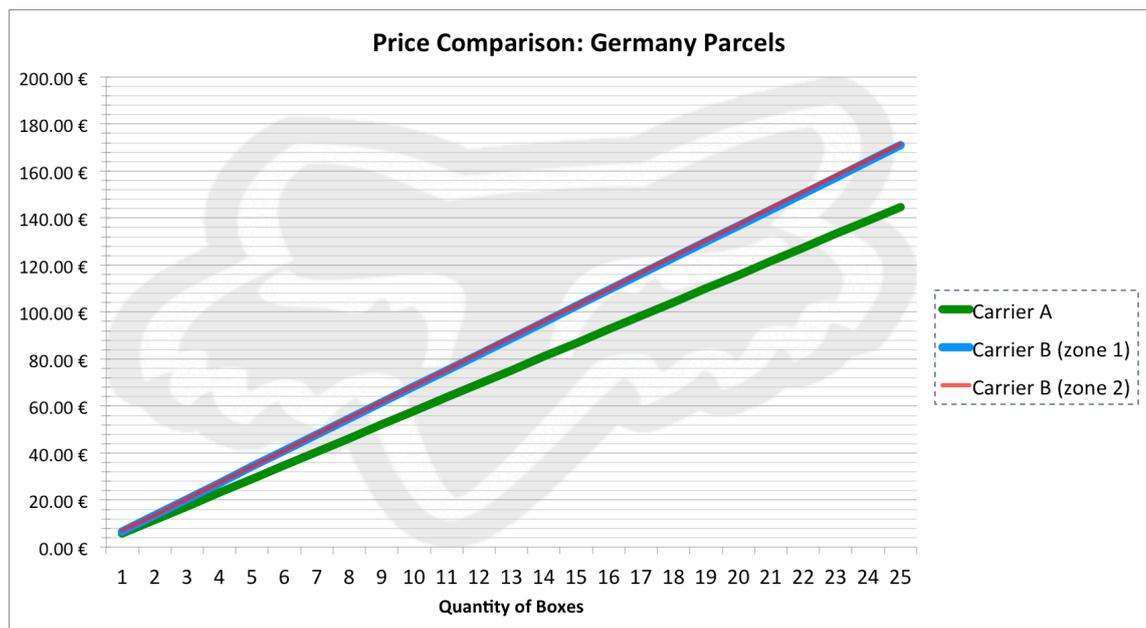


FIGURE 2. Price comparison between carrier A and carrier B for parcel deliveries in Germany

## Austria

Both carrier A and carrier B prices apply to every location in Austria, except carrier B has locations where an extended area surcharge will apply. Figure 3 shows how carrier A is cheaper than carrier B in Austria. For shipments that have more than one box carri-

er B is 21% more expensive than carrier B. Shipments that only have one box is cheaper by carrier A if the box weights more than 8 kg, however if the box weights less than 7kg carrier A is 22% more expensive. As carrier B only has extended area it can be concluded that FHE should use carrier A for all their deliveries to Austria, except if there is only one box that weights 6kg or less.

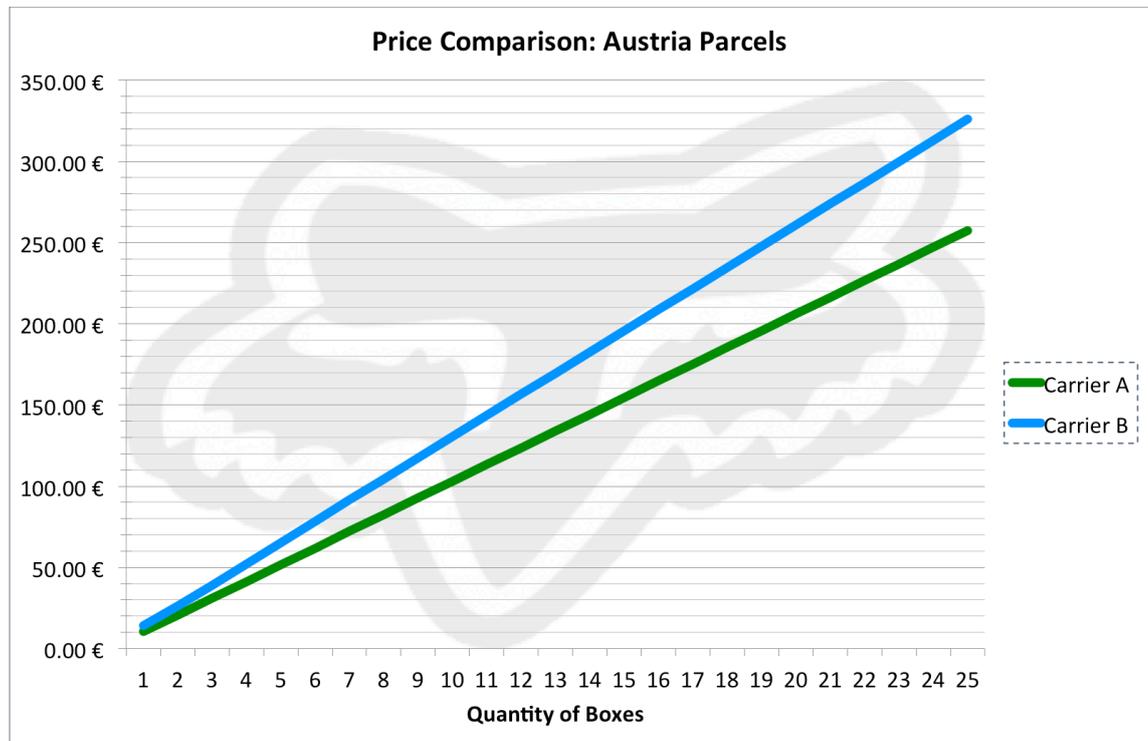


FIGURE 3. Price comparison between carrier A and carrier B for parcel deliveries in Austria

### Spain

The prices for carrier A and carrier B apply everywhere except in the extended areas listed by both carriers. As seen in Figure 4, carrier A is cheaper than carrier B in Spain. Carrier B is 15% more expensive for one box, and 8% more expensive for two to 25 boxes. However a carrier B charges per weight, if a shipments consists of only one box that is 6kg or less carrier A is more expensive by 35% while if the box weights more than 8kg carrier B is more expensive. Carrier A applies an extended area surcharge in postal codes 07000 to 07999 and deliveries to postal codes 35000 to 35999 can only be done by an express shipment. While carrier B has a longer list of extended areas, delivering to the above-mentioned extended areas is cheaper with carrier B as the surcharge is not as big. For more than 4 boxes carrier A is 40% more expensive and for one box the difference is a little less, from 35% to 4% depending on the weight of the box.

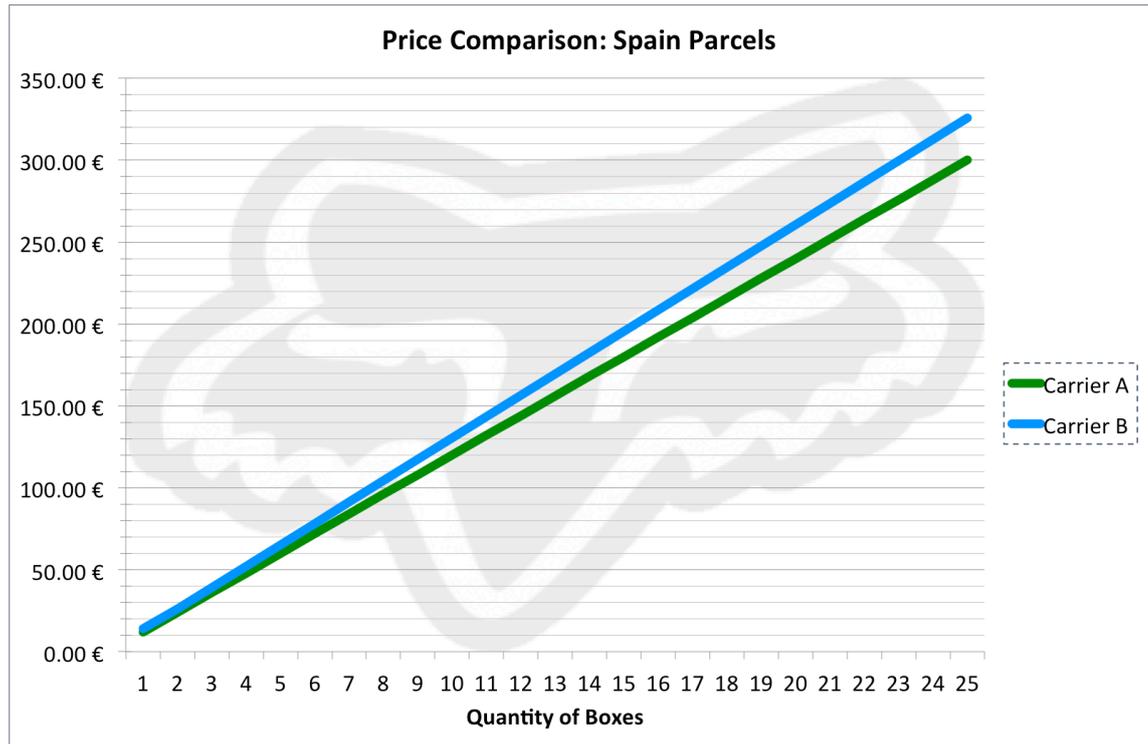


FIGURE 4. Price comparison between carrier A and carrier B for parcel deliveries in Spain

### Portugal

In Portugal both carriers A and B have extended areas where extended area surcharges apply. In non-extended areas carrier B is more expensive than carrier A. For shipments of more than one box carrier B is 8% more expensive than carrier A. These are shown in figure 5. What is not shown in the graph is how shipment of only one box under 6kg with carrier A is 35% more expensive than with carrier B, however boxes over the weight of 8kg are from 15% to 44% are more extensive with carrier B depending on the weight. When it comes to extended areas, carrier A and carrier B share some areas where extended area surcharges apply and in those areas carrier A is around 50% more expensive than carrier B. Carrier B also has additional extended area that are not extended areas with carrier A, and in those cases obviously carrier A is much cheaper.

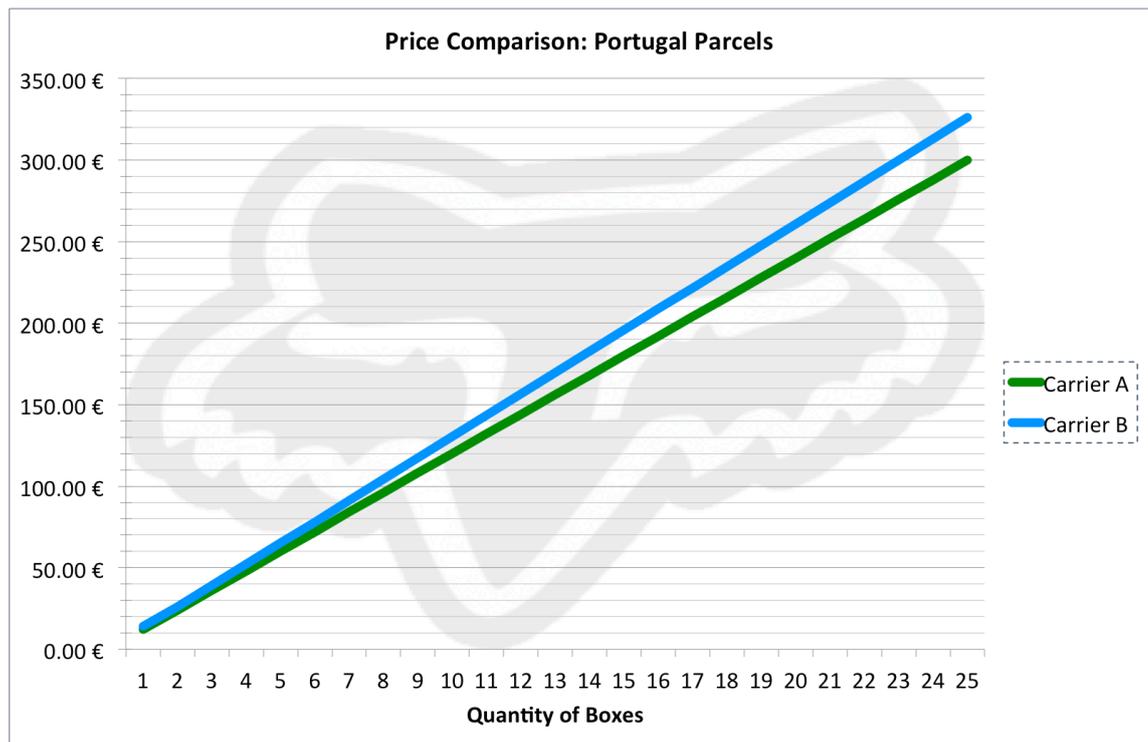


FIGURE 5. Price comparison between carrier A and carrier B for parcel deliveries in Portugal

### United Kingdom

Carrier A has the same rates for the entire United Kingdom, yet has extended area surcharges in more distant locations. In addition to having extended areas, carrier B divides United Kingdom into two different zones, with England, Scotland and Wales in zone 1 and Northern Ireland in zone 2. As seen in figure 6, carrier B is around 12% more expensive than carrier A in zone 1, and around 40% more expensive in zone 2. However, as carrier A applies an extended area surcharge to all the locations in Northern Ireland where FHE has retailer, carrier B is actually cheaper in Northern Ireland. Carrier B is also cheaper for two other retailers, one located in the Scottish Highlands and one in the Isle of Wight. Other than that carrier A is the cheaper option.

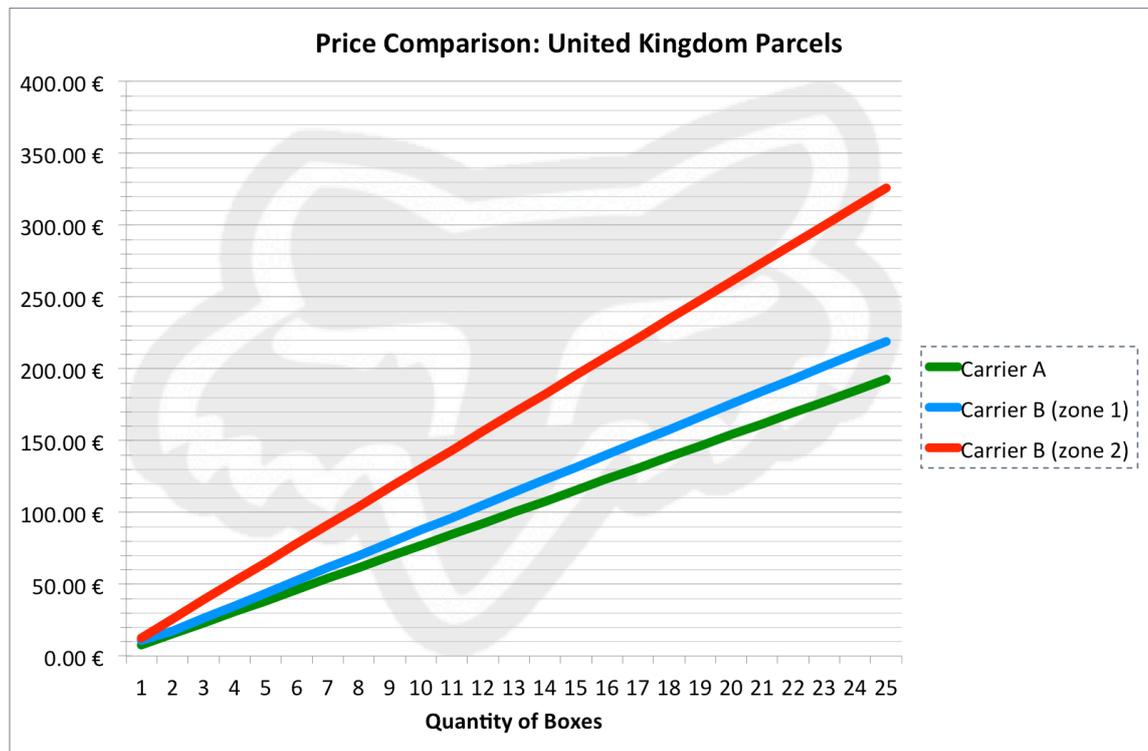


FIGURE 6. Price comparison between carrier A and carrier B for parcel deliveries in United Kingdom

### Sweden

Parcel deliveries in Sweden are a little cheaper with carrier A than carrier B. This is shown in figure 7 below. Shipments of more than one box are around 9% more expensive with carrier B. Shipments of only one box over 8 kg are 16%-44% more expensive with carrier B depending on the weight, however boxes under 6kg are 33% more expensive with carrier A. Both carriers apply extended area surcharges to certain location. In locations where both apply extended area surcharges, carrier A is around 20% cheaper than carrier B. For areas where only one carrier applies these surcharges, the one who does is naturally more expensive. In Sweden there are only two retailers in carrier A's extended areas, while there are 63 retailers in carrier B's extended areas.

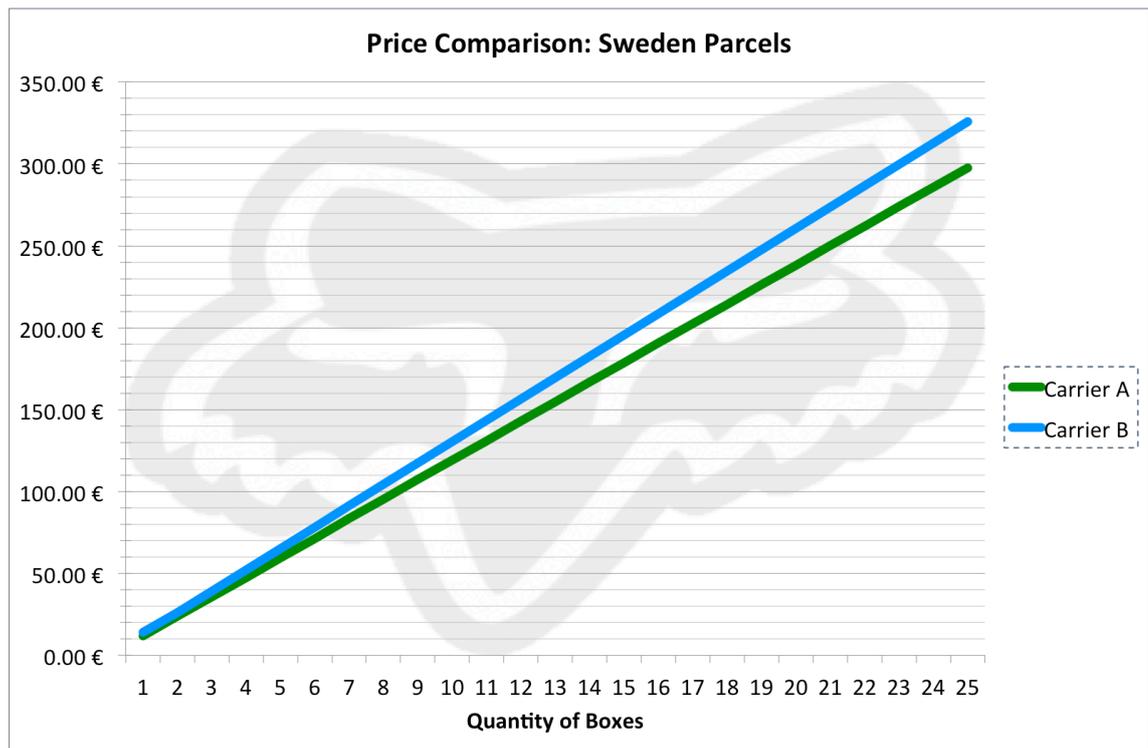


FIGURE 7. Price comparison between carrier A and carrier B for parcel deliveries in Sweden

### Finland

The price difference for parcel deliveries with carrier A and carrier B is very small as can be seen in figure 8. In fact for deliveries of more than one box, carrier B is only 0,69% more expensive. In one-box deliveries of over 8kg the price difference is around 8%-39% more expensive, depending on how heavy the box is, with carrier B. However a box of 6kg or less is 38% more expensive with carrier A. When it comes to extended areas, carrier A only applies surcharges in Aland, while carrier B has extended areas also in northern Finland. This means that deliveries to all of carrier B's extended areas would be cheaper with carrier A, except deliveries to Aland. Deliveries to Aland with carrier A are only cheaper if the shipments consists of only one fox that weights more than 6kg.

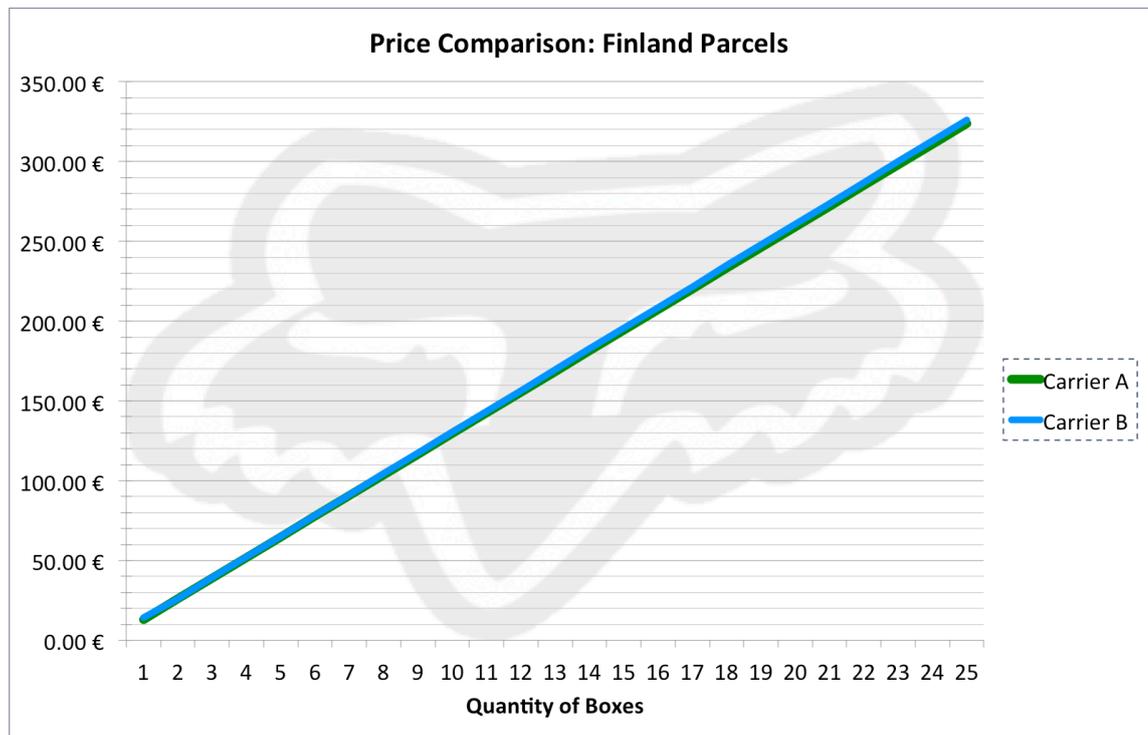


FIGURE 8. Price comparison between carrier A and carrier B for parcel deliveries in Finland

### Denmark

Parcel deliveries in Denmark are mainly cheaper with carrier A as shown in figure 9. Only deliveries of a single box weighing 6kg or less are cheaper with carrier B. Deliveries of more than one box are around 15% more expensive with carrier B than with carrier A, and deliveries of a single box weighing over 8kg are around 41%-65% more expensive depending on the weight. Both carriers apply extended area surcharges in several postal codes, and carrier A does not perform standard deliveries to each of them. However since FHE does not have any retailers in said areas, it does not apply making carrier A the cheapest option for deliveries to all locations.

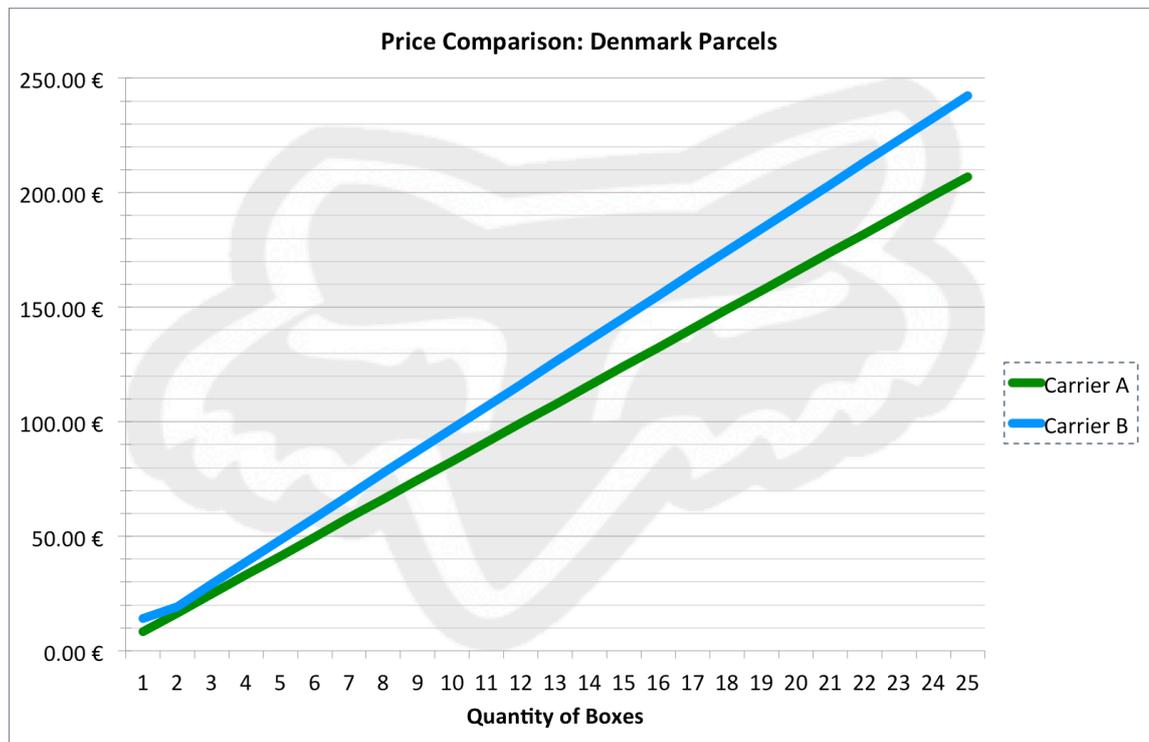


FIGURE 9. Price comparison between carrier A and carrier B for parcel deliveries in Denmark

### Belgium

As can be seen from figure 10, parcel deliveries in Belgium are noticeably cheaper with carrier A than carrier B. For shipments of two or more boxes, carrier B is around 36% more expensive. Shipments of a single box weighing less than 6kg are around 23% more expensive, and the differences increases when the weight increases. This concludes that carrier A is the cheaper option for deliveries made to Belgium.

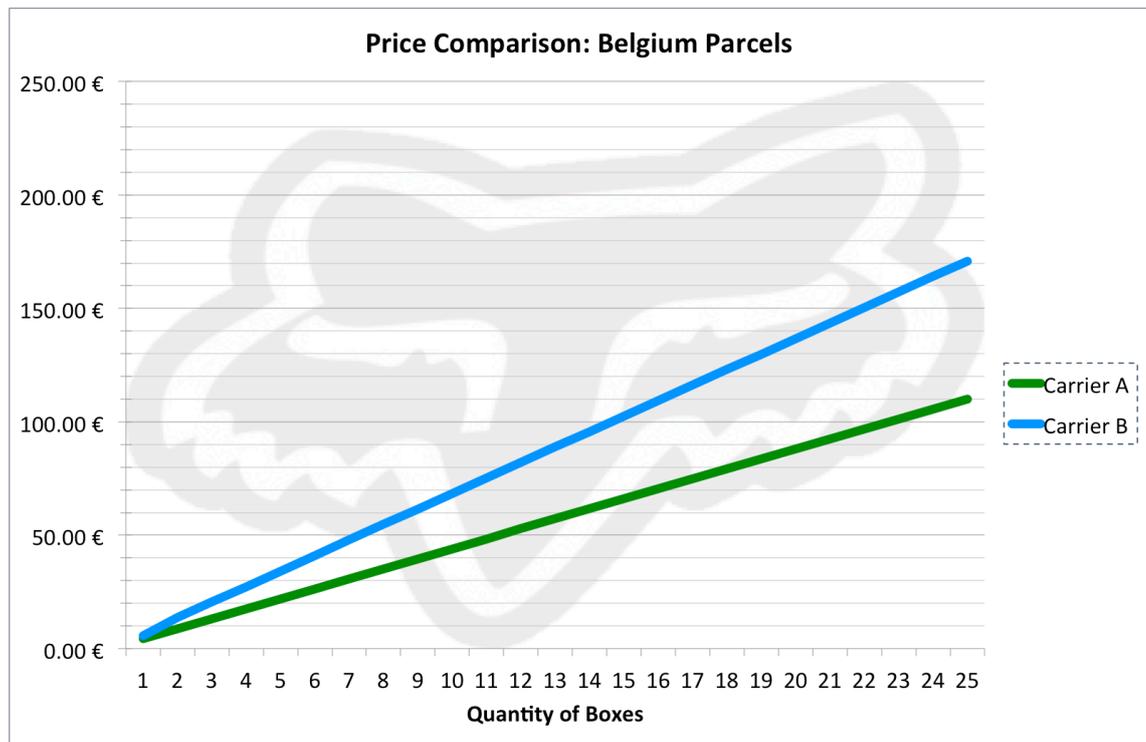


FIGURE 10. Price comparison between carrier A and carrier B for parcel deliveries in Belgium

### Italy

Parcel deliveries of two or more boxes are only around 5% more expensive with carrier A than with carrier B, shows figure 11. What cannot be seen in the graph is that shipments consisting of a single box weighing less than 6kg are around 33% cheaper with carrier B. However single box shipments of 8kg-22kg are around 28% cheaper with carrier A, and with heavier boxes the price difference is even bigger. Both carriers apply extended area surcharges in several locations, however as FHE does not have retailers in these locations they do not apply in this price comparison. This concludes that shipments consisting of one box weighing less than 6kg or consisting of more than one box are cheaper with carrier B, while heavier single boxes are cheaper to ship using carrier A.

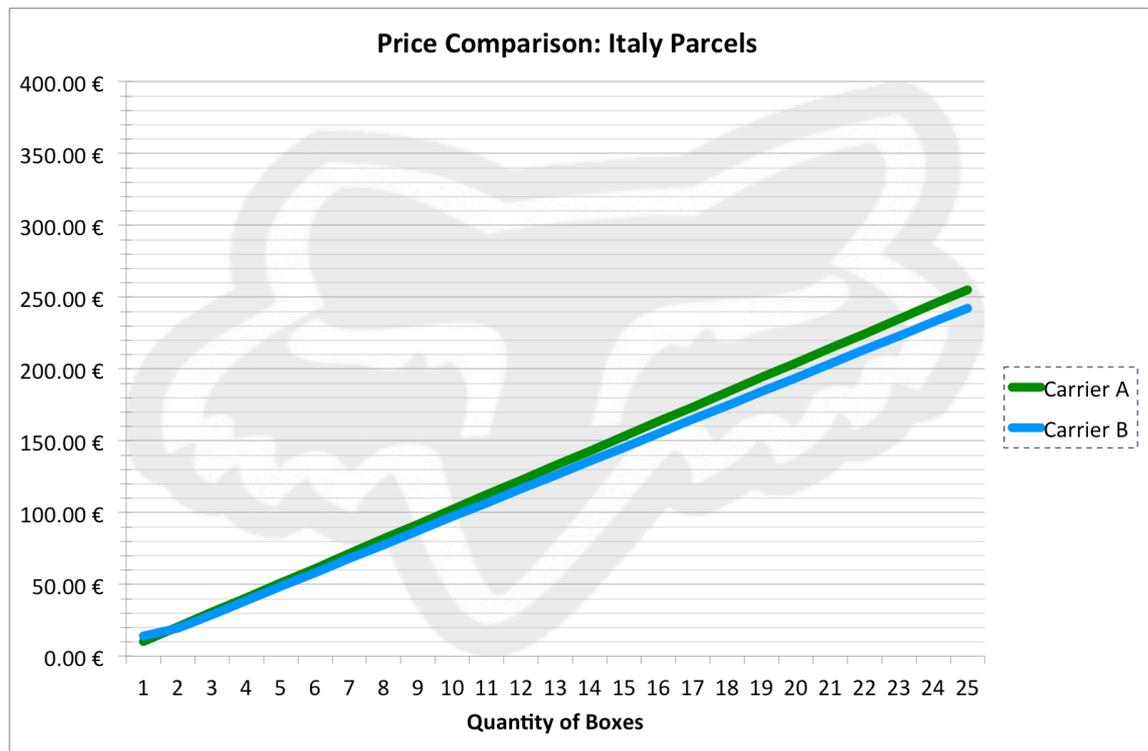


FIGURE 11. Price comparison between carrier A and carrier B for parcel deliveries in Italy

### 3.2.2 Returns by country

Returns refer to any shipment made from the customer back to the FHE warehouse in Eersel. These can include returns due to defective products or mis-shipments, and in addition the transportation of boots in need of resoling from customer to repair store in the Netherlands. In this section we will be comparing the pricing of carrier A and carrier B to see which carrier is cheaper for returns from a specific country.

#### France

Figure 12 shows how returns made from non extended areas in France are around 22% cheaper with carrier A than with carrier B. Returns of one box over 24kg are from 23% to 44% more expensive with carrier B than carrier A depending on the weight. Returns from locations where both carriers apply extended area surcharges are also cheaper with carrier A. For over 4 boxes carrier B is around 32% more expensive and for one box the difference is around 45%-52% depending on the weight. This concludes that all returns made from France should be done using carrier A.

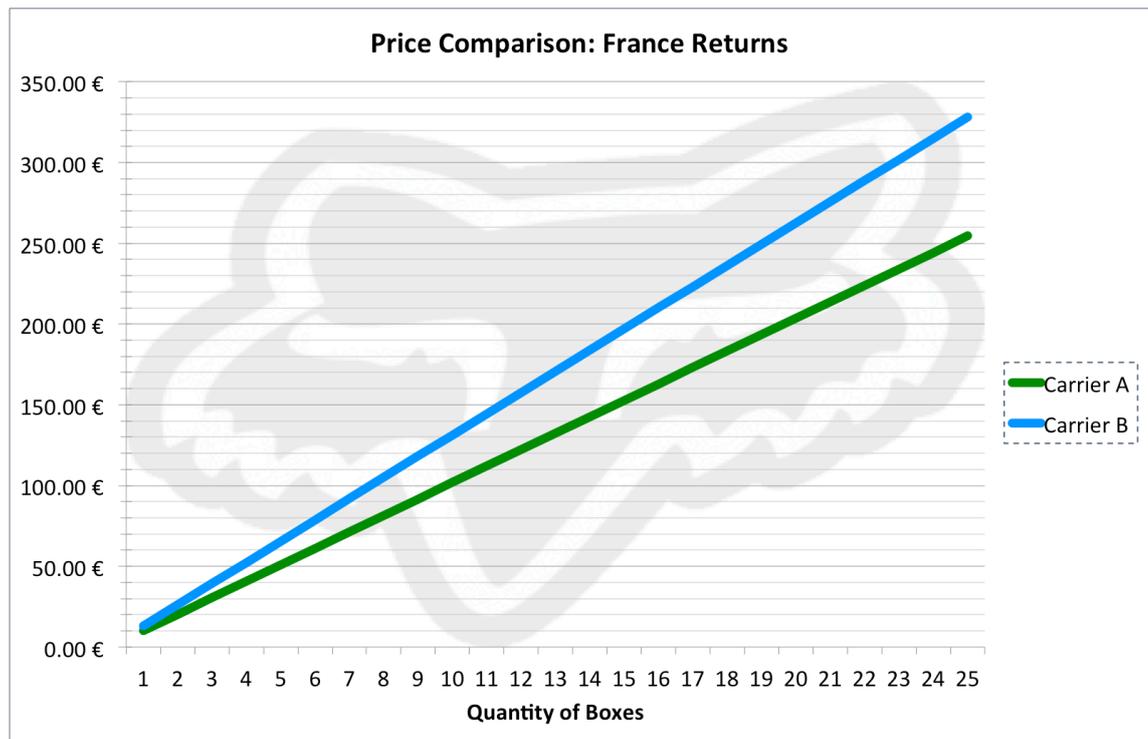


FIGURE 12. Price comparison between carrier A and carrier B for returns in France

### Germany

Figure 13 shows the price difference for returns made in Germany between carrier A and carrier B. Whether the return consists of only one box or up to 25 boxes, carrier B is 28% more expensive. If only one box is returned and it is over 24kg the price difference gets greater depending on the weight of the box, going all the way to 49% if the box weighs around 40kg. Extended/remote area surcharges do not apply in returns made from Germany, as there were no retailers located in extended or remote areas. This means FHE should use carrier A for all returns made from Germany.

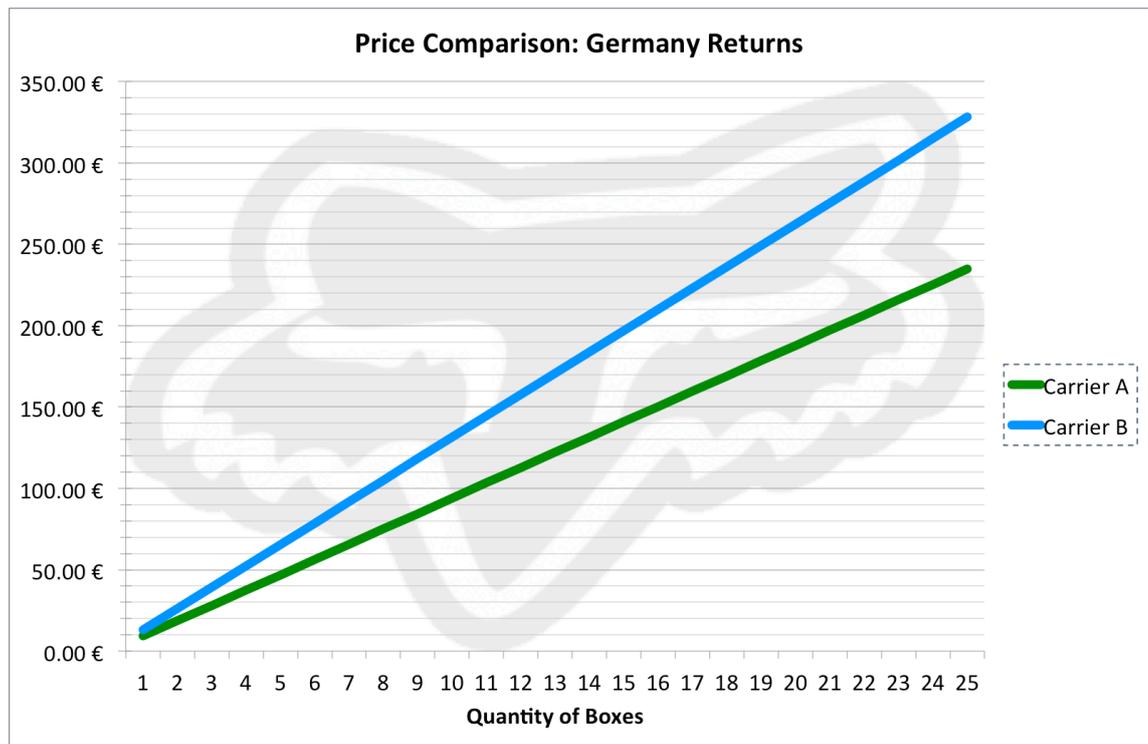


FIGURE 13. Price comparison between carrier A and carrier B for returns in Germany

### Austria

Returns made from Austria are 17% more expensive with carrier B than carrier A. This is shown in figure 14. When it comes to returns of only one box over 22kg, carrier B is from 18% to 40% more expensive depending on the weight. As only carrier B has extended areas in Austria, it was not necessarily to calculate how much returns would cost, as they would be cheaper with carrier A anyways. Because of this all returns from Austria should be done using carrier A.

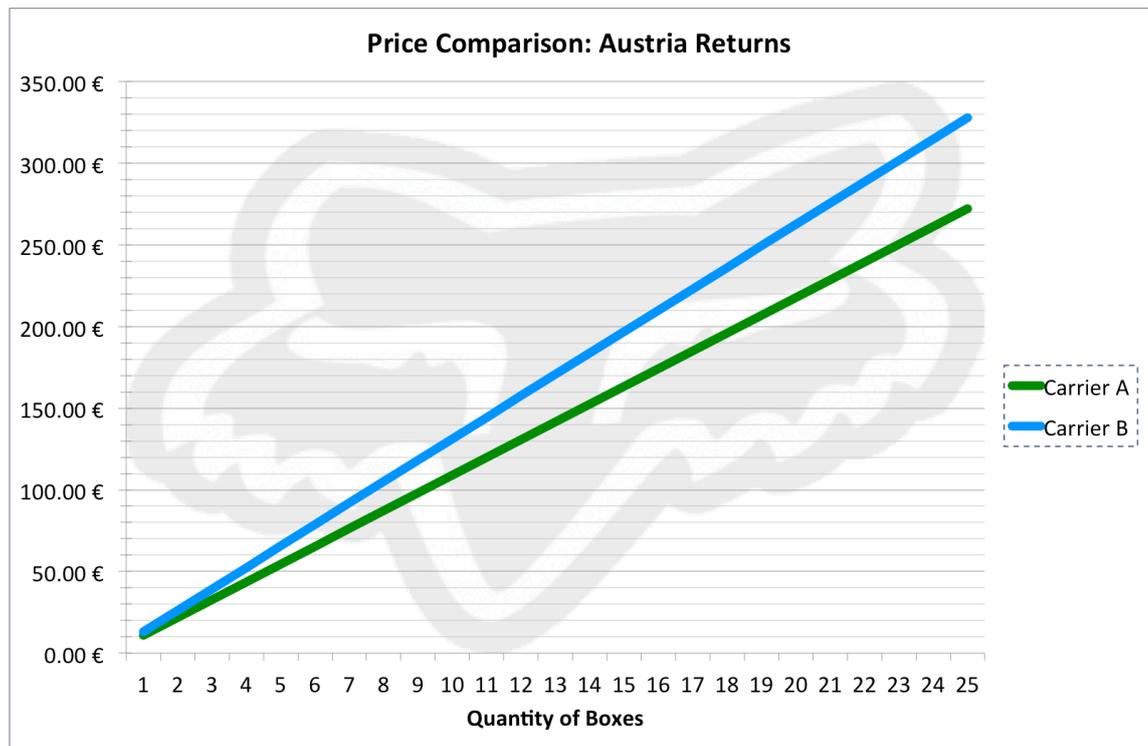


FIGURE 14. Price comparison between carrier A and carrier B for returns in Austria

### Spain

In Spain carrier A has prices for non-extended areas, extended areas and a postal codes where the carrier does not perform collection. Carrier B in turn has extended areas and remote areas, the latter having a higher surcharge. As seen in figure 15, carrier A beats the prices of carrier B no matter the quantity of boxes returned. In non-extended areas in Spain, carrier B is 26% more expensive than carrier A. In extended areas however, returns of 4 or more boxes carrier A is 34% more expensive, and for 1 box 7% to 16% more expensive depending on weight than carrier B. Carrier B's remote areas are the same areas as the ones carrier A does not collect from, which means no matter the price carrier B needs to be used. In conclusion, FHE should use carrier A for all returns in non-extended areas and carrier B in extended and remote areas.

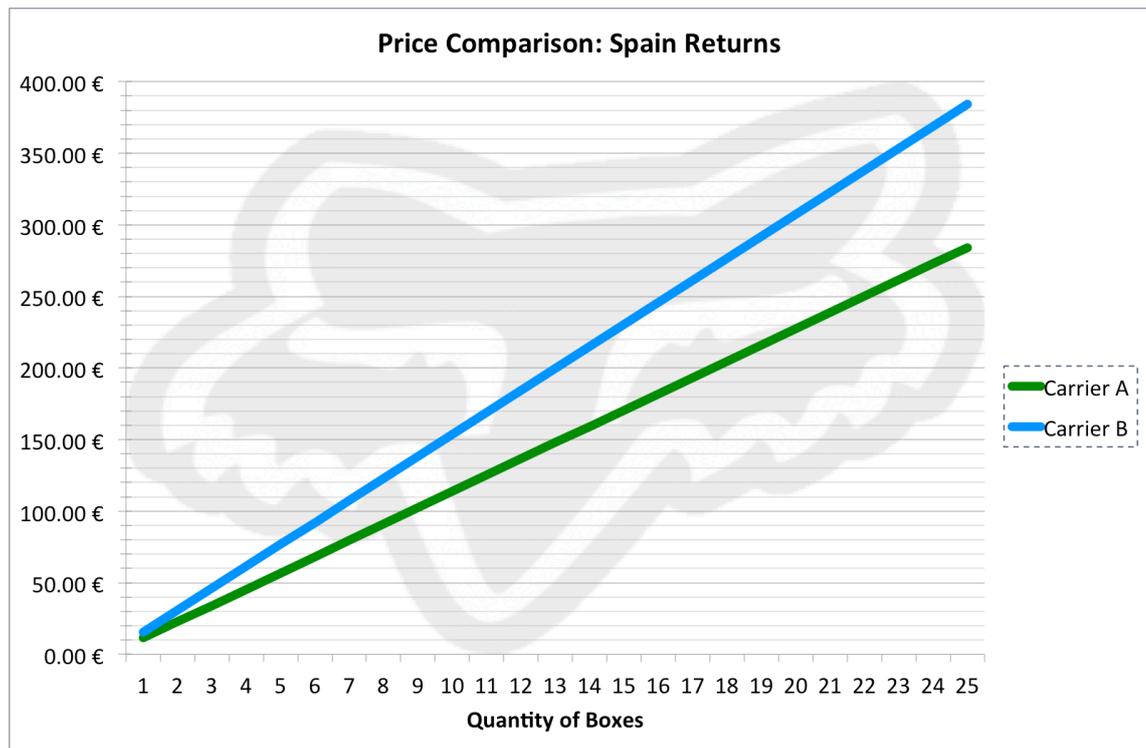


FIGURE 15. Price comparison between carrier A and carrier B for returns in Spain

### Portugal

Returns from non-extended areas in Portugal are around 13% more expensive with carrier B than with carrier A. This is shown in figure 16. Carrier A has extended area surcharges for postal codes 9000-9999, where carrier B applies remote area surcharges, which are around 48% cheaper with returns of 4 boxes or more, and depending on the weight around 27%-34% cheaper with returns of one box. In postal codes where carrier B applies extended surcharges and carrier A does not, carrier A is obviously much cheaper. In conclusion, FHE should use carrier A for all returns except for returns from postal codes where carrier A applies extended area surcharges.

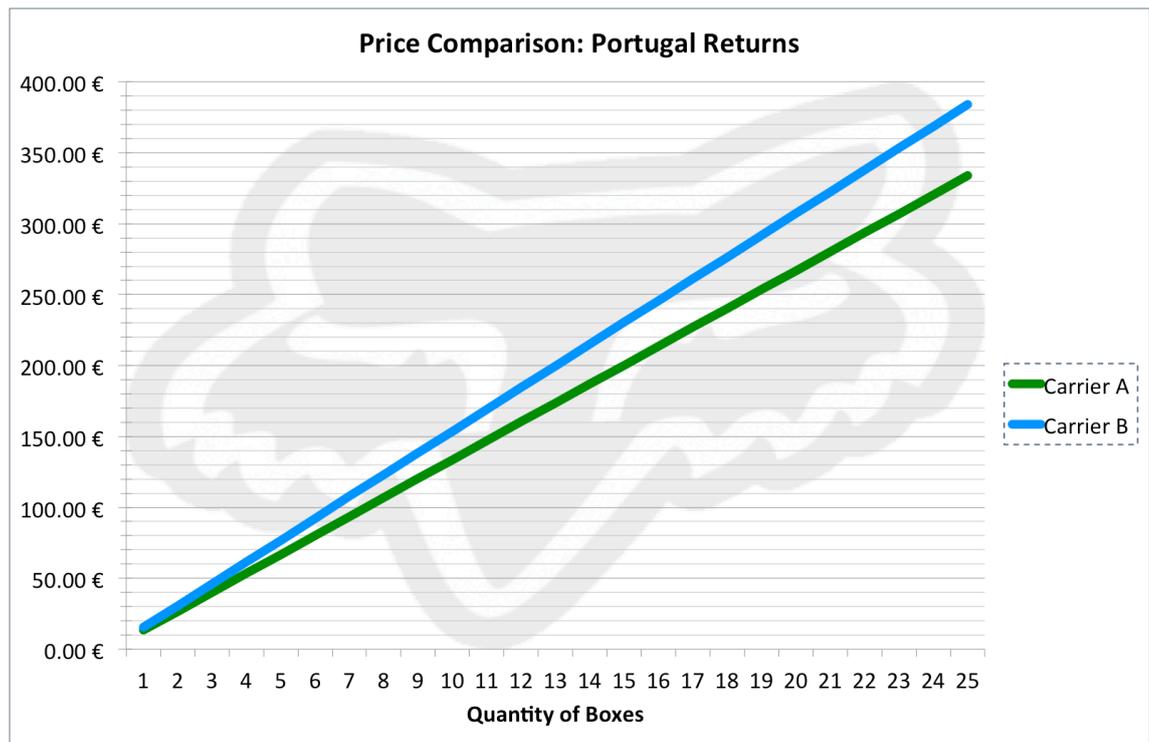


FIGURE 16. Price comparison between carrier A and carrier B for returns in Portugal

### United Kingdom

According to figure 17 returns made in the United Kingdom are cheaper with carrier A. In fact in non-extended areas carrier B is around 31% more expensive than carrier A. In the case of areas where carrier A applies extended area surcharges but carrier B does not, carrier B is much cheaper than carrier A. An example of this would be retailers in Northern Ireland. In areas where both carriers apply extended area surcharges, carrier A is around 18% cheaper than carrier B. In areas where only one carrier charges extended area surcharges, obviously the carrier that does not is the cheaper option.

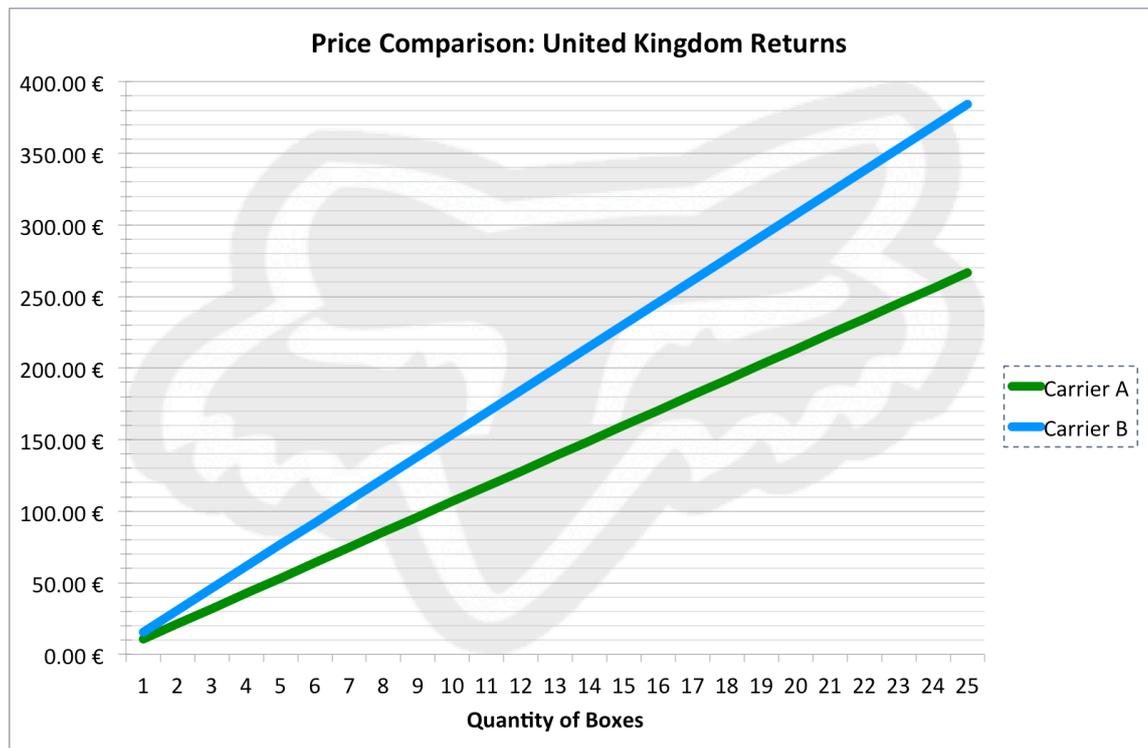


FIGURE 17. Price comparison between carrier A and carrier B for returns in United Kingdom

### Sweden

Returns in Sweden are slightly cheaper with carrier A, as can be seen in figure 18. In fact carrier B is only around 5% more expensive if the return consists of more than one box, and if not carrier B is around 5%-25% more expensive depending on the weight of the box. FHE has retailers in both carrier A's and carrier B's extended areas. In postal codes where both carriers apply extended area surcharges, carrier A is cheaper by around 17%. Carrier A also has a list of postal codes where collections are not possible, however currently FHE does not have any retailers in those areas. This makes carrier A the cheapest option for FHE to use for returns.

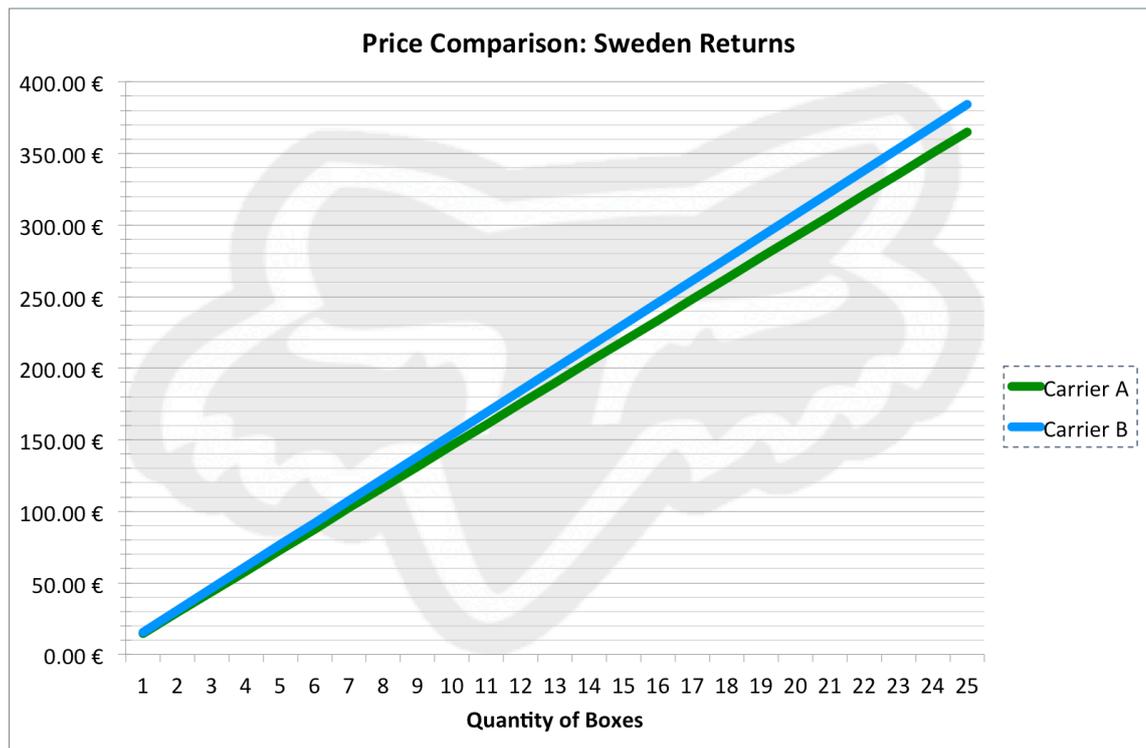


FIGURE 18. Price comparison between carrier A and carrier B for returns in Sweden

### Finland

As shown in figure 19 carriers A and B have almost the same prices for making returns from Finland. For returns of one box weighing under 24kg, or of two or more boxes carrier A is only 2% more expensive. Returns of one box weighing over 28kg in turn are slightly cheaper with carrier A. Carrier B applies extended or remote area surcharges to many areas in northern Finland. Returns from the approximately 38 retailers in those areas are therefore cheaper with carrier A. The only exception being Åland, as carrier A does not do collections from there, which means carrier B is the only option.

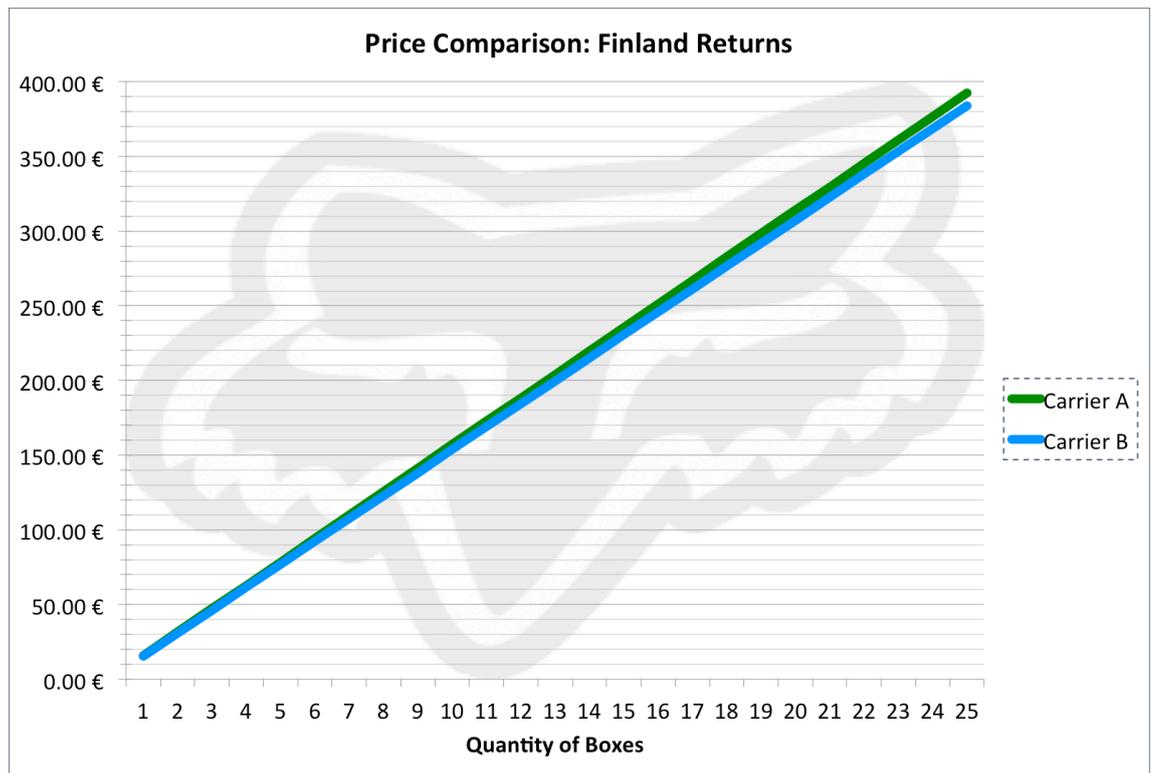


FIGURE 19. Price comparisons between carrier A and carrier B for returns in Finland

### Denmark

Returns from Denmark are cheaper with carrier A, as seen in figure 20. Returns of one box between 1kg and 24kg and returns consisting of more than one box are around 35% more expensive with carrier B. One-box returns that are over 26kg are around 35%-49% depending on the weight of the box. As there are no retailers in extended areas for either carrier, in conclusion, carrier A is the cheapest option for FHE for all their returns from Denmark.

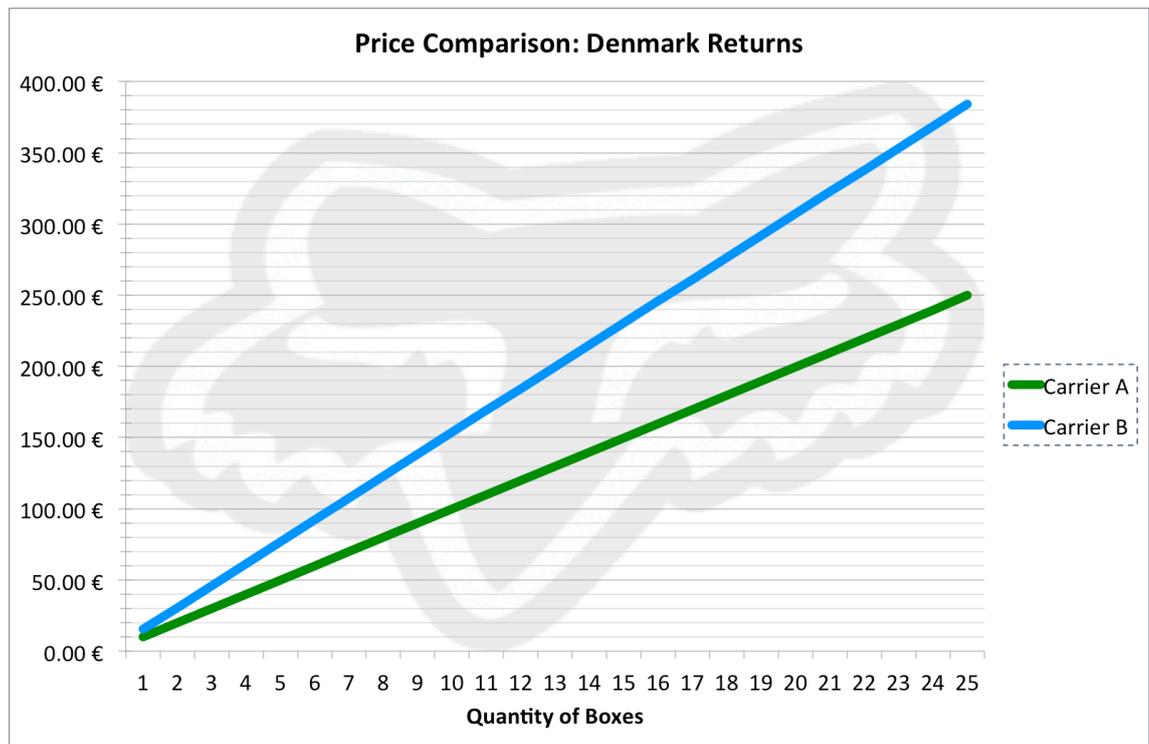


FIGURE 20. Price comparison between carrier A and carrier B for returns in Denmark

### Belgium

As seen in figure 21, returns from Belgium are cheaper with carrier A no matter how many boxes are being returned. The graph shows how the 21% difference in the prices is not huge but noticeable. For returns of just one box carrier B is around 21%-49% more expensive, depending on the weight of the box. This concludes that returns from Belgium should be handled with carrier A.

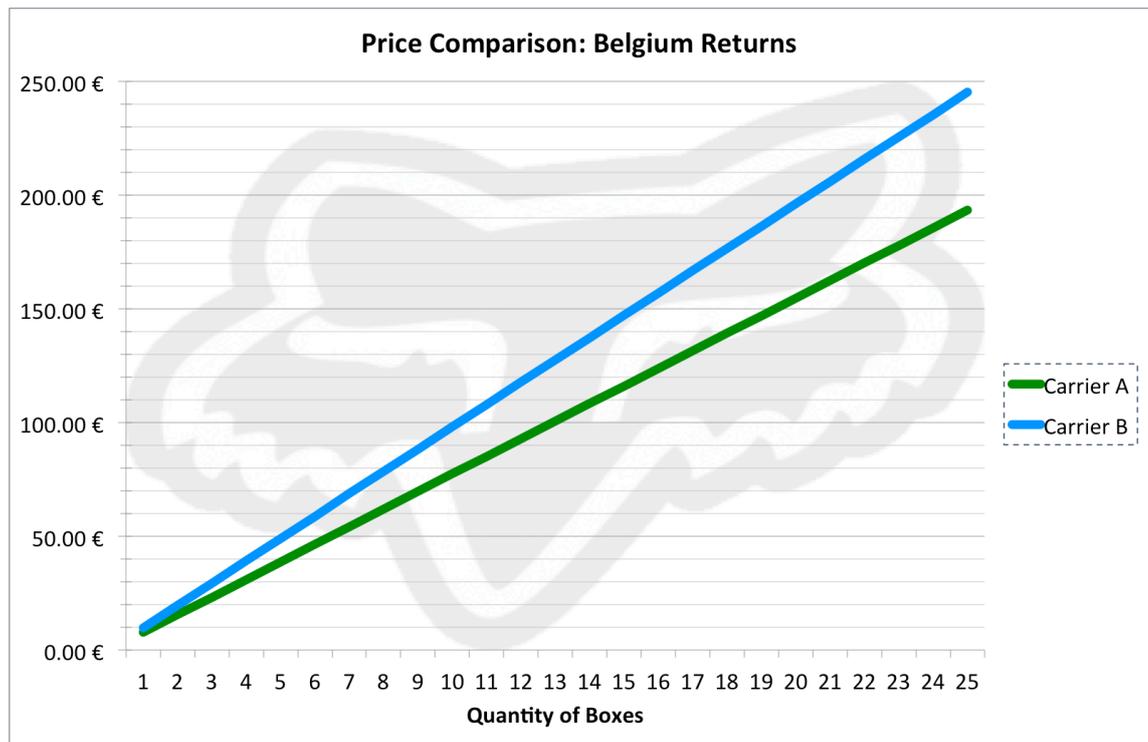


FIGURE 21. Price comparison between carrier A and carrier B for returns in Belgium

### Italy

Returns of a single box of 32kg or less and of more than one box are all cheaper with carrier B in Italy. This can be seen in figure 22. In these cases the price difference between carrier A and carrier B is around 13%. Single box returns of over 36kg however are slightly cheaper with carrier A. Extended area surcharges do not apply, as there are no retailer in the areas, however if they did, and both carriers applied surcharges, carrier B would still be cheaper. This concludes that unless a return consisted of only one very heavy box, the return should be done with carrier B.

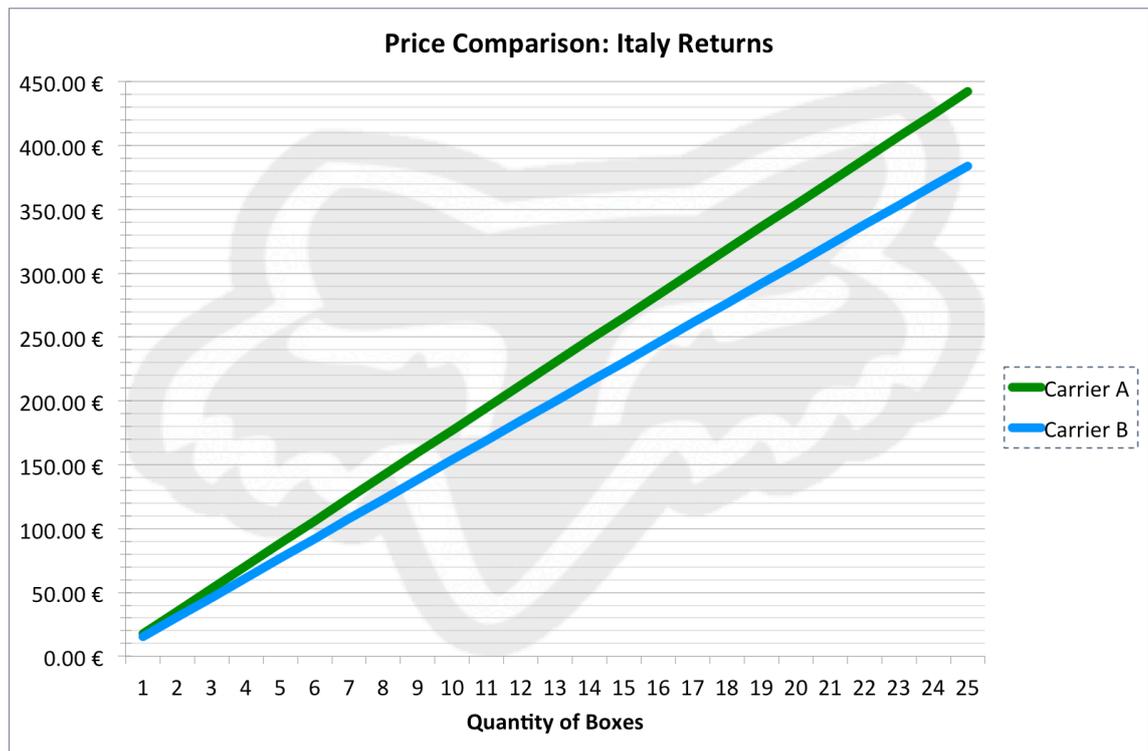


FIGURE 22. Price comparison between carrier A and carrier B for returns in Italy

### 3.2.3 LTL shipments

LTL shipments refer to less than truckload shipments. For FHE this means any shipment from the warehouse to the customer that is from 1 pallet up to 20 pallets. FHE uses one of 4 carriers for these shipments: carrier A, carrier B, carrier C, or carrier D. In this section we will be comparing the 4 carriers to see which is cheaper for every amount of pallets to every postal code. Two tables were constructed for each country, one for prices without a tail lift and one with a tail lift. However as there are numerous postal codes where results vary significantly, and most of the information is confidential, we will be analyzing the information here loosely per country.

#### France

France is one of the biggest markets FHE has, and as a big country has several different postal codes where the prices vary significantly. All in all, in France a comparison between the 4 carriers was made in 50 different postal codes. As these postal codes were all over France the prices of carrier C and carrier D vary significantly while prices for carrier A and carrier B stay the same, except for a few areas where extended area surcharges apply. When it comes to shipments without a tail lift, carrier A is cheaper from

1 pallet up to 7 pallets depending on the postal code. In most cases where carrier A is cheaper only for a few pallets, carrier D is cheaper until 6 pallets and for more than 7 pallets carrier C is the cheapest option. (Figure 23) In some postal codes, however, carrier D is cheaper from a few pallets all the way to 20 pallets, while in some others carrier C is cheaper. With a tail lift the result were about the same except carrier C was more often cheaper for larger shipments as they charge less for the tail lift than carrier D. Carrier B was never the cheapest option.

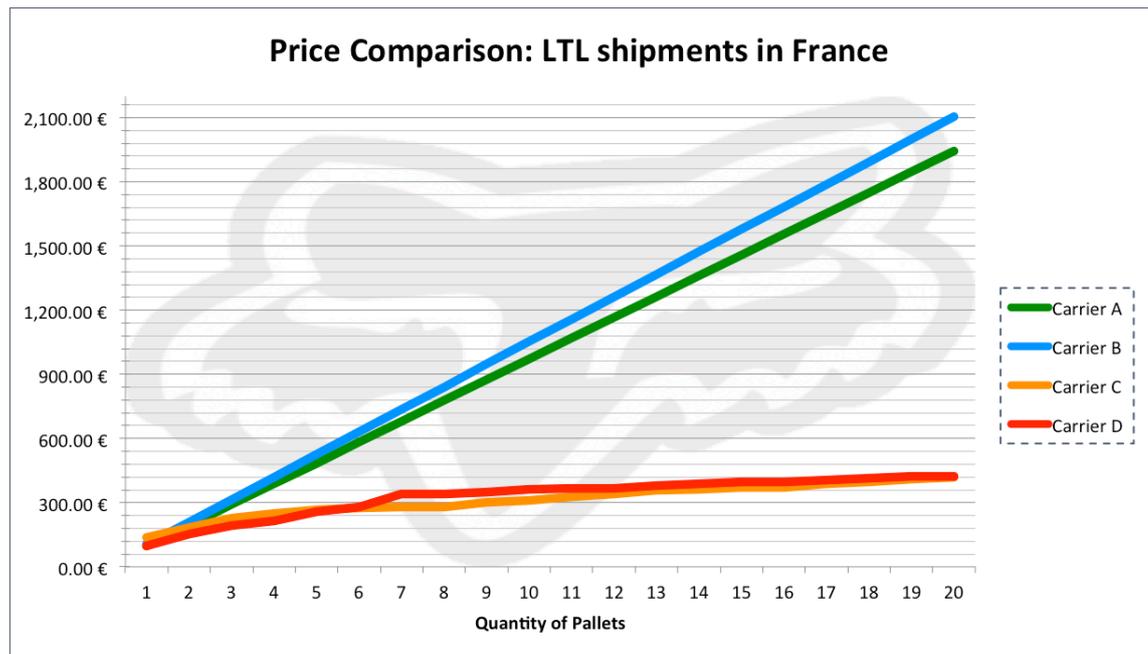


FIGURE 23. Price comparison for LTL shipments in certain areas in France

### Germany

Germany is also one of the bigger market areas for FHE, which is why there are around 22 postal codes where FHE regularly ships larger shipments. For a little over than half of the postal codes carrier A is the cheapest option for shipments of only one box. Half of the postal codes are clearly mostly cheaper with carrier D as shown in figure 24, while in a few areas carrier C was cheapest for almost any size shipment. In areas where those patterns did not apply, usually carrier A was cheapest for one pallet, then carrier D was cheaper for up until 6 pallets and carrier C for the rest. Shipments with a tail lift were usually cheaper with carrier A for around 2-3 pallets, after which carrier C was mostly the cheapest option. In a few areas carrier D was cheaper for around 4 to 10 pallets after which carrier C was cheaper again.

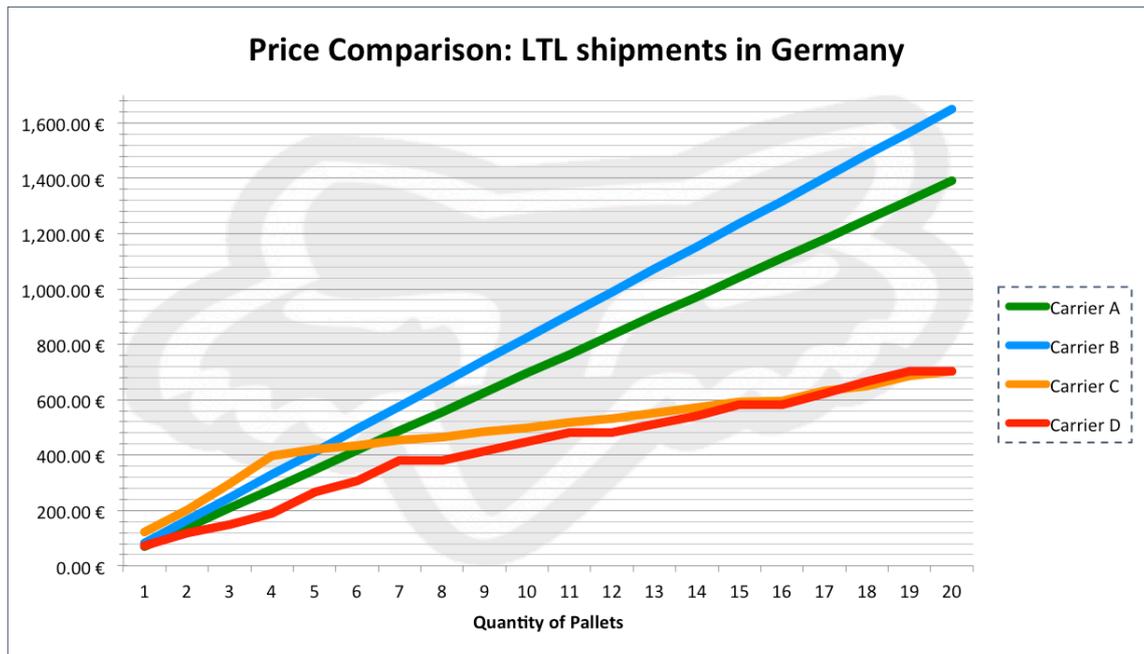


FIGURE 24. Price comparison of LTL shipments in certain areas in Germany

### Austria

In Austria FHE delivers big shipments to 4 different stores in 4 different postal codes. For one of the postal codes Carrier D is the cheapest regardless of the amount of pallets. For the other three postal codes carrier A is the cheapest option for one pallet, carrier C is the cheapest for shipments of 2 to 6 pallets, and carrier D is cheapest for all shipments consisting of more than 6 pallets. (Figure 25) With a tail lift, in 2 postal codes carrier A is cheaper for up to 2 pallets and carrier C is cheaper for shipments of 3 to 8 pallets, and the rest is cheapest with carrier D. For the other two postal codes the results are the same except carrier C is only cheaper for shipments of 3 to 7 pallets, and carrier D is cheaper for shipments of 8 to 20 pallets.

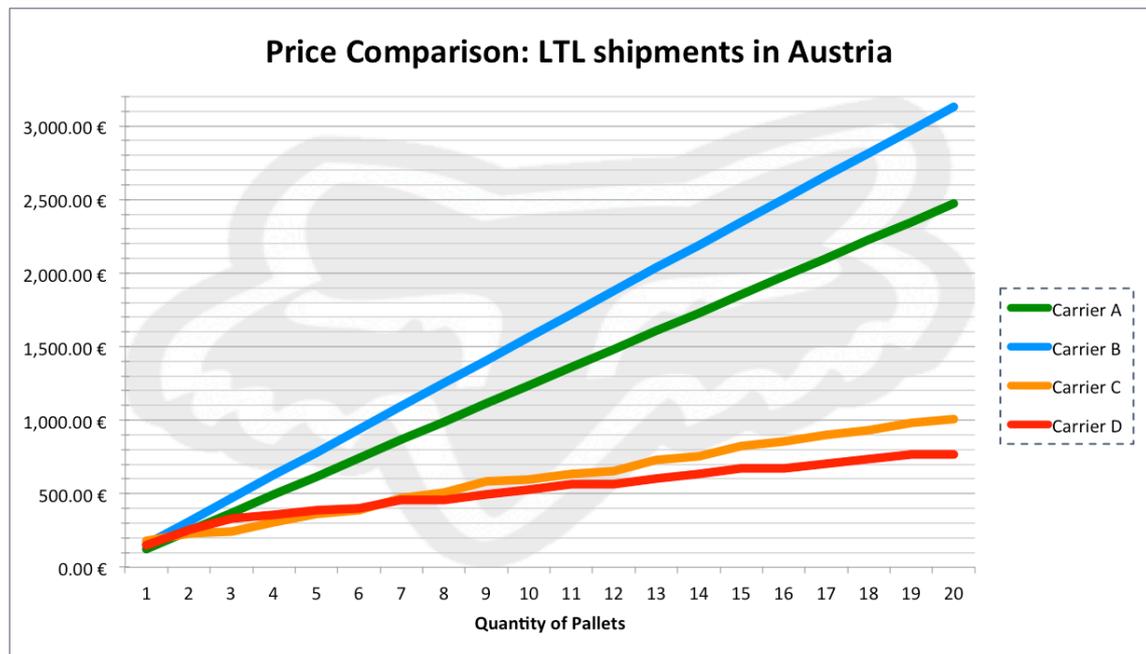


FIGURE 25. Price comparison of LTL shipments in certain areas in Austria

### Spain

In Spain, FHE delivers big shipments to around 15 different stores in 12 different postal codes. In half of the postal codes, carrier A is the cheapest option for shipments of one pallet. In two postal codes carrier A is cheaper for up to 5 pallets. In 6 postal codes carrier D is mainly cheapest while in the other 6 postal codes carrier C is mainly cheaper as shown in figure 26. Shipments requiring a tail lift however were usually cheapest with carrier C in most cases, except for shipments of one or two pallets, which were cheaper with carrier A. This is because carrier A does not charge for a tail lift and carrier D charges 3 times the amount carrier C charges.

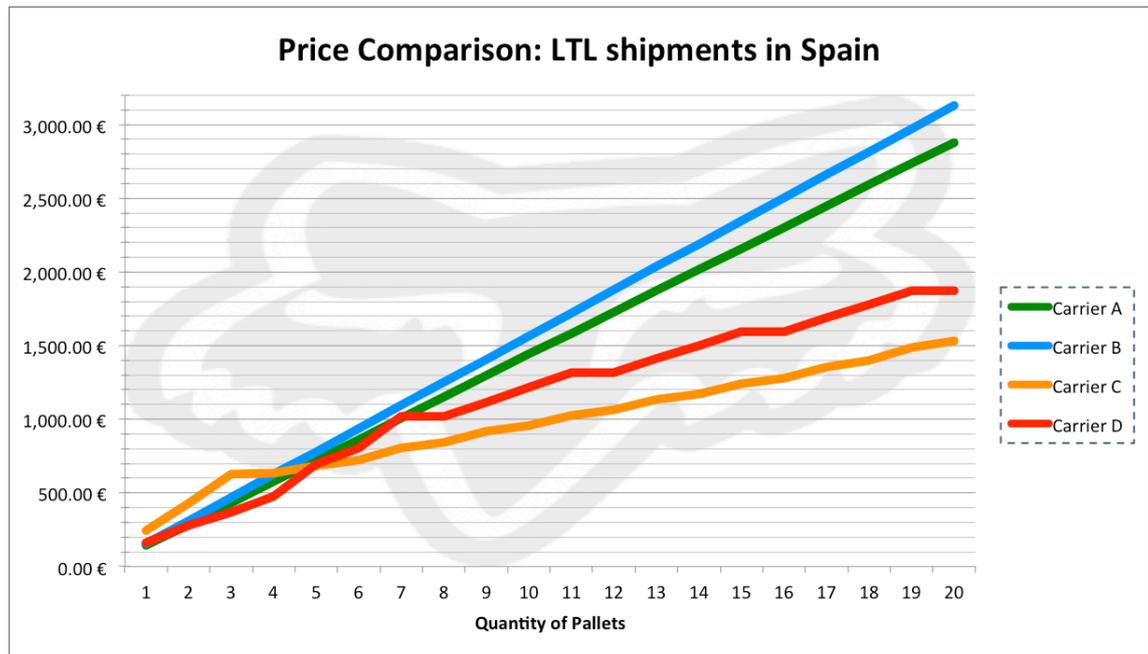


FIGURE 26. Price comparison of LTL shipments in certain areas in Spain

### Portugal

In Portugal FHE only delivers big shipments to 2 different stores. For one of the postal codes, shipments without a tail lift are cheapest using carrier D, except in shipments of only 1 pallet when carrier A is cheapest. In the other postal code carrier A is again cheapest for 1 pallet, carrier D is cheapest for 2 pallets and carrier C cheapest for all shipments from 3 pallets to 20 pallets. (Figure 27) For shipments that need a tail lift, in one postal code carrier A is cheapest for 1 pallet and shipments of more than one pallet were cheapest with carrier C. In the other postal code however, for shipments of 1-2 pallets were cheapest with carrier A and then alternately cheaper first with carrier D for 3-5 pallets, then with carrier C for 6-10 pallets, then again with carrier D for 11-13 pallets, and with carrier C for 14-15 pallets, and with carrier D for the rest.

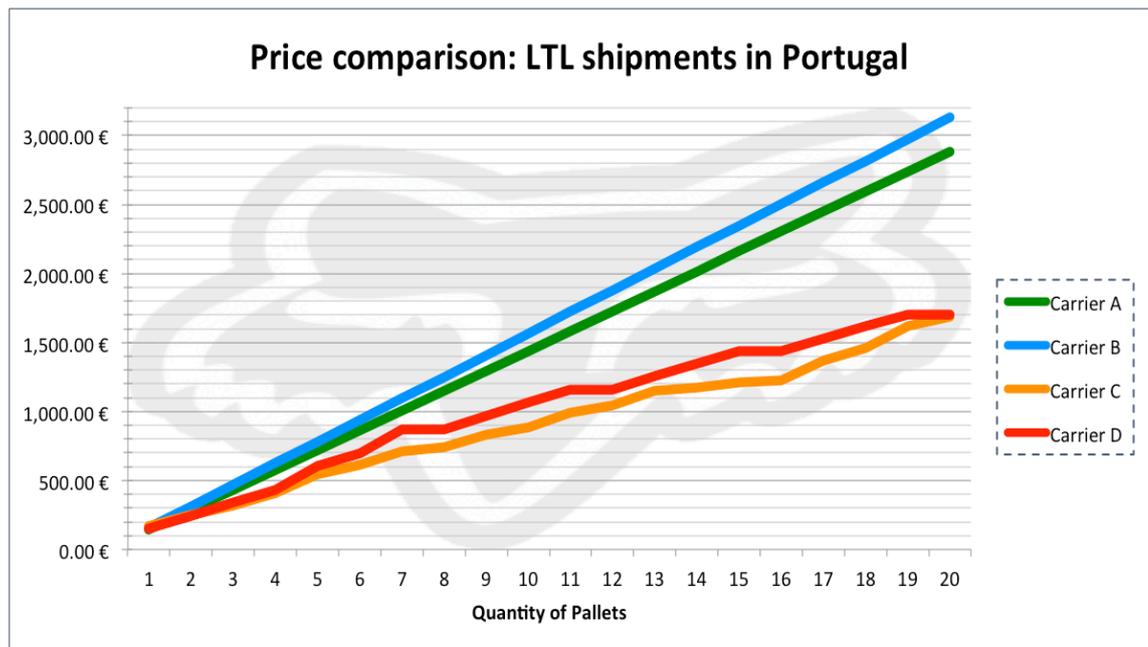


FIGURE 27. Price comparison of LTL shipments in certain areas in Portugal

### United Kingdom

As one of the bigger market areas for FHE, there are around 49 postal codes where big shipments of 1 to 20 pallets are made. For almost all of the postal codes, carrier A is cheapest for shipments of around 2 to 3 pallets and the rest are cheapest with carrier C. (Figure 28) Only in a few cases carrier A is cheaper for up to 5 pallets and then again the rest is cheapest with carrier C. Carrier B is never the cheapest option and carrier D is only the cheapest option in one postal code for shipments of 12-13, 16-17, and 19-20 pallets. In terms of shipments with a tail lift included, the result remains about the same except carrier A is sometimes cheaper for shipments of even 3 pallets.

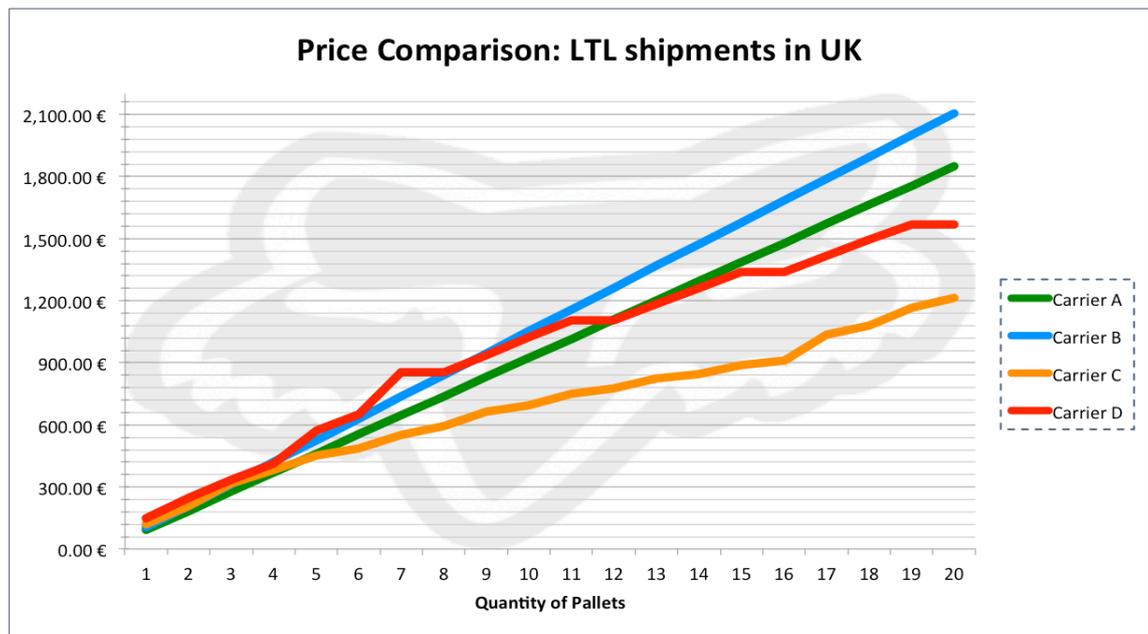


FIGURE 28. Price comparison of LTL shipments in certain areas in the United Kingdom

### Sweden

In Sweden FHE delivers big shipments to 9 different stores in 8 different postal codes. In all but one postal code, carrier C is the cheapest option from 3 to 4 pallets all the way to 19-20 pallets. (Figure 29) In 5 different postal codes carrier A is the cheapest option for shipments of only one pallet, while in the rest carrier D was the cheaper option. Carrier D was also the cheapest option for 2-3 pallet shipments in 7 postal codes. Only in one postal code is carrier D the cheapest option for shipments from 6 to 20 pallets. Shipments with a tail lift are all basically the same in every postal, carrier A is cheapest for 1-2 pallets and carrier C is the cheapest for the rest.

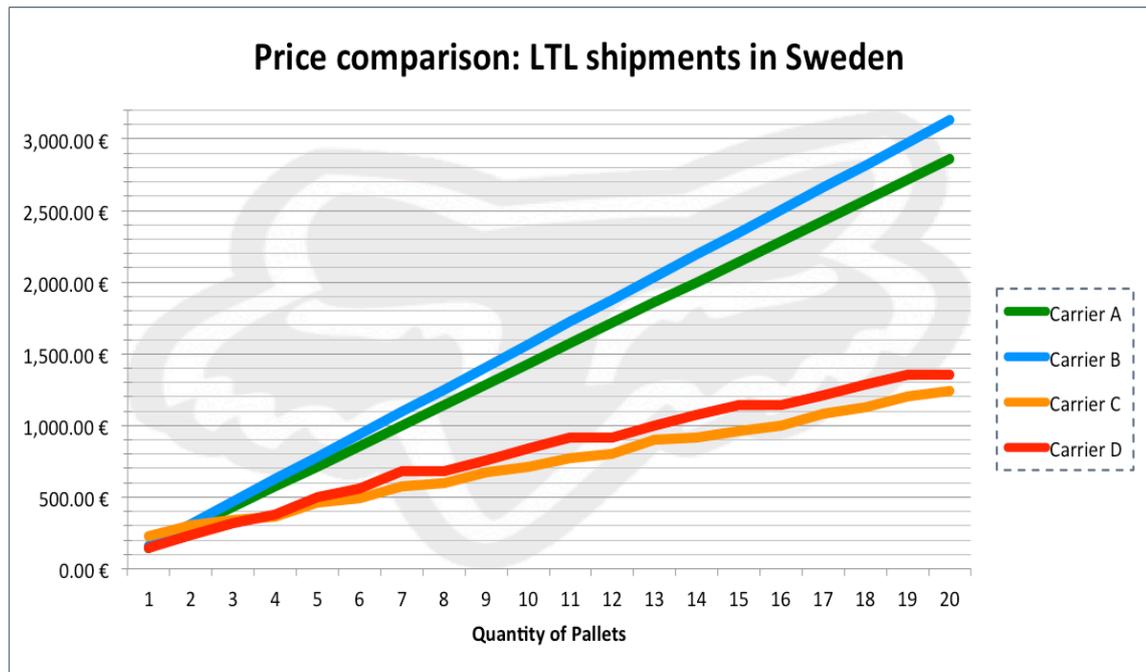


FIGURE 29. Price comparison of LTL shipments in certain areas in Sweden

### Finland

In Finland FHE delivers big shipments to 26 different postal codes. Deliveries to around 10 of the postal codes are cheaper with carrier D, while, as shown in figure 30, in other postal codes for shipments of over 5 pallets carrier C is cheaper. Carrier A is the cheapest option for shipments of one pallet in only 8 different postal codes, and shipments of two pallets are only cheaper in 4 postal codes. Once again carrier B is not the cheapest option for any area or amount of pallets. Shipments with a tail lift included follow the same pattern, except in more cases carrier C is cheaper than carrier D, and carrier A is cheaper than carrier C in smaller shipments.

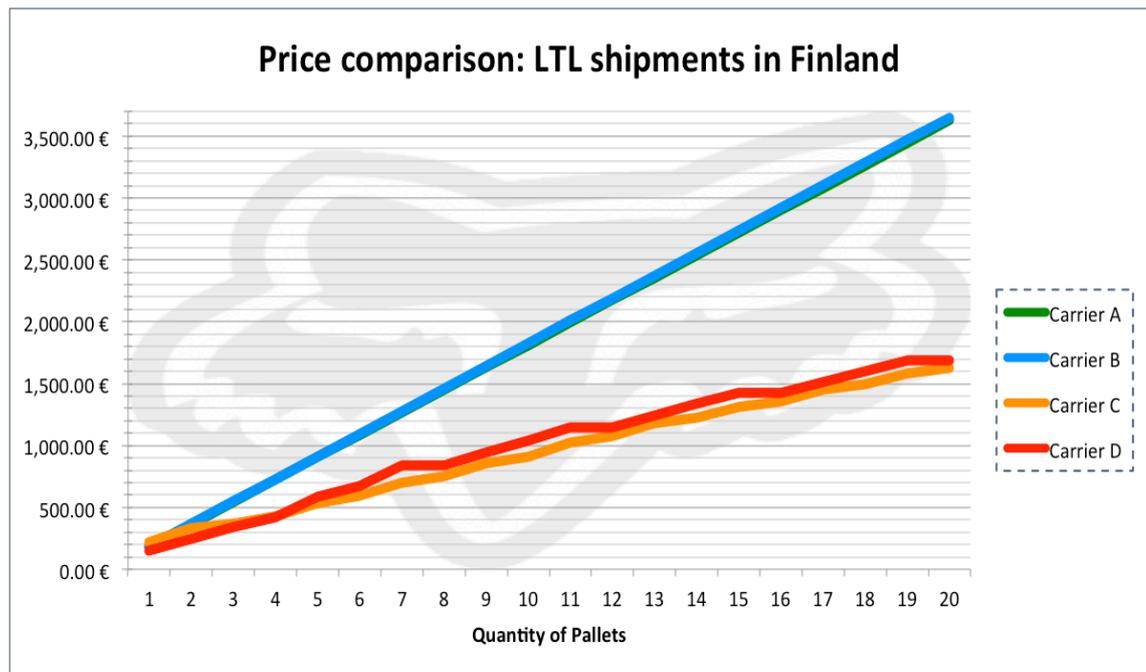


FIGURE 30. Price comparison of LTL shipments in certain areas in Finland

### Denmark

In Denmark FHE only delivers big shipments to one store. Deliveries of 1 or 2 pallets are cheapest with carrier A, and bigger deliveries are all cheaper with carrier C. (Figure 31) If a tail lift needs to be added, carrier A is cheaper for shipments of up to 3 pallets and then carrier C is cheaper again.

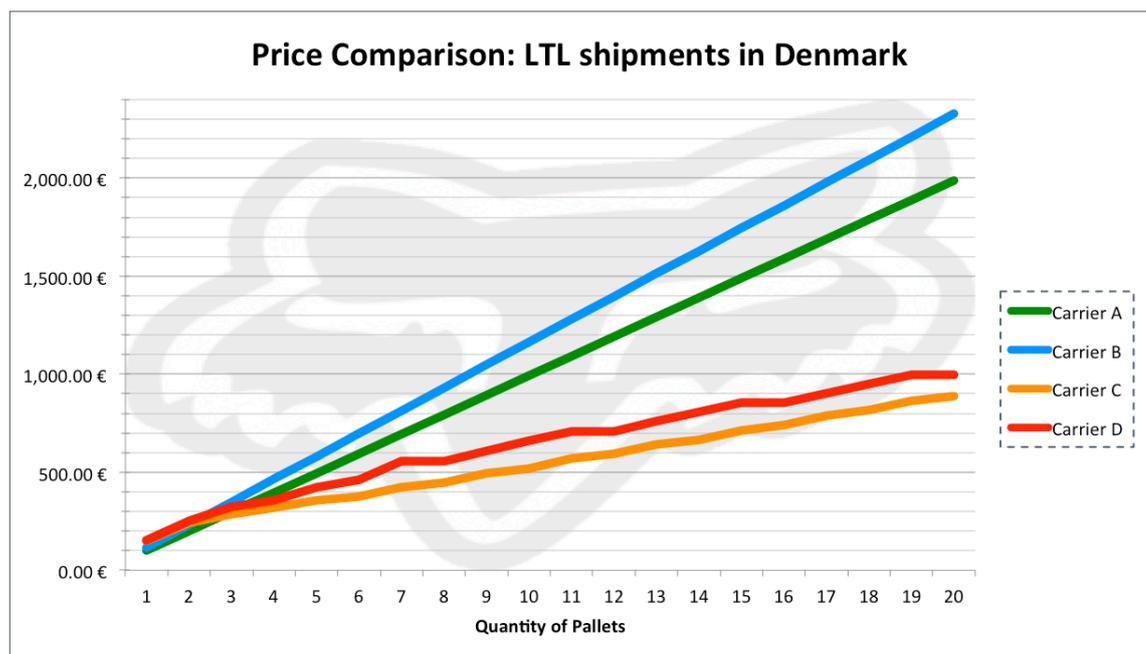


FIGURE 31. Price comparison of LTL shipments in Denmark

## Belgium

FHE delivers big shipments to 8 different postal codes in Belgium. In half of those postal codes carrier C is the cheapest option for almost all shipments, except in some cases carrier A is cheaper for 1 pallet shipments and carrier D for 19-20 pallet shipments. (Figure 32) In the other half of the postal codes carrier A is cheapest for 1 or 2 pallets shipments, carrier C is cheapest for 2 to 10 pallet shipments, and carrier D is cheapest for 8 to 20 pallets shipments. Shipments that require a tail lift are mostly cheapest with carrier C. Carrier A provides better prices for 2 to 3 pallet shipments in most of the postal codes, while carrier D is only cheapest in two postal codes for shipments of 13-20 pallets and 16-20 pallets.

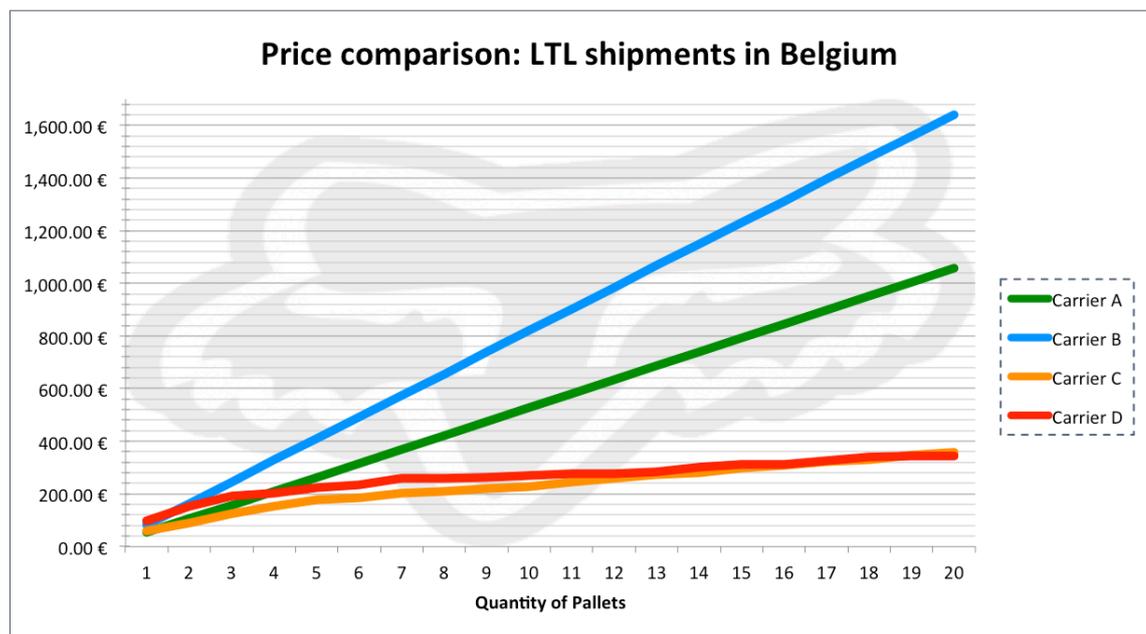


FIGURE 32. Price comparison of LTL shipments in certain areas in Belgium

## Italy

In Italy FHE usually delivers big shipments to 2 different postal codes. In both postal codes carrier B is the cheapest option for 1-pallet shipments, and carrier D for shipments of 5 to 20 pallets. In one of the postal codes, carrier C is the cheapest option for 2 to 4 pallet shipments and in the other postal code for 2 to 5 pallet shipments. (Figure 33) However the price difference between carrier C and carrier D is very little in one postal code, so when the tail lift charges are added, carrier C becomes the cheaper option. In the other postal code this is not the case, however carrier C is cheaper for shipments of 3 to 6 pallets and 10 to 11 pallets.

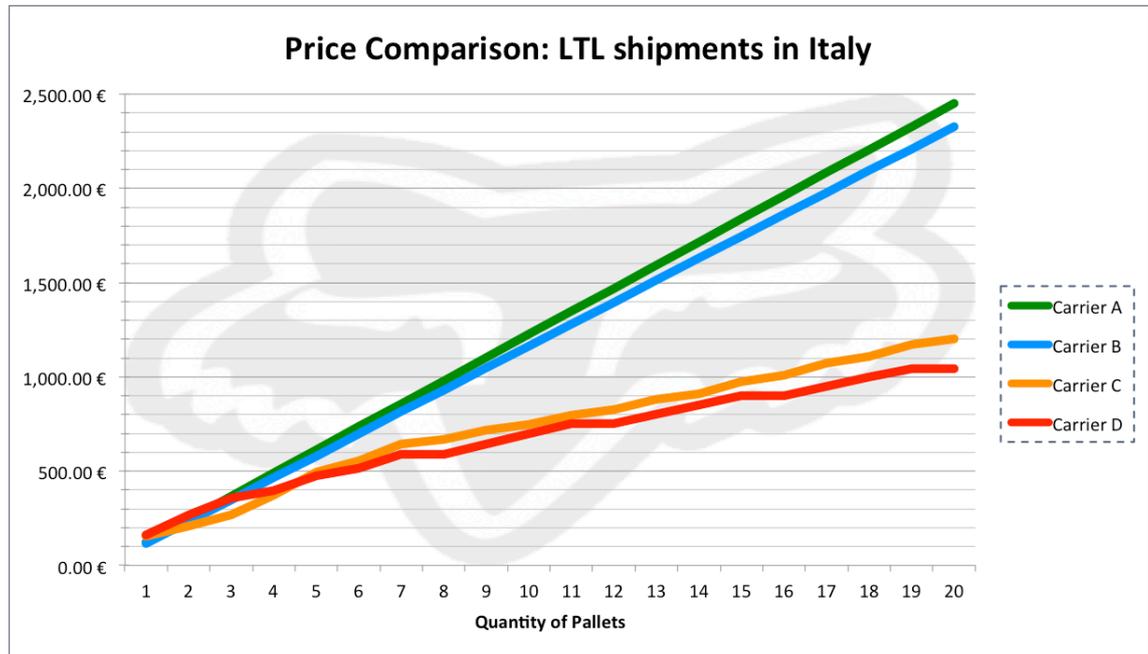


FIGURE 33. Price comparison of LTL shipments in certain areas in Italy

### 3.3 Case Study: Service level

From the previous sections one can conclude that carrier A is cheaper than carrier B in the majority of countries FHE regularly delivers to for both parcel deliveries and returns. In addition, carrier A is also generally the cheapest option for LTL shipments of one or two pallets. In this section we will try to figure out why carrier A is cheaper and how the service quality it provides affects the company and its customers. We will start by comparing the transit times of carrier A and carrier B, and after look into the amount of delays both carriers had and the reasons for those delays. By doing so we can determine which carrier provides better service, and how that is related to the price. We will also be looking at the opinions of the customer service employees at FHE to see what they think about the service level of both carriers and how it affects the customers.

The comparison of the transit times will be done using secondary data provided by the carriers on their website and in their monthly reports. Carrier A has a website where their customers can arrange collections and track shipments. In addition they have a website where their customers can find all information related to their shipments, such as lead times, delay graphs and exceptions. The website allows the customers to track all their shipments from collection to delivery and keep an eye out for shipments that

are not moving normally, as anything that is delayed will show in a different color. The carrier will also tell their customers if they need some additional information to deliver a parcel with expectation emails. With those emails the customer can easily edit or add information for a shipment by just clicking on the link. Carrier B has a website where their customers can for instance create shipments, returns, and schedule collections, and track shipments using tracking numbers. In addition they also have a website where their customers can track all collections and deliveries and handle exceptions. Usually however they send out email alerts about possible delays or exceptions, making tracking everything unnecessary. The carrier also sends out monthly reports on their volume statistics stating the amount of shipments made and how many were delayed and why.

Customer service employees were then asked about their opinions and the opinions of the customers about the service level of the carriers to have a better idea of how these carriers are truly performing. Some of these open interviews were done in person, others by email. Very little questions were asked as the idea was for them to share any thoughts they had, and what they have heard from customers, without leading them too much. The interviews done in person began with an explanation of what it was about and then they were asked to freely talk about their opinions. If the interviewees were not sure about what to tell, a few example questions were given. The interviews done by email had a similar structure, first I explained what I was doing, and then I asked for their opinions and their customers' opinions on the carriers and their performance. I interviewed the customer service employees who are responsible for France, Spain, Portugal, the Nordics, and former customer service employees who used to be responsible for the United Kingdom and Germany.

### **3.3.1 Transit Times**

Transit time refers to the amount of time it takes to deliver a parcel once it has been collected. These days customers have come to expect fast deliveries. This means the carrier that delivers the products faster, is the more preferred one for customers. The transit times per country for carrier A and carrier B are illustrated in table 1. These transit times represent the amount of days it takes for a parcel to make it from FHE's warehouse in Netherlands to the countries listed below. Naturally delivering the countries closest to the Netherlands takes the least time, while delivering to countries further

away takes more time. For some countries in the table there is not one exact number of days, and in most cases this is because delivering to the closer part of the country is faster than delivering to the other side. An example of this would be deliveries made to Germany: delivering from the Netherlands to the west of Germany takes around 1 day while delivery to the east side of Germany usually takes an additional day.

According to the table carrier A and carrier B have the same transit time to Belgium, Denmark, Germany, Luxembourg, Portugal, and the Netherlands. However this does not necessarily mean that both carriers have the same transit time to certain locations. For example, even though the table states that both carriers have a transit time of 3-4 days to Portugal, carrier A only delivers to one area in 3 days and all other areas in 4 days, while carrier B reaches many more areas in 3 days, making carrier B actually faster than carrier A.

Carrier A is shown to have a transit time of either the same amount of days or less than carrier B in Austria and Estonia. While carrier A delivers to Austria in 2 days, carrier B has a transit time of 2 to 3 days depending on the area. This applies also to Estonia. Slovakia is the only country on the list where carrier A has a shorter transit time.

In all other countries listed in the table carrier B normally has either the same transit time as carrier A or less. Carrier B has a shorter transit time in all areas of the following countries: Ireland, Poland, and Slovenia. In the rest of the countries carrier B usually delivers faster than carrier A to certain areas within a country. For example in Finland carrier B has a transit time of 3 to 5 days, while carrier A takes 4 to 5 days, making carrier B faster to the south of Finland by one day. The difference between the transit times of the carriers is usually only one day to certain areas, while to other areas the transit time can be the same. Only in Norway the transit time can be up 2 days faster with carrier B than carrier A.

TABLE 1. Transit time per country

COUNTRY/CARRIER	Carrier A	Carrier B
<b>Austria</b>	2	2-3
<b>Belgium</b>	1	1
<b>Czech Republic</b>	3	2-3
<b>Denmark</b>	2	2
<b>Estonia</b>	4	4-5
<b>Finland</b>	4-5	3-5
<b>France</b>	2-4	2-3
<b>Germany</b>	1-2	1-2
<b>Ireland</b>	5	3-4
<b>Luxembourg</b>	1	1
<b>Netherlands</b>	1	1
<b>Norway</b>	4-5	2-5
<b>Poland</b>	3	2
<b>Portugal</b>	3-4	3-4
<b>Slovakia</b>	3	4
<b>Slovenia</b>	3	2
<b>Spain</b>	3-4	2-3
<b>Sweden</b>	3	2-3
<b>United Kingdom</b>	2-4	2-3

### 3.3.2 Delays

As mentioned before the 7 R's of logistics are delivering the right product to the right customer at the right time in the right place in the right condition in the right quantity at the right cost. When delays happen one of the R's mentioned is not achieved – the delivery at the right time. If the company promises their customer the lead times mentioned above, but the parcel does not arrive within those days specified, the customers will not be happy. Customers do not want to wait longer than promised for their orders. This is true for both B2B customers and B2C customers. B2B customers might need the products on a certain day in order to have enough space to receive and handle the goods, or maybe in some cases to fulfil promises made to their customers about the arrival of goods requested. B2C customers might need the product the next day for their activities, or in some cases the product might be a present that needs to arrive before the birthday party. When a customer is told that the goods will arrive in a few days, they will trust in that. They do not take into consideration that their parcel might get misrouted or damaged in transit.

Unfortunately delays happen to every carrier and for several different reasons that can happen at any given time. There are usually three main groups responsible for delays: the sender, the receiver and the carrier. In terms of sender-induced delays, the reasons for the delays could be anything from incorrect or incomplete data, missing documents to misrouting or shipments not being ready on time. Receiver induced delays can be due to the customer not being at home to receive the delivery or stores not open to receive or even the customer agreeing on a different delivery date. And lastly the carrier induced delays, which can be anything from misorting and misloading to not enough time or space to deliver the parcel.

Delays caused by the sender or the receivers do not affect the service level the carrier provides, as they are not the ones responsible for the delay. However delays caused by the sender still affect the satisfaction of the customers, as they cannot know whether the delay was the company's fault or the carrier's fault. It is important for companies to look into not only how many boxes are delayed but also who caused the delay. Carrier companies usually do share this information, sometimes even with more specific reasons for the delays. In order for the company to determine if they need to make improvements in their processes or possibly change the carrier they work with, these need to be looked into every once in a while.

The carriers FHE uses, carrier A and carrier B, provide this information. Carrier A has a website where they show delay graphs and statistics for every country, providing information on who caused the delay and a more specific reason for it. Carrier B sends out monthly reports on their volume statistics for every country, specifying how many boxes were shipped and how many of those were delayed and who caused the delay. After looking into the total amount of delays, I wanted to find out the percentage of delayed deliveries out of all the deliveries made. Then I looked into how many delays the carrier caused, how many were caused by sender and how many were caused by receiver. If the carrier itself caused many delays it would be a sign of bad service quality. For the delays that were not caused by one of the 3 groups I marked as "other".

From the beginning of January to the end of October FHE shipped 59,028 parcels with carrier A out of which 5,885 were delayed. This means that around 10% of all boxes delivered during that time were delivered late. Figure 34 below shows the parties responsible for these delays. The receiver was responsible for 40% of the delays. The

main reason for the receiver-induced delays was the customer not being there to accept the delivery. The sender was responsible for 8% of the delays, out of which the majority were caused by misroutings. Around 4% of the delays were caused by something else, such as incomplete shipments, force majeure, address changes, or deliveries refused by customers. This means carrier A was responsible for 48% of the delays. The majority of the carrier-induced delays were caused by network delays, while others were caused by lack of time or space on the delivery tour or mis-sortings or mis-loadings.

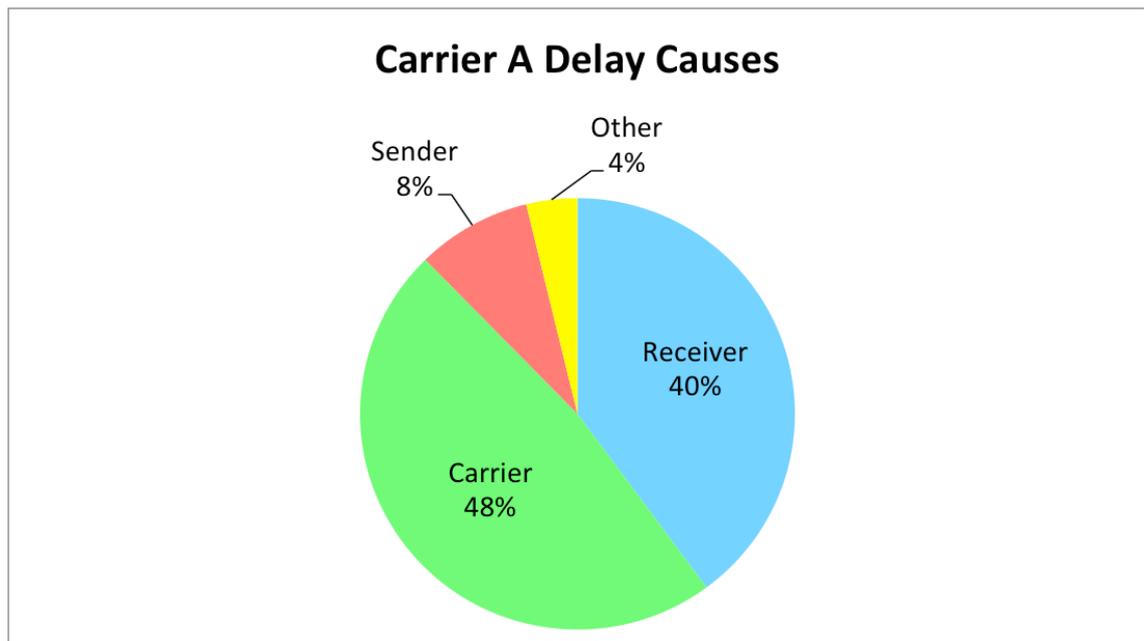


FIGURE 34. Causes for delays with carrier A

Carrier A was used substantially more than carrier B. Since the beginning of January to the end of October a total of 9,342 parcels were shipped by FHE using the standard services of carrier B. Out of the total, 579 parcels had some delays. This means that around 6% of all boxes shipped were delivered late. As seen in figure 35 the receiver was responsible for the majority of these delays. The most common reasons for these delays were the customer not being there to receive the parcels or the customer refused them. In France this often happens when the carrier tries to deliver the parcel on Mondays when most of the retail stores are closed. The rest of the delays were caused by the sender (4%) and the carrier (5%), while there were only 2 boxes that were caused by “other”.

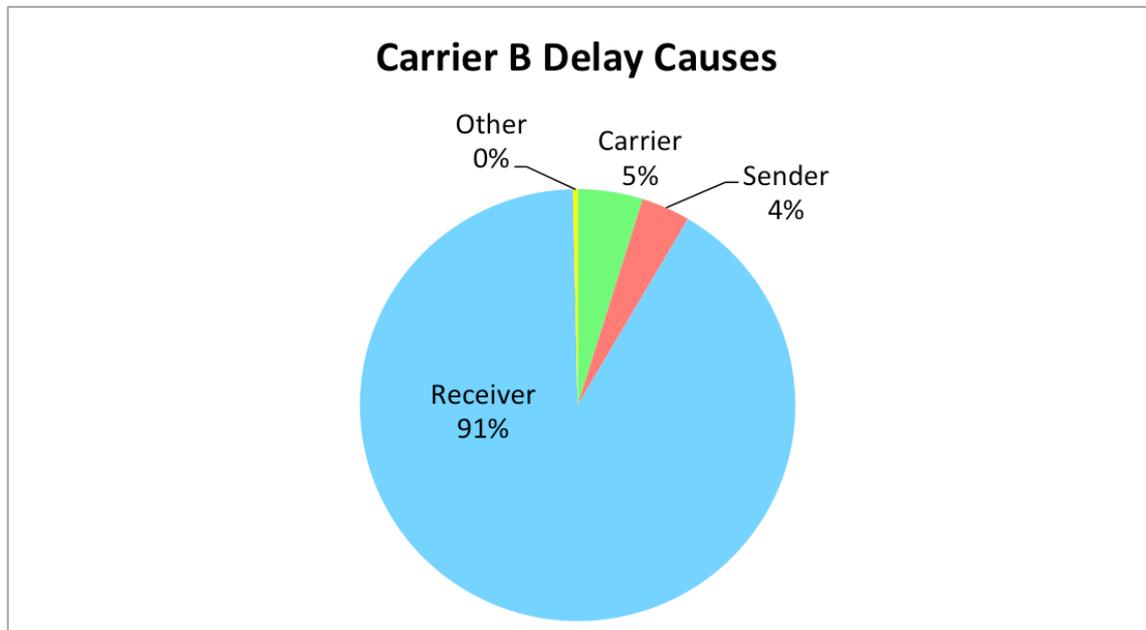


FIGURE 35. Causes for delays with carrier B

### 3.3.3 Customer service opinion

To get a better idea of how FHE transportation choices were affecting the customers, I decided to interview the employees who were directly in contact with the customers and first hand hear about any problems they had with deliveries. Only employees that had been in the company long enough to have experience from working with carrier B and carrier A were interviewed. In addition, a helpful factor was that most of the customers had also had a chance to experience both carriers. FHE used to use carrier B as their main carrier for small outbound shipments but only changed to using carrier A in the beginning of the year 2016. Because of this, many old customers were comparing the carriers once the switch was made; they picked up on the changes that they then communicated to the customer service employees. The interviews helped me to better understand the differences in the service level of each carrier, and I was better able to compare the two. However it is important to keep in mind that the results of the interviews can be affected by the opinions of the customer service employees, and therefore can be partially inaccurate. Interview questions and answers can be found in Appendix 1 and 2.

In FHE every customer service employee has his/her own country or region that they are responsible for. A total of 7 customer service employees were interviewed, out of

which 6 people answered. Three interviews were done face to face, and four were conducted through an email. The interviews were open interviews, where only the main topic was stated, and a few leading questions if needed. This allowed the interviewees to talk about anything that came to mind. This was also a way to get more country specific information without leading the interviewees on. In face to face interviews I told the customer service employees that I wanted to hear their customers' and their opinions on the performance of both carriers A and B. In the email interviews the following questions were used: are the customers satisfied with carrier A? What about carrier B? Do you get complaints about either carrier? If yes, complaints about what? Do you personally prefer using carrier A or carrier B, and why? With the help of these questions I was able to gather the information that was pertinent to my thesis.

From the interviews I learned that in most countries the transition from carrier B to carrier A caused some unhappiness among the customers. Almost all customer service employees said that there were more complaints from customers right after the transition than there are now. In fact after the transition many customers had asked if it would be possible to switch back to carrier B. Deliveries take more time now and all employees agreed that there are clearly more issues with carrier A than carrier B. According to the interviewees issues with carrier A include issues with tracking shipments, on time deliveries, boxes going missing or arriving damaged. Obviously new customers have not been as vocal to comment on the carriers, as they did not experience the "superior" service of carrier B.

According to the interviews there seem to be issues with the tracking of the boxes with carrier A in most countries. This is because the customers were used to the precise tracking information of carrier B that states the estimated delivery date. Another reason why customers preferred carrier B was that they would be in contact with the customer if issues would arise that could cause a delay. Carrier A, however, does not have very detailed tracking information, nor do they have an estimated delivery time. Customer service employees in the France and Portugal also said that there are more tracking issues with carrier A in terms of the driver making incorrect scans that then confuse them and their customers. This is a big problem especially in France. The customer service employee for France stated that he feels he uses too much time trying to solve issues with carrier A. In big market areas like France and Spain carrier A sometimes splits up a big shipment and does not deliver everything at the same time, which the customers are

not happy about. Also these countries have issues with carrier A trying to deliver during lunch time or when the store is closed.

Customers in the Nordics, Germany, UK, Spain, and Portugal were also complaining about how the deliveries take more time with carrier A. The Portuguese customer service employee said that it takes one whole day longer with carrier A and the customers are not happy about it. This is one of the biggest reasons most customers wanted to go back to using carrier B. Faster deliveries and better customer service were the main points that made carrier B better for the customers.

Customer opinions on returns vary by country. The Nordics and Portuguese customers are happy with returns made with carrier A as they do not have to call the carrier to schedule the collection like they did with carrier B. In Germany, UK, and France however, there are issues with collections, and some customers were confused about which parcels the drivers came for, as they would just show up. In Spain there have been cases where carrier A goes to pick up returns, but they do not tell the customer they have come to collect for FHE.

Out of the six people I interviewed at FHE, half of the customer service employees said they would prefer working with carrier B instead of carrier A. The other half said that while there are more problems with carrier A, there are not so many that there is a need to switch back to carrier B.

## 4 ANALYSIS AND CONCLUSION

### 4.1 Price comparison between carriers

In the previous chapter we saw the results for the price comparisons done between carrier A and carrier B for small shipments of less than 25 boxes and returns. The results by country for parcel shipments can be seen in figures 1-11 and for returns in figures 12-22. Based on those graphs we can conclude that carrier A is cheaper than carrier B in all the 11 countries except in Italy. In figure 36, you can see how much more expensive carrier B really was for parcel shipments. These percentages apply only to shipments of two or more boxes of an average weight. In France the percentage difference depends on the area. In the below graph it is shown as 8%, however in some areas the price difference can be as much as 16%. In all other countries the price differences shown below applies to all non-extended areas in said country. In France, Spain, and Portugal the price difference is only around 8%, and in Sweden 9%. In Germany and Denmark carrier B is around 15% more expensive, and in United Kingdom a little bit less at 12%. The countries with the biggest price difference between the carriers are Austria with 21% and Belgium with up to 36%. While in Finland carrier B is only 0,7% more expensive, and in Italy carrier B is actually 5% cheaper than carrier A.

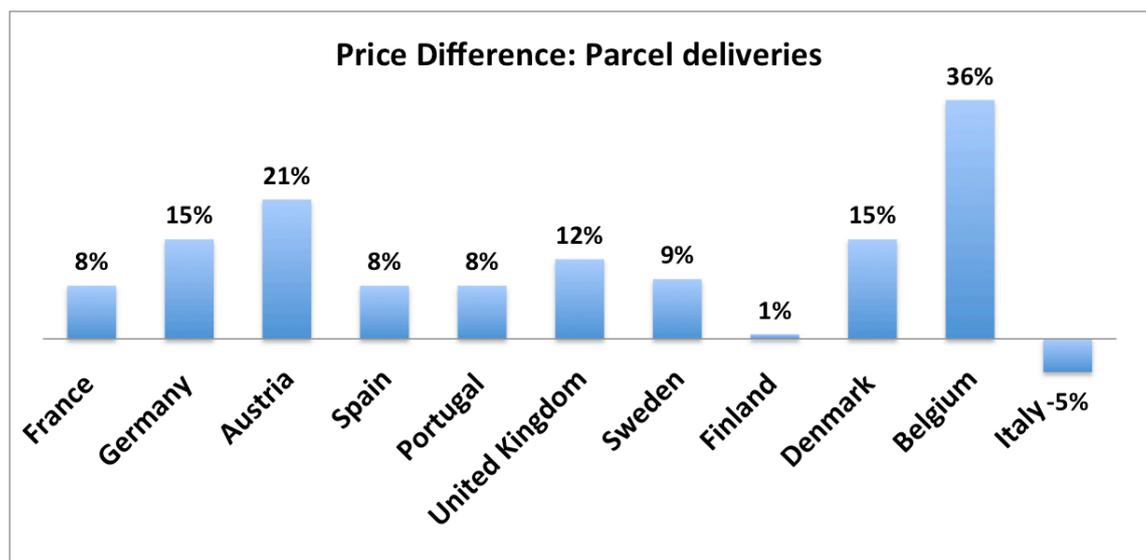


FIGURE 36. Price difference percentages between carriers A and B for parcel shipments

In terms of returns, the price differences between the two carriers are a little bigger than for parcel shipments. Figure 37 shows, in percentages, how much more expensive carrier B was than carrier A. The percentages below apply to all returns of two or more boxes and in most cases also to one-box returns of under 20kg. The countries with the biggest price differences are Spain with 26%, Germany with 28%, United Kingdom with 31%, and Denmark with 35%. While France and Belgium have a little over 20% and Austria 17%, and Portugal only 13%. In Sweden carrier B was still more expensive than carrier A but only by 5%. The two left, Finland and Italy, are countries where carrier B is actually cheaper than carrier A. In Finland the difference is only 2% but in Italy it is a substantial 13%.



FIGURE 37. Price difference percentages between carriers A and B for returns

What these numbers indicate is something that the company already knew from the beginning – that carrier A is cheaper than carrier B in most countries. However with the help of the price comparisons done for this thesis, we now know exactly where carrier A is cheaper, and by how much. This information is essential to knowing how much FHE saves on transportation costs by using carrier A. In countries like France, Germany, Spain, and the United Kingdom where the volume of deliveries is high, using carrier A saves base line costs for FHE. While in countries where FHE only delivers small amounts occasionally occasionally, the price difference only has a marginal effect.

Not only do we know the prices per country, but we also know the price to every store FHE delivers to. This will help in making decisions on which carrier should be used for shipments and returns from a specific store. We also learned based on the price compar-

ison done for LTL shipments that is some basically most countries carrier is was the cheapest option for one or two pallets and after that it was either carrier C or carrier D. We also learned that carrier B was only the cheapest option for LTL shipments in one country, Italy.

Based on these findings, FHE can make educated decisions on what carrier is cheapest and where. Always using the cheapest possible carrier for every delivery could help FHE cut down transportation costs now and in the future. With the price comparison data FHE could also set out to try and negotiate new agreements with the current carriers or start looking for other carriers that can compete in price. With the If however price and affordability is not the only factor in the decision-making, in the next section we will be looking at the analysis of the service level for both carriers.

## **4.2 Service level**

In the previous section, we have established which carrier is cheaper and by how much. In this section we will analyze the service level of both carriers to see if carrier A is cheaper for a reason. This will be determined based on the transit times and delay statistics of both carriers and the opinions of the customer service employees at FHE. In order to get a more accurate picture of the quality of service the carriers provide, I would need to have statistics also on how many boxes were damaged or lost, how many claims were made, and paid. Another helpful statistics to determine quality of service would be how many collections were scheduled, and how many were never collected or were collected late. Also the customer service the transportation companies provide for FHE affects the overall quality of service they give. This can include how fast does the transportation company respond to emails, and how rapidly problems are resolved.

Unfortunately I did not have access to the statistics mentioned above. I did however work with carrier A for around nine months, so I know from experience the service they provide. The problem is that I do not have a lot of experience from working with carrier B. This is because since I went to work at FHE they started to use carrier A for most shipments. As I only have experience with one of the carriers I am not able to compare the quality of service of both carriers. However after conducting the customer opinion interviews, I learned from customer service employees that there are more problems

with carrier A now than there were with carrier B when it was the main carrier. As I do not have any proof of this I can only make assumptions on how the service quality differences between the two carriers.

But let's talk about what we do know for sure. We know based on transit times stated in table 1 and the interviews conducted that carrier A has a longer transit time than carrier B in some countries. Based on the interviews we also know that for some of the old customers in Nordics, Germany, UK, Spain, and Portugal who were used to carrier B, this is a big minus against carrier A. In addition to the longer transit times, some customers were also complaining about other services that were better with carrier B. For example, customers felt that the tracking services carrier B provided were more accurate and up to date. This helps keep the customers informed about possible issues or delays. Customers also appreciated carrier B's estimated delivery date, as it allowed them to be prepared for when shipments should arrive. According to the customers, the online tracking of carrier A is less accurate and, especially in France, customers suffer from drivers making incorrect scans that confuse everyone. Ultimately based on the interviews I can conclude that customers that got a taste of the service of carrier B are not satisfied with the lower quality service of carrier A.

Returns with both carriers got mixed reviews. Some customers preferred carrier B for returns because FHE would send them a label that they needed to attach to the box. This practice helps to eliminate wrong boxes from being returned or delivered to a wrong place. In addition some customers like the fact that with carrier B they could schedule a collection with the carrier when it suited them best. Others however preferred carrier A because they did not need to schedule the collections as that is done by the Traffic Department at FHE. Countries with a bigger volume of deliveries and returns had issues with carrier A's returns as they are not given labels and the drivers just come to pick up boxes, yet do not specify which boxes they actually came for.

In terms of the number of delays, from all parcels shipped using standard services since the first of January to the end of October, carrier A delivered almost 10% of their parcels late, while carrier B was late 6% of the time. The difference of 4% does not sound huge, however it is the reason the boxes were delayed that is important. As seen in figure 38, carrier B was only responsible for 5% of the total delays, while carrier A was responsible for almost 50%. One could argue that if FHE shipped more parcels with

carrier B maybe they would make more mistakes just like carrier A, however it seems unlikely as the difference is over 40%. The sender and receiver induced delays do not matter as much because they do not directly reflect the service that the carriers provide. This leads me to conclude that carrier B has higher quality service than carrier A.

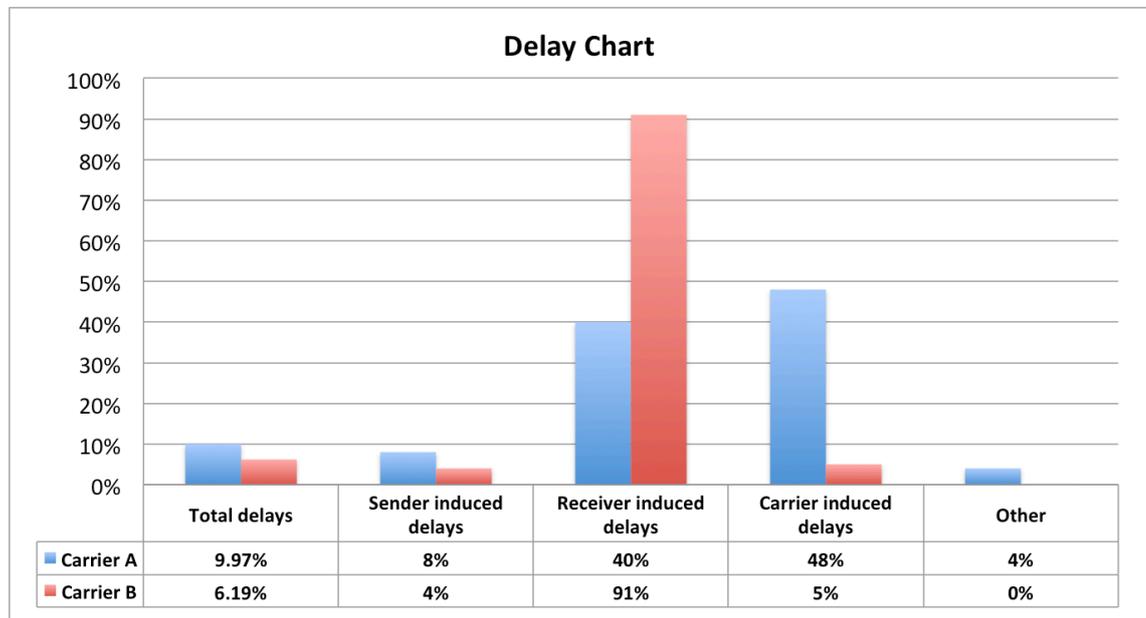


FIGURE 38. Comparison of delay causes between carrier A and carrier B

From my own experiences working with carrier A, I think too much time is spent on monitoring shipments and contacting the carrier about parcels with problems. Every morning would begin with making sure all parcels were moving normally and were on time. When parcels were moving slowly or not at all, I had to contact carrier A to find out the current status in their system, as the online tracking was not always up to date. Then it was time to see if all the collections scheduled for the previous day were collected. Sometimes, especially in France, there were some problems with collections, for example the customer was not informed, had too many or too little boxes, or the box was not ready. In most countries, except in the United Kingdom where they only make one collection attempt, carrier A would try to collect 2 to 3 times and if all failed I had to schedule a new collection. In some countries like France and Spain carrier A works together with local transportation companies, which seemed to slow communication down, as they seemed to always be waiting to hear back from their colleagues.

### 4.3 Final conclusion

Although carrier A is clearly the cheaper choice in most countries FHE delivers to and makes returns from, unfortunately the price does not reflect the service level. However the problem is to decide whether the service is so bad that FHE should choose another carrier, or if the cheap price makes up for the issues it has. This is hard to determine without having all the information. In this thesis we look at the price and the transit times, delays, and opinions of customers, but we are still missing vital information to make a truly educated decision. The information in this thesis can however give the company an idea of how their carriers are performing. FHE can then decide if a further investigation needs to be done or just based on these results open a new negotiation with the carriers to better their performance.

FHE needs to keep in mind that even though they are saving money on transportation costs by using carrier A, the time spent dealing with all the delivery issues is also wasting money. And not only that but according to the customer service employees it is making customers unhappy. Obviously not everyone is unhappy and, especially new customers that did not get to experience carrier B's level of service, they do not know of anything better. However as 10% of all deliveries with carrier A are late, at least 10% of the customers are left unsatisfied with the transportation services FHE provides. And this does not even include customers experiencing other issues like damaged or lost parcels, or multiple failed collection attempts. All of these affect the customers. Ultimately all carriers will have some delays or other problems, but when is it too much? When does low quality service turn into bad service? This is something that FHE needs to look into.

## 5 RECOMMENDATIONS

Now, what can Fox Head Europe do with the information provided in this thesis? FHE can use the price comparisons for small shipments of 25 boxes or less, returns and LTL shipments as a guide to help them always use the cheapest carrier for every delivery to every store. The price comparison tables can be printed out and set at every table for a clear and accessible manual on which carrier to use for all Traffic Department employees. This will eliminate accidental usage of the “wrong” more expensive carrier, and in turn will help reduce transportation costs. These price comparison tables will also help with training new staff, as they can always check from the tables which transportation company they should be using for which stores.

The price comparison can also help FHE in the future in case the company wants to look for new carriers. It can provide some ideas on the price range FHE would be willing to pay, and what level of service they should expect. And if carrier A does not make any effort on improving their performance, FHE should look at the numerous other transportation companies that would love to work with a company like FHE and handle their constantly rising volumes. To eliminate possible bad performance with future carriers, contracts with clear key performance indicators (KPI) should be made, with defined delivery expectations and penalties for non-compliance.

The service level comparison gives FHE an idea on the quality of service they are receiving from their carriers. If the service is not as discussed in the agreements or in other ways does not meet the company’s expectations, FHE can take these results and demand improvement. One big problem areas is the amount of delays with carrier A. Carrier A could also for example work on keeping their online trackings more accurate and providing an estimated delivery date in every country. FHE should also look at reducing the percentage of delays that are caused by them. Most of the receiver-induced delays can be reduced with better planning, and making sure the customer will be there to receive the shipment.

Before any drastic measures should be taken, FHE should look closer into additional service quality information that is missing from this thesis. This information is important to also take into consideration when it comes to deciding if FHE should be using

this carrier at all. FHE should look into not only how many boxes were delivered late, but also how many boxes were damaged or lost completely. How many claims were made in the last 6 months and how many were paid. How many collections were made and how many were actually collected, and out of those how many were collected on time. Also the speed at which the carriers respond to emails is something to keep in mind. This is also true for the time it takes for them to solve cases where a parcel has gone missing. All of these are aspects of the service the carriers provide and if all involve negative results, then there is no question that FHE should switch carriers.

If FHE however is reluctant to change carriers, and wants to keep working with carrier A despite its flaws, there are some processes the company can try to improve to save time and money. Shipments and returns should be consolidated as much as possible. If there are several returns from one dealer, they should be collected all at once. Returns are usually not urgent, especially if the products in question are defective, so instead of picking up a few items per week, FHE could save on transportation costs by only doing two collections a month of boxes full of returned items. In addition when making collections, customer service employees should first make sure the items are ready to be collected, and that the customer knows when the driver will come to collect and what. This way the Traffic Department will save time as they will not have to make multiple collections for one box, and there should be no reason why the box would not be collected in the first attempt. Also in order to save time in the tracking of deliveries there should be only one person responsible for taking care of email alerts. This way one person will be on top of every exception and can push the carrier to act on the new instructions given. With these little things FHE could possibly save money and time if implemented throughout Customer Service and Traffic Departments.

In today's fiercely competitive world where companies offer better customer service, faster deliveries, better return policies, and cheaper prices, no company can compete solely by looking to cut transportation costs. As customers are given more and more alternative products to choose from no company can afford to save money on the expense of providing worse customer service. There are solutions that will make everyone happy. And a happy customer is a loyal customer, and those are essential to all companies.

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## APPENDICES

### Appendix 1. Face to face interviews

Open Interview Answers 1 (2)

#### **Germany**

- More complaints in the beginning (right after the transition from carrier B to carrier A)
  - o Deliveries taking too much time
  - o Sometimes boxes come damaged
  - o Some customers asked if we can change back to carrier B
- Collections more difficult with carrier A for customers because the drivers just comes for boxes, when with carrier B we used labels so less boxes got mixed up with other returns
- Customers thought that we were responsible for the problems carrier A caused
- Customer service employee would prefer using carrier B as deliveries with carrier A take longer and there are more issues

#### **The Nordics (Finland, Sweden, Norway)**

- Old customers want to go back to carrier B because of faster deliveries and less issues where they are not informed
- More issues with carrier A then carrier B
- Carrier B would contact the customers about issues and carrier A did not, however this issue got a little better after everyday tracking started
- Collections with carrier A better because customers don't have to call to arrange a collection
- Customer service employee does not think we need to change back to carrier B as carrier A is not that bad

**France**

- MTB customers done with carrier A (smaller orders/deliveries), while MX customers do not care
- Customers not happy that big shipments are split into many different delivery dates
- Carrier B generally better than carrier A, less issues
- Customer service employee feels he spends too much time with delivery issues
- Wrong scans in deliveries and collections is a big issue in France
- Carrier A has issues like late, missing and damaged shipments
- (In terms of returns) customers used to carrier B label but are ok with carrier A

## Appendix 2. Email interviews

1 (3)

## Interview Questions and Answers

Email sent to customer service employees:

While doing my internship here at FHE I was working on a thesis for the company about the transportation companies we use (comparing prices etc.) and now I would love to hear your and your customers' opinion on DPD and UPS, so it would be great if you had a few minutes to tell me about your experiences with both companies?

For example:

Are customers are satisfied with DPD?

How was the transition from UPS to DPD?

Are you happy with the performance of DPD? Why?

Are you are getting many complaints about UPS or DPD? If yes, complaints about what? How much time would you say you use dealing with these complaints or issues?

Do you personally prefer working with DPD or UPS? Why?

Answers:

2 (3)

### **United Kingdom**

- The majority of deliveries we had seemed to go without issue, these are the ones we never hear about.
- We had a couple of thefts while trying to deliver to Norman Watts in Northern Ireland. On one occasion they reported that the driver seemed to have turned damaged boxes around so that the damage was hidden in the centre of the stack.
- We always seemed to have problems with collections from the stores, but I imagine you are as aware of that as I am.
- We had a few isolated times when the dealers were unhappy with the deliveries, but there didn't seem to be a consistent unhappiness.
- They would all like the deliveries to be faster (a few times in the last year we had major delays getting over to the UK), but a lot of the dealers got spoilt when the warehouse used to be in Newcastle and they got their deliveries the next day.

### **Spain**

- (Customers are not satisfied with carrier A) because they don't deliver all the boxes at the same time.( When are more than 5 boxes). Also they go to the shops when are closed ( Lunch time)
- (After the transition to carrier A) our dealers have one day less to place and receive the orders before the Weekend than with carrier B
- I'm not happy but neither angry there is something which I have to deal with , especially with their website information, is not than clear than carrier B, because carrier B put almost always the correct information. Carrier A has delays on update the information on their web
- (Complaints) Yes, not always but as you could see we had some lost boxes cases. Also when we book a picking up they don't have any Fox reference and our dealers call us to explain that they went to the shop but never say that they came from FOX.
- For my it's the same to work with any of those companies, but we have less problems with carrier B

**Portugal**

- After two months from the switch to carrier A main customers wanted to go back to carrier B
- Carrier A takes one whole business day longer than carrier B, which makes the customers unhappy
- Complaints only with carrier A. About destroyed boxes, inconsistent delivery times, bad tracking status and missing boxes
- Some customer prefer carrier A for returns because customer don't need to call
- (Customer service employee) Prefer carrier B because they have better tracking status, better customer service, parcels arrive in time and before 1pm
- Parcel being delivered 1 whole business day before is a big plus