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MARKET STRUCTURE IN THE DISTRIBUTION SECTOR AND MERCHANDISE TRADE

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ABSTRACT

This study aims at exploring how recent developments in the retail sector affect trade in consumer goods. It focuses on three areas of development: i) internationalisation; ii) market structure; and iii) the growing market share of retailers' private labels. It distinguishes between food and non-food products as there are significant differences between the sourcing patterns of these two product categories. The gravity model is extended by integrating a retail intermediary sector, and a novel estimation technique (zero inflated Poisson) is proposed. It is found that the foreign operations of a retailer are positively related to imports from the host to the home country of the retailer. The rate of market concentration and the market share of private labels are both found to be negatively related to imports of food and positively related to imports of non-food consumer goods, but private labels tend to shift sourcing towards low-income countries. Lower tariffs yield a stronger import response in countries with a less concentrated retail sector, particularly for food items suggesting that competition policy and trade policy are complementary. In developing countries the entry of international retailers can have a positive impact on exports and product quality.

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Keywords: Gravity model, retail sector, trade in consumer goods

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EXECUTIVE SUMMARY

This study aims at exploring how recent developments in the retail sector affect trade in consumer goods. It focuses on three areas of development in the retail sector: i) internationalisation; ii) market structure; and iii) the growing market share of retailers' private labels. It distinguishes between food and non-food products as there are significant differences between the sourcing patterns of these two product categories.

The study starts by describing recent trends showing that although large international retailers have emerged in recent years, most are confined to the national market. In most OECD countries the retail sector has become more concentrated, and the more so the smaller the local market. The market share of retailers' private labels ranged between 2% in Republic of Korea and 45% in Switzerland in 2005.

Case studies of four international supermarket chains and three clothing retailers add further information on the sourcing strategies of major retailers. All food retailers emphasise that they source as much as possible locally, while non-food items are sourced globally. However, aggregate trade statistics show a significant and growing import penetration in food products, suggesting that although the direct supplier to the retailer may be mainly local, the local value added appears to have declined.

Econometric analysis of the relationship between trade in consumer goods and internationalisation of the retail sector shows that foreign operations of a retailer are positively related to imports from the host to the home country of the retailer. The estimated relationship is quite large, for instance suggesting that France imports about 20% more from countries in which Carrefour has established operations (controlling for other relevant factors).

The study finds evidence of significant economies of scale in the retail sector. Market concentration (measured by retail density) could therefore improve efficiency in the sector, but it could also constitute a competition problem. Thus, it is found that ownership concentration as measured by the market share of the five largest retailers is negatively related to imports of consumer goods. There is also some evidence that a higher market concentration of retailers is associated with imports from fewer source countries and thus consolidation of the supply chains.

The market share of private labels are found to be negatively associated with imports of food products and positively associated with imports of non-food products. However, private labels are positively associated with imports from low-income countries (below $1000 GDP per capita) in both product groups, suggesting that private labels in food products tend to be sourced either locally or from developing countries.

Finally an econometric assessment of the relationship between market structure in the retail sector and the trade response to liberalisation of trade in consumer goods was made. Here it was found that reduction in tariffs on food products would lead to a much stronger import response in countries with lower ownership concentration in the retail sector. This effect, albeit much weaker, is also observed for the non-food category.

The study concludes with a policy discussion where it is argued that allowing the entry of international retailers can have a positive impact on exports of consumer goods, particularly in developing countries. Additional benefits for suppliers in developing countries are incentives for quality improvements as the retailers provide marketing channels of sufficient scale for quality investments to pay off. There is also some evidence that the international retailers have contributed to rural development in poor countries. Donors could help extending such benefits to a larger number of local suppliers by channelling aid for trade towards the easing of remaining bottlenecks related to public infrastructure. In addition technical assistance related to complying with new product and process standards would further strengthen producers in developing countries' ability to satisfy the standards of modern retailers, which in turn often reflect consumer preferences. It is finally argued that competition policy and other regulatory policies affecting the retail sector are complementary to trade policy in the consumer goods sectors. It appears that a major policy challenge both in developed and developing countries is to strike a balance where retailers are allowed to exploit economies of scale in sourcing and operations, but not to exploit market power.

1   Introduction

1.   Most consumer goods pass through the retail sector and its sales account for about a third of total consumer spending. In the past retailers were merely seen as conveyors/distributors of merchandise, adding little value for consumers or suppliers. However, in recent years the role of the retail sector has changed dramatically. Retailers create value for consumers by providing more services and a broader range of products. They also play a more active role towards manufacturers and farmers by setting product standards, and through innovation, product promotion and obtaining and sharing information on consumer tastes and behaviour. Given the enhanced role of the retail sector, one would expect that it also plays an important role for the volume and direction of international trade in consumer goods.[1]

2.   This study aims at exploring how recent developments in the retail sector affect trade in consumer goods. The issue has attracted little attention in the trade literature. Apart from a recent study that analyses the relation between competition in the distribution sector (including transport) and total merchandise trade (Francois and Wooton, 2007), there are to our knowledge no existing econometric studies of the relationship between structural features of the retail sector and trade in consumer goods. The study therefore contributes to new information and insights in an important area for understanding how markets respond to trade liberalisation. It focuses on three areas of development in the retail sector:

    i)   the internationalisation of the sector;
    ii)   market structure, including concentration rates and technology;
    iii)   the growing market share of retailers' private labels.

3.   It distinguishes between food and non-food products as there are significant differences between the sourcing patterns of these two product categories.

4.   Over the past few decades, information technology (ICT), urbanisation and widespread car ownership have radically transformed the retail sector. Retailing has become an integrated part of supply chains which are coordinated through the introduction of ICT at all steps from manufacturing, transport and logistics to distribution and finance. For a number of consumer goods, including apparel and food, the retailer has become the lead firm in the supply chain, which implies a shift from supply push to demand-pull of merchandise. Orders are generated from observed real-time consumer behaviour from the retailers' point-of-sales data. These are recorded by means of bar codes that are read by lasers and stored and transmitted to suppliers through computer systems. Goods flow in the opposite direction at frequent intervals to replenish the retailers' shelves. Often goods can be tracked in transit as well by using electronic tags. Such practices are coined "lean retailing", a concept that stems from the ability to substantially reduce inventories as well as lead times in the supply chain (Abernathy *et al.* 2000).

5.   Lean retailers increasingly source merchandise directly from suppliers, be they local or foreign manufacturers. Thus, retailers largely bypass wholesalers and introduce procurement departments, buyer groups and business to business (B2B) internet exchanges in their place.[2] For example in Finland 88% of purchases by "Non-specialised retailers with food, beverages and tobacco dominating" were directly sourced from suppliers in 2002, while the share was 49% for specialized clothing retailers and 78% for

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[1] The idea that the structure of the retail sector may affect international trade is not new. It was for instance an issue in the early 1990s when the US argued that the Large Store Law in Japan constituted an impediment to the sale of US-made consumer goods in Japan (Flath, 2003).

[2] B2B exchanges include the World Wide Retail Exchange (http://www.worldwideretailexchange.org/cs/en/about_wwre/members.htm) to which two of our case studies (Ahold and Tesco) are founding members.

total retail excluding motor vehicles (Eurostat, 2007).[3] In Norway all the major retailers have integrated vertically to include the wholesale function (Gabrielsen, 2006), and this is representative for most OECD countries.

6.   The retail sector has become increasingly international over time and some of the largest companies in the world are retailers. However, among the world's 250 largest retailers in 2005, foreign sales accounted for only 14.4% of total sales, 107 retailers did not have any foreign operations, and the average number of countries of operation was 5.9 (Deloitte, 2007).[4] Analysts refer to differences in consumer preferences and shopping habits between countries as a reason for the limited extent of internationalisation so far. Nevertheless, given the large sales volumes of the leading retailers and anecdotal evidence that they increasingly develop international sourcing strategies, our working hypothesis is that there is a positive relation between foreign operations and trade in consumer goods.

7.   Turning to market structure and its determinants, the introduction of ICT in manufacturing in combination with growing income levels has facilitated proliferation of product variety.[5] Thus, the number of items carried by a typical supermarket has expanded from about 6 000 in 1960 to about 45 000 in 2006 (Abernathy *et al.*, 2000; Food Marketing Institute, 2007). Meeting the growing demand for product variety while keeping inventories and costs down, has resulted in lean but large retailers. The impact on trade of this development is not clear a priori. While demand for variety by itself should stimulate trade, leaner supply chains often means shorter supply chains, which could contribute to sourcing becoming more sensitive to distance and lead time.[6] Likewise there are considerable up-front costs related to direct sourcing from abroad, and large retailers are in a better position to absorb such costs (Bernard *et al.*, 2005; Basker and Van, 2005). A possible outcome of minimising the total cost of sourcing (the price of the product + transaction, transport and storage cost) could be regional sourcing and sourcing from large global suppliers, notably China.

8.   Retailers have recently introduced private labels that they sell in competition with branded products. Private labels are defined as a brand that is sold exclusively by a specific retail chain. The term "store brand" is also used for this phenomenon. Private label products are typically developed and standardised by the retailer and produced by a limited number of suppliers on a contractual basis. By introducing a private label, the retailer takes more responsibility for controlling the supply chain, including trend tracking, product innovation and marketing. This probably increases the retailers' margin (Coriolis Research, 2001), but also exposes it to more market-risks. The value of a brand largely lies in consumers' ability to recognise and distinguish it from other similar products and associate desirable properties to it. These could be value for money or features of the product or production process that appeal to the norms and tastes of consumer groups or sub-cultures. If the product receives negative publicity, the consumer is disappointed, or the product simply falls out of fashion, it is the retailer that bears the largest market risk for private labels. Again the trade impact is not clear a priori. On the one hand, since private labels are usually cheaper alternatives to branded products, one would expect that they are more likely to be sourced

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[3] Eurostat publishes data on the percentage share of retailers' purchases from producers and wholesalers in 2002. Unfortunately only a few countries provide such data and among EU15 data are only available for Finland. For some products specialized exporters and importers play an important role, for instance for fresh food exports from poor countries, notably Africa (Dolan and Humphrey, 2001; Reardon *et al.*, 2007). Wholesalers still play an important role in the consumer goods supply chain in emerging and developing countries.

[4] Dell, Alticor, Avon and AAFES have global coverage and are not included in the average.

[5] The relation between market size and the degree of specialization is explained by an initial fixed cost related to innovation and introduction of new products, processes or tasks, and a related break-even production value. The larger the market and the lower the fixed cost, the more varieties can be carried by the market.

[6] See Nordås, Pinali and Geloso-Grosso (2006) for further discussions.

from low-cost producers than branded goods. On the other hand low-cost suppliers need to comply with the retailers' standards, which are often much more stringent than prevailing local standards. Retailers would then have to screen and monitor suppliers closely, and the costs of so doing could weaken the cost advantage of suppliers from developing countries.

9. In sum the impact of recent developments in the retail sector on international trade is ambiguous as replenishment requirements are likely to shorten and consolidate the supply chains while private labels, foreign investment in the retail sector and cost pressure could stimulate international trade in consumer goods. The net impact is an empirical question which this study aims at shedding light on.

10. The rest of the study is organised as follows. Section two describes and documents recent trends in the retail sector. Section three presents case studies of seven international retailers, four food and supermarket retailers and three apparel/clothing retailers. Section four provides further evidence on the relation between the retail sector and international trade using econometric techniques, while section five discusses policy implications, summarises and concludes.

2   Recent trends in the retail/distribution sector

11. This section discusses three important trends in the retail sector over the past couple of decades. It first presents data on the extent of internationalisation of the retail sector. Next it discusses technological driving forces and finally it describes the proliferation of private labels. The discussion aims at developing hypotheses on how these trends may affect trade in consumer goods. But before we start the discussion, it is useful to bear in mind that the retail sector is a highly diverse sector with a multitude of retail formats that are adapted to local market conditions. Obviously inner city retail outlets are different from out-of city shopping malls and formats also differ depending on the merchandise being sold. Box 1 presents the most common retail formats.

Box 1. Definitions of retail stores

The types of retail stores are largely similar across countries, while formats under each type differ among countries. Below are some general definitions of most common types of stores:

Grocery store. Traditionally established for the retailing of food, grocery stores now stock different kinds of food and non-food items. Small grocery stores that mainly sell fruits and vegetables are known as produce markets (US) or greengrocers (UK).

Supermarket. A departmentalised self-service store offering a wide variety of food and household merchandise. It is larger in size and has a wider selection than a traditional grocery store.

Convenience store. A small grocery store offering a limited line of high-convenience items (e.g. snack foods, liquors or automobile related items). Petroleum-based convenience stores are primarily petrol/gas stations with a convenience store.

Superstore and hypermarket. Very large retail facilities which carry an enormous range of products under one roof, including full lines of grocery and general merchandise.

Independent traders. Retail organisations with limited number of branches (typically less than ten retail stores).

Multiple or chain stores. Retail organisations generally featuring ten or more branches. The chain is often made up of speciality shops, i.e. those selling a related range of merchandise (e.g. furniture, clothing or books and periodicals).

Source: Wikipedia, 2007; Food Marketing Institute (FMI), 2006; and Cox and Brittain, 2004.

2.1 Internationalisation of the retail sector[7]

12.   Internationalisation of the retail sector is relatively new and most retailers still operate in their home country only. Furthermore, most retailers confine their foreign operations to their home region. Among the retailers that have made cross-continental investment, European retailers have so far been the most prominent with Carrefour (France) leading the way with operations in 31 countries in 2005. Even among the world's 250 largest retailers, 107 had no international operations in 2005. The top 250 retailers are based in 27 different countries, but as many as 93 of them have their headquarters in the United States. Japan, UK, France, and Germany combined add another 87 of the top 250. On the list there are also retailers from five non-OECD countries.[8] Among these, South Africa dominates with five companies of which all have operations in more than one country. On average the latter had operations in 8.8 countries, which is more than the average for all retailers on the list.

13.   The world's largest retailer by far is Wal-Mart (USA), which alone accounted for 10% of the top 250's sales, followed by Carrefour (France) accounting for 3% of total top 250 in 2005. Among the top

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[7] The discussion of firm-level data in this section is based on Deloitte (2006; 2007) if not otherwise stated.

[8] Of these, number 60 and 146 are from Hong Kong; number 122, 123, 140, 230 and 246 from South Africa; 138 from Brazil; 153 and 218 from Chile; and 223 from Taiwan. All these except the Brazilian retailer had operations in several countries. South African retailers mostly operate in Africa, but they also have operations in India, Australia and New Zealand. The others are confined to neighbouring countries.

250 retailers, 58% sell food, while the most active in international markets are retailers from relatively small OECD countries (and South Africa), which face limited scope for expansion in their home markets. Finally, among the most global international retailers are non-food retailers where Inditex, a Spanish clothing retailer, ranks on top with stores in 62 countries in 2005 (see the case study of this company). It is noted by Deloitte (2007) that retailers that sell mainly food and groceries tend to saturate one market before they move to the next, while speciality retailers such as clothing and electronics tend to internationalise faster.

14.   The fastest growing retailers among the 250 largest retailers in contrast, are non-food, specialised retailers, such as drug stores/pharmacies, home improvement stores, electronics and clothing. Moreover, among the 50 fastest growing retailers, only 4 are among the 50 largest. The faster growth among the smaller retailers and a relatively high rate of entry and exit in foreign markets indicate that the retail sector is a highly dynamic sector. ATKearney (2006) tracks entry and exit of retailers by region and found that the exit-entry ratio varies between 0.4 (16 entries and 6 exits) in Asia and 0.1 (23 entries and 3 exits) in Eastern Europe in the fiscal year 2005/2006 (June-June). As the case studies in Section 3 indicate, the major retailers appear to aim at being among the top three retailers in the markets they enter and if their market position objectives are not met within a reasonable time after entry, they exit. Thus, Ahold has recently left Poland and the Slovak republic, selling its operations in Poland to Carrefour in order to focus on the Czech market where it had gained a stronger position. By the same token, Carrefour sold its operations in the Czech Republic and Slovakia to Tesco in 2005 in order to focus on Poland where it has a stronger position. As these examples indicate, investment flows in the retail sector is largely in the form of mergers and acquisitions, while green field investments were more common in the early 1990s and still is in developing countries (Coe and Hess, 2005).

15.   Data on foreign sales and foreign direct investment in the retail sector are not readily available. However, piecing together industry and country level data from OECD, UNCTAD and firm level data from a number of sources, reveals that inward investment in large markets have increased rapidly over the past decade, as indicated in Figure 1, depicting inward stocks in 6 OECD countries. The United States and the United Kingdom clearly have the fastest growth rate in inward stocks, but the stock has remained fairly constant in Italy. The Netherlands has the largest share of foreign market participation in their home market.[9]

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[9] While the US, the UK, France, Germany, and the Netherlands are home to some of the world's most active international retailers, Italy had only one firm on the list with foreign operations (Coop Italia with operations in Croatia).
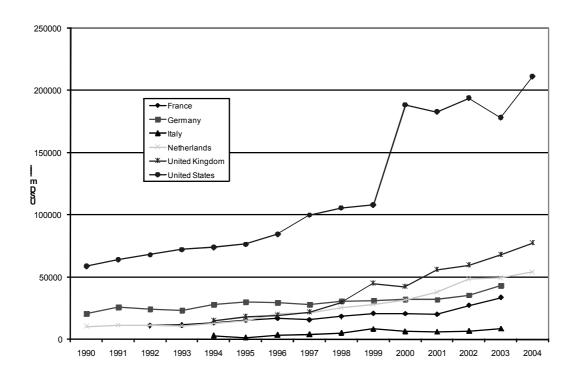
Figure 1. FDI inward stocks, wholesale and retail trade, 1990-2004

Source: UNCTAD

16.   Firm-level data provides further information on the extent to which retailers engage in international operations. Table 1 depicts key information on the 20 largest food retailers in the world in 2005. Three out of these did not have any international operations. For the others there is large variation in terms of shares of foreign sales and the number of countries that they operate in.

Table 1. World top 20 food retailers 2005

Rank	Company	Home country	Net sales € mill.	Foreign sales %	Grocery sales %	# countries
1	Wal-Mart	USA	251,357	23	45	15
2	Carrefour	France	74,497	53	74	31
3	Tesco	UK	56,020	23	74	14
4	Metro Group	Germany	55,722	52	47	30
5	Kroger	USA	48,717	0	71	1
6	Ahold	Netherlands	44,496	82	85	11
7	Target	USA	42,334	0	29	1
8	Costco	USA	41,725	20	60	7
9	Rewe	Germany	41,700	31	76	13
10	Schwarz Group	Germany	36,849	44	83	22
11	Aldi	Germany	36,210	45	83	14
12	Auchan	France	33,608	48	62	12
13	Edeka	Germany	33,200	7	85	5
14	Albertsons	USA	32,469	0	69	1
15	AEON	Japan	32,366	9	59	11
16	Safeway	USA	30,907	16	75	3
17	Leclerc	France	28,500	5	63	6
18	Seven & I	Japan	28,461	26	74	17
19	ITM (Intermarché)	France	27,831	10	65	8
20	Tengelmann	Germany	23,980	46	63	14

Source: Planet Retail

17.   Retailers establishing operations in developing countries appear to follow a common pattern as described in Coe and Hess (2005) and Reardon *et al.* (2007). During the first phase after opening operations in a country, the retailer brings in products from its existing supplier base and the import content of its sales is relatively high. However, local content increases rapidly as the retailer develops linkages to local suppliers. During a third phase import content again increases somewhat due to the development of regional supply chains.

18.   There are also several examples in the literature that retailers source products locally in the host country of their foreign affiliates and over time some of these suppliers come to serve the home market of the retailer. Examples are Wal-Mart's sourcing of soaps and detergents for its Mexican affiliates. The Mexican suppliers have become important suppliers also to the US market (Javorcik *et al.*, 2006) and Tesco's investment in Thailand was found to increase exports from Thailand to the UK (Coe and Hess, 2005). Basker and Van (2005) find that Wal-Mart alone accounted for about 10% of all imports to the US around 2000, but it is not clear to what extent this is linked to Wal-Mart's retail outlets in China. China has played a particularly important role for the sourcing of non-food consumer goods, as illustrated by Box 2. Finally the literature documents that retailers develop centralised regional procurement systems as well as incorporate poor countries in their supply chain.[10] One example is French retailers' sourcing of

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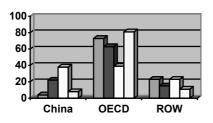
[10] See for instance Reardon and Timmer (2007) for an overview.

horticulture from Madagascar, which has enabled local farmers to switch to more intensive and effective technology, which has secured them higher and more stable incomes (Minten *et al.* 2007).

Box 2: The role of China

Four out of the five largest retailers in the world had retail outlets in China in 2005, and 26 out of the largest 250 retailers. China's share in total OECD imports of consumer goods is depicted in the figure.

Share of OECD imports by product category, 2005

Legend:
- Food
- Durable non-food
- Semi-durable non-food
- Non-durable non-food

Source: Comtrade

Sourcing from China played the most important role for semi-durable non-food products (such as clothing and toys), while for more time-and logistics sensitive products such as food and non-durable non-food, China's share is relatively small and intra-OECD trade accounts for most of the foreign sourcing.

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19.   The hypothesis that we will explore empirically is then that foreign operations of the retailers stimulate imports from the host to the home country of the retailer. It probably also stimulates trade among the host countries of multinational retailers, but that is more difficult to test empirically.

2.2   Market structure and technology

20.   Three interrelated developments are discussed in this section: product differentiation, technology developments, notably ICT, and economies of scale in the retail sector. Product differentiation is first and foremost driven by consumer tastes and affluence, ICT has helped retailers manage a vast number of products and suppliers, while both technology and expanding product variety contribute to economies of scale in the sector. Where relevant the discussion also touches upon product standards, both private and those imposed by government regulation.[11]

21.   The average number of different items sold in a typical grocery store in the US has increased from about 6 000 in 1960 to about 45 000 in 2006 (Abernathy *et al.*, 2000; Food Marketing Institute, 2007). Being able to effectively manage such an enormous product spectrum is a technological as well as organisational challenge which would not be possible without the advances in information technology that have taken place over this period.

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[11] Several studies have documented that differences in product standards among countries, be they in the form of government regulation or private standards, have an impact on international trade flows (Barrett and Yang, 2001; Breton and Salmon, 2001; Hobbs and Kerr, 2006).

22.   When consumer demand is spread over a broader variety of products, demand variability for each product increases and so does the inventory needed in order to avoid stock-outs. This is simply because variation in demand from a pool of consumers is smaller than the sum of demand variation of each individual in the pool.[12] One way of restoring demand variability in the face of expanding product variety is to expand total sales, which suggests that expanding product variety by itself gives rise to economies of scale in the retail sector.

23.   Inventory is costly both because it binds up capital and because it increases the risk of product obsolescence and mark-downs. Therefore, improving inventory control has been of utmost importance in the face of expanding product variety. For example between 1985 and 2001, Wal-Mart reduced its inventory from 19.1% to 11.3% of sales (Coriolis Research, 2001), and the Templeton (2004) study refers to total inventory stock ranging between 28 and 50 days of supply on average in five European countries.[13] Assuming 300 sales days per year, this should amount to between 9 and 17% of sales. More frequent and smaller replenishment orders are one common way of adjusting to changing demand patterns while keeping inventory costs low. In a survey of British suppliers to the retail sector it was found that 42% of all suppliers (and 69% of those supplying unpreserved food) had daily delivery to the retailer (GfK, 2007). When daily delivery is required, one would expect that first-tier suppliers be local, although local suppliers could of course have high import content.

24.   The retail sector has been at the forefront in adopting ICT in order to manage its supply chain in many countries. Important innovations that contributed to the retail revolution were the bar code and lasers for reading it.   More recently electronic tags have been added allowing tracking of merchandise during transit. The bar-code was invented for the food sector in the late 1940s, it was introduced on a commercial basis in the 1960s, and spread to mass retailers, notably in the apparel sector in the 1980s.   ICT investments include electronic data interchange systems that allow point-of-sales data to be shared among retailers and suppliers, provided that they have a common software platform (Abernathy *et al.*, 2000). Pilat *et al.* (2002) find that retailers invested more than the industry average in ICT in Canada and the Netherlands and at about industry average in USA and UK in the mid-to late 1990s.[14]

25.   Another technological change following in the wake of lean retailing is the replacement of warehouses with distribution centres. A distribution centre consists of bays for incoming and outgoing trucks and conveyor belts between them. Typically incoming bar-coded containers are routed to the correct outgoing bay and truck by means of electronic control systems. Since goods are not stored there, a distribution centre is much smaller than a warehouse.   Abernathy *et al.* (2000) found that the cost of a distribution centre is about seven times larger than a warehouse servicing the same geographical area, while operating costs are substantially lower. This is another source of economies of scale in the sector.

26.   As far as logistics are concerned, it was common for producers or importers to deliver their produce either to wholesalers or to shops in the 1980s. However, as distribution centres have replaced warehouses, external logistics between the distribution centres and the shops have become part of retailers' core business and day-to-day operations. Since the late 1990s some retailers have extended their logistics

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[12] For instance one household will have demand peaks for family events (births, birthdays, etc) and demand bottoms during vacations, illness etc, while for a large pool of households such events will be evenly spread over time. Likewise preferences, shoe sizes etc. will be normally distributed in a large pool of customers, but not in a small pool of consumers.

[13] These countries were Germany 50 days, France 43, Italy and Spain 42 and UK 28.

[14] These are the countries for which data could be found. We estimated the share of computers and software (measured at historical investment cost) of total retailer equipment investment in the US, and found it to be lower than industry average for most of the period, however. The estimates were made from BEA data available on www.bea.gov.

further up the supply chain all the way to the suppliers' factory gate and the retailer increasingly bears the cost of inbound logistics directly. This way of organising the supply chain has been most common for so-called slow-moving dry grocery products. The cost savings from integrating logistics all the way to the factory gate can be considerable and stem from trading off inventory and transport costs on a broader product range by coordinating delivery from many suppliers (Blanc *et al.*, 2004).[15] This development is also likely to favour local suppliers.

27. More recently regulation has contributed to further demand for efficient supply chain management. For instance EU regulation 178/2002 requires that traceability shall be established at all stages of production, processing and distribution, which requires appropriate systems and labelling (Article 18). In addition new regulation on chemicals in the European Union (REACH) is expected to induce retailers in the EU to forge closer relations between their suppliers outside EU in order to ensure that the new regulatory measures are met. This is particularly relevant for clothing and electronics and may well contribute to further consolidation of the supplier base, and possibly improving the relative competitiveness of EU firms in EU markets, at least for a transitional period.[16]

28. In addition to food safety standards set by government regulation, several recent studies have found that food retailers tend to introduce their own standards that typically go beyond the minimum regulatory requirements set by governments (Berdegué *et al.* 2005; Dolan and Humphrey, 2001; Fulponi, 2006; Reardon and Timmer, 2007). Commitments to quality, product differentiation and fear of litigation have been suggested as motivation for setting private standards. In addition, in developing countries private standards sometimes substitute for lack of or poorly enforced government standards (Reardon and Timmer, 2007). Finally, environmental concerns, e.g. retailers' introduction of carbon miles have entered the equation (see Box 3).[17] If widespread, taken seriously by consumers and limited to transport rather than assessing carbon emissions for the entire supply chain of the product, carbon miles could increase the sensitivity of import demand to distance and put remote suppliers at a disadvantage.

29. Monitoring and testing compliance with standards, whether private or set by government regulation, is information-intensive and requires adequate ICT systems in order to effectively monitor a large number of suppliers. The more complex is the regulatory regime governing consumer goods, the more information-intensive will the governance of relations to suppliers be. This can be an additional source of economies of scale in the retail sector.

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[15] See the case study of TESCO for an example.

[16] Interview with the director of procurement in Carrefour, China.

[17] For instance Carrefour has a supplier charter requiring compliance with basic human rights and labour standards. Since the year 2000 when the charter was introduced the company has undertaken 1460 supplier audits. This is a relatively small number bearing in mind that Carrefour has 4 000 -15 000 suppliers in each country it operates (Carrefour Annual Report 2006).

Box 2. Poverty Reduction or Environmental Protection?

Tesco has been at the centre of the 'carbon miles' debate since the beginning of 2007 when it declared its intention to cut by half the import of air freighted goods and to introduce "carbon counting" labels. This attempt to deliver greener consumption is based on the idea that clearer information on carbon costs of products on Tesco's shelves would permit conscious green choices by customers. In so doing, consumers would be able to evaluate products not only by their price and nutritional profile but also by their carbon footprint.

A report by Cranfield University in 2007, which was commissioned by Tesco's rival Sainsbury and World Flowers, finds that carbon emissions from Kenyan Roses, including air freight, are 5.8 times lower than for Dutch roses. These findings imply that carbon miles cannot be considered in isolation, but, as in the case of Dutch roses, other inputs (for example, artificial light and heat from fossil fuel instead of natural sunshine in Kenya) can add to energy consumption. AEA Technology also published a report in 2005, funded by the UK Department for Environment, Food and Rural Affairs (DEFRA), providing evidence that total food miles cannot be an absolute indicator for sustainable development.

Furthermore, buying goods sourced at the shortest distance from the household's table, while fitting in the overall climate change debate, could put poor countries at a disadvantage. Countries like Kenya, whose fresh flowers, fruits and vegetables make up 65% of all exports from Kenya to the EU, half of which goes to UK's supermarkets, could suffer from this new policy. MacGregor J. and Vorley (2006) find that air freight is the only way for highly perishable good to get to international markets.

The trade off between poverty reduction and environmental effects of air freight transport constitutes a policy dilemma. MacGregor J. and Vorley (2006) propose a tool for decision makers to weigh environmental harm against developmental gains. For them, it is key that: (1) the degree of harm is quantified and put into the context of other food choices, (2) the degree of harm is put into context of Africa's current use of 'ecological space', and (3) the degree of development gain is quantified.

Source: BBC (2007), Sainsbury (2007), Tesco (2007), MacGregor J. and Vorley (2006), AEA Technology (2005).

30.	In sum the impact of lean retailing on suppliers is substantial. First, suppliers must invest in ICT in order to be able to communicate with the retailer and receive and process their orders, including for rapid replenishment. The division of labour between retailer and supplier has shifted as retailers have taken over more of the logistics, marketing and in many cases also product design as will be further discussed in the next section.[18] On the other hand suppliers have taken over packaging and labelling as products are made ready for the shop shelf by the supplier. The finished goods inventory risk has to a significant extent been transferred to the suppliers. For instance contracts between suppliers and retailers where retailers may return unsold units are not uncommon (Dobson et al, 2003). Suppliers will in such cases have incentives to reduce market risk by more flexible production systems and shorter lead time, often passing the risk further up the supply chain to the suppliers of raw materials and other intermediate goods.[19]

31.	As already indicated expanding product variety and technology developments are interrelated and contribute to economies of scale in the retail sector. The presence of economies of scale can be assessed by analysing whether productivity or profitability increases systematically with the scale of operation. Several studies that have attempted to calculate productivity in the retail sector find that firm size explains a significant part of productivity differences. For instance a much quoted study by Templeton College (2004) uses firm-level data and finds that the largest retailers are more productive than the smaller.

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[18]	Retailers have also increasingly taken over the wholesale function in most OECD countries, although in developing countries wholesalers have an important role to play and in many cases provide the intermediary between local suppliers and international retailers.

[19] See *e.g.* Coe and Hess (2005) for further discussion.

32.   The Templeton study argues, however, that it is difficult to compare productivity across retailers and countries since retailers differ a lot in terms of how much customer service they provide; *e.g.* no-frills discount stores at the one end of the spectrum and specialised designer stores at the other. They therefore argue that the net margin is a preferable measure of productivity when comparing retailers across formats, products and countries. Perhaps, but one would expect that a higher service level is reflected in higher prices and that sales revenue per employee is not necessarily negatively related to the service level.

33.   In order to shed further light on the issue, we regressed sales per worker on size of company, controlling for capital stock per worker adding country and time fixed effects (fixed effects control for unobserved country or time specific variables) in panel data from Eurostat, covering 12 European countries during the period 1995-2004. We found that labour productivity does indeed increase with the size of the retailer.[20] Taking the less than one employee retailer (i.e. the "mom and pop store") as the yardstick, we find that the enterprise with one employee has about two thirds higher labour productivity than the "mom-and pop shop", while the enterprise with more than 200 employees has about twice as high labour productivity as this yardstick (see the Annex Table A3.1 for details).

34.   The international retailers discussed in section 2.1, however, all have more than 200 employees, and it would be interesting to explore to what extent scale economies increase with size also within this category. To get an indicator of this we used firm-level data from World Scope. In a panel of 35 firms, we could not find evidence that productivity as measured by sales per worker or as measured by net margin varied systematically with the size of the firm within this group, suggesting that the international retailers have fully exhausted economies of scale.

35.   Numerous studies have found that market concentration has increased over time (Clark *et al.* 2003; OECD, 2006). This has raised concerns about market power not only in the consumer market but also buying power. Several studies have documented contractual relations between retailers and suppliers that indeed indicate buying power (Dobson 2005; Clark *et al.* 2003; Noll, 2005), although there is no consensus on whether or not competition authorities should restrict such practices as long as cost savings are passed on to consumers. Furthermore, even if large retailers may have buying power in national markets, this is less likely for international sourcing.

36.   The impact of technology, product differentiation and scale on trade is indeterminate a priori. The need to reduce the impact of demand volatility on inventories and costs leads to faster and more efficient logistics chains, but ICT-based supply chain management tools make such requirements compatible with relatively long supply chains.

37.   Finally, it takes large retailers to source directly from manufacturers abroad. Only large retailers have resources to incur the fixed costs related to establishing and enforcing contracts with foreign suppliers and to make sure that they comply with product and process standards in the importing country – or the retailer's own standards. It has for instance been argued that Wal-Mart has contributed significantly to the rising market share of low-cost countries, notably China in the US markets for consumer goods, both due to its scale and its advanced technology (Basker and Van, 2005).

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[20] Eurostat classifies firms into 8 size categories, less than 1 employee (the mom and pop shop); 1 employee; two to less than five employees; five to less than 10 employees; 10 to less than 20; 20 to less than 50; 50 to less than 200 and more than 200.

2.3 Developments of private labels[21]

38. There is a growing literature on the impact of private labels on manufacturers of branded goods' profits, incentives to innovate, total channel profits and consumer surplus. However, to our knowledge there are no studies that explicitly analyse the impact of private labels in international trade.

39. Private labels are defined as a brand that is sold exclusively by a specific retailer or chain. Private labels first appeared as a cheaper, lower-quality alternative to the branded goods. Although private labels have become much more diversified over the years and also include premium varieties, the budget items still dominate. On average the price of private labels was 31% lower than comparable branded goods, ranking between 48% (in Greece) and 10% (in Thailand) in a sample of 38 countries in 2005 (ACNielsen, 2005). The largest price differences are found in personal care products where the price is typically about half for private labels compared to branded products.

40. Retailers with a strong brand name have introduced niche premium own label products such as organic food, healthy food and fair trade food (see for instance case studies of TESCO and Carrefour below). It has been argued by several analysts that retailers with strong private labels make higher profits. The evidence on to what extent the margin on private labels is higher than for branded goods is, however, mixed. But even in the cases where the margins are not higher, private labels could improve the retailer's bargaining position relative to manufacturers of branded goods, and shift some of the rents from the manufacturer to the retailer as shown for instance by Scott Morton and Zettelmeyer (2004).

41. ACNielsen, a market research and consultancy firm, produces data on private label sales for the supermarket sector. The aggregate value of private label sales for the 36 countries included in the data accounted for 15% of total sales in 2003, growing to 17% in 2005 (ACNielsen, 2003; 2005).[22] The share varies a lot between countries and is higher in Europe than in other regions. The shares in a selection of OECD and non-OECD countries for 2003 and 2005 are depicted in Figure 2.

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[21] The data in this section is from ACNielsen if not otherwise stated. The term "private label" is synonymous to "store brand".

[22] The 2005 data includes 38 countries. US data does not cover Wal-Mart. A separate study of this retailer found that private labels accounted for 17% of this company's sale – not too far from the US average. However, the rate of growth was much faster, so in future the exclusion of Wal-Mart in the data will underestimate the share of private labels in the US.
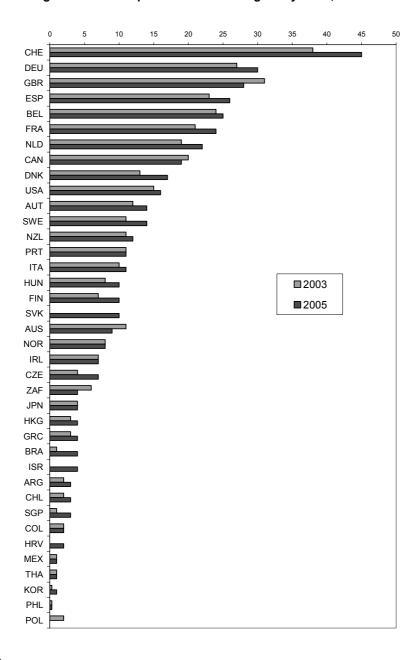
Figure 2. Share of private label in total grocery sales, 2003 and 2005.

Source: ACNielsen

42.   The differences among countries reflect both variation in the share of private labels in each product category and variation in the number of product categories where private labels are found. For instance almost all product categories had private labels in Switzerland, while only 26% of the categories had private labels in the Philippines in 2005.[23]

43.   The product categories where private labels are the most prominent are paper, plastics and wraps, refrigerated food and frozen food, while the categories with the lowest private label shares were personal

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[23] ACNielsen tracks 80 product categories.

care, cosmetics and baby food. Apparently manufacturers have stronger brand names in these latter categories, in which private labels had a market share of only 3-5% in 2005. However, cosmetics and baby food were the categories with the highest rate of growth of private label market share in both 2003 and 2005. Since the growth rates are highest for the countries and the product categories with the lowest share, it appears that private labels shares are converging.

44.   ACNielsen finds that the introduction of private labels in emerging economies is strongly related to the entry of multinational retailers in those countries. They also find that the share of private labels is related to the market concentration rate in the retail sector and the presence of so-called hard discounters in the market. The higher is the market concentration rate, the larger is the share of private labels. Hard discounters are retailers which sell a limited range of products at low prices – and these products are usually own label products sold in relatively large packages. We correlated the private label share and the concentration rate, measured as the market share of the 5 largest retailers, and found a statistically highly significant, positive, but relatively small correlation coefficient. We also found that the private label share is positively correlated with the market size (total GDP) and GDP per capita.[24]

45.   The proliferation of private labels in combination with economies of scale and investment abroad is expected to enhance, but possibly concentrate international trade. This is because the need to monitor suppliers encourages investments in supplier relationships and a tendency to have fewer suppliers servicing all retail outlets. Deloitte (2006) for instance finds that retailers have rationalised their supplier base in recent years and increasingly depend on large suppliers who can provide low-cost merchandise, quality control, traceability, safety and reliability. Coe and Hess (2005) make a similar argument, based on a project where internationalisation of the retail sector and the implication for supplier networks were analysed for East Asia and Eastern Europe.

46.   The evidence of closer relations with fewer suppliers is, however, mixed. A British study commissioned by the Competition Commission, finds that retailers do not provide much technical support to their suppliers, although those supplying non-branded and own label products were more likely to receive technical support (GfK, 2007). Our case studies reported in the next section agree with this finding. Although retailers do help existing suppliers complying with new standards, potential suppliers that are not able to comply will not pass the retailers' screening. Existing suppliers that repeatedly fail to meet standards will find their contracts discontinued. Finally, several of the retailers included in our case studies emphasize that they focus on small and medium size enterprises when developing supplier relations.

47.   The rising market share of private labels could potentially benefit developing countries with low production costs in labour-intensive consumer goods industries. Such countries are often at a disadvantage when product innovation, time to market and marketing are important for competitiveness as documented in Nordås *et al.* (2006). Furthermore, as anyone who has visited local markets in low-income countries can corroborate, the type of products that sell in poor countries' consumer markets can be quite different from those that sell in international markets. Thus, local suppliers have an incentive to switch to products that sell in international market only if they have a secure marketing channel. In some cases retailers have provided such a marketing channel in addition to product and process design (e.g. Minten *et al.*, 2007). Private labels could therefore lower the entry barriers for suppliers in developing countries with sufficient scale, reliability and capability to comply with the retailers' standards.

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[24] Regressing the private label share on the market share of the five largest retailers, GDP and GDP per capita (all in logs) gave partial elasticities of 1.26, 0.21 and 0.67 respectively, all significant at a 1% level. However, the simple correlation coefficient between private label share and market share of the five largest retailers as reported by ACNielsen was only 0.2.

48.   In OECD countries in contrast, private labels may undermine the competitiveness of local manufacturers that have targeted the middle market and differentiated their products through branding. This appears to have happened in the textiles and clothing sector where retailers' private labels have gained a substantial market share not only in the mass low-price market, but also in the middle range (Lee and Probert, 2006).

3   Case studies

49.   The case studies have been prepared with information contained on the companies' websites and annual reports, complemented by additional available material and information provided by the companies through semi-structured interviews.

3.1   Supermarkets

50.   This case study section covers four (Ahold, Carrefour, Metro, Tesco) of the top 6 retailers in 2006 as ranked by Planet Retail. Wal-Mart, ranked first, in general does not participate in these kinds of studies.

Table 2.   Supermarket case studies in comparison

Company	Key facts (2006)	Geographical sales	Sourcing	Suppliers
Ahold Home: Netherlands	Total Sales: €44.8 billion Countries: 11 Stores: 3,480 Employees:163,866	US operations (including Foodservices) contribute to 73% of sales, while Europe 27%.	General merchandise is bought at a global level, while the majority of purchases and distribution is done regionally or at a continental level.	Overall, Ahold's food and retail service segments sources from over 10,000 independent suppliers.
Carrefour Home: France	Total Sales: €97 billion Countries: 29 Stores: 12,547 Employees: 456,616	Sales are Euro-centric, with France and the rest of Europe accounting for 86.8% of sales. The Americas and Asia contribute to 7.3% and 5.8% of respectively.	Food items sourced locally while non-food items account for about 98% of total international sourcing. Local sourcing, however, represents 90% of total sales value.	Depending on where it operates, Carrefour relies on 4,000 to 15,000 suppliers on a national basis.
Metro Home: Germany	Total Sales: €60 billion Countries: 30 Stores: 2,378 Employees: 263,794	55.9 % of sales originates outside of Germany.	90% of the food products, which comprise 70 to 80% of total sales, are locally sourced and the remaining 10% is sourced internationally.	Around 12.500 suppliers. Small suppliers produce approximately 20-30% of total product value.
Tesco Home: UK	Total Sales: £43.1 billion Countries: 11 Stores: 2710 Employees: 450,000	The UK contributes 76% to net sales, followed by the rest of Europe (13%) and Asia (11%).	Most sourcing (especially food) is done locally unless local conditions impede their production.	Around 4000 suppliers, 1500 of which have worked with Tesco for over 5 years.

51.   Comparing the experiences drawn from the case studies shows that large retailers are undergoing both a process of expansion and consolidation of their international operations. Most of them are still anchored in their home markets, which, however, have often reached saturation or offer limited expansion possibilities. Thus, sales from international operations are growing as a share of total sales. The increased internationalisation of retail is impacting sourcing practices, which are undergoing a progressive re-organisation. Sourcing is being structured more on a local/regional level for better logistical coordination, improved usage of shelf space to serve local taste and for the development of closer relations with local suppliers, especially for sourcing food items. Non-food items tend to be sourced internationally, with price competitiveness and the chance of reaching economies of scale representing the main drivers.

52.   Having the possibility to operate with nearby suppliers offers retailers opportunities for skipping over middlemen and for better controlling the supply chain, especially for privately labelled items. The development of close relationships with fewer suppliers guaranteeing volume and efficiency coexists with greater need for expansion of the supplier base and for product differentiation. Both players (suppliers and retailers) are part of the same demand-supply chain and this relationship is streamlined through the usage of databases, EDI systems, electronic marketplaces as well as more advanced technologies enabling collaborative management of product development and sourcing process management.

3.2   Clothing

53.   Table 3 reports the highlights from the three case studies on clothing retailers, Gap, Inc., H&M and Zara, contained in Annex 1. Zara and H&M are present in many more countries than Gap, Inc., though the pattern of sales by region is quite similar, with most sales still concentrated in Europe and North America depending on the respective company headquarters.

54.   With respect to sourcing, Gap, Inc. and H&M have developed a similar strategy based on purchasing all their production from a diverse base of suppliers located mostly in Asia and Eastern Europe. The selection of suppliers in different countries is driven by cost-efficiency, transport time and quality considerations, which vary depending on the production priority of different garments. This procurement strategy allows for flexibility to respond to fashion and seasonal trends, but requires careful suppliers' monitoring, attention to selection and timing of merchandise purchases and an efficient logistics chain. Zara has developed a different strategy based on the "production in proximity concept", which favours quality and lead time control over lower cost. Higher margins and other ways to keep costs down, e.g. no conventional advertising, compensate for higher labour costs.

55.   All three companies require suppliers to undergo evaluation systems to become approved manufacturers based on quality and other performance standards and labour practices. Producers are then periodically monitored and evaluated. According to the companies, such standards and processes are quite strict and can result in business termination in cases of non-compliance. For example, in 2005 Gap Inc. has terminated business relations for compliance violations with 62 garment factories, representing 2.4% of its factory base. At the same time, all companies strive to build long-term relations with suppliers to help them better understand and meet their standards.

Table 3. Clothing retailers case studies in comparison

Company	Key facts	Intl. sales	Sourcing	Suppliers
Gap, Inc.	HQs San Francisco, CA Sales USD 15.9 billion 3,100 stores in 6 countries 150,000 employees	North America 90.8% Europe 5% Asia 4% ROW 0.2%	All production sourced from 780 producers in 56 countries 98% of production made outside the US 20% in China No supplier accounts for more than 4% of production Logistics chain controlled through distribution centres	Each supplier must undergo comprehensive evaluation system Build close relationships with suppliers Compliance violations result in business termination
H&M	HQs Stockholm Sales SEK 80 billion (USD 11.2 billion) 1,300 stores in 28 countries 60,000 employees	Europe 91% North America 8% Middle East 1%	All production sourced from 700 suppliers 60% from Asia, rest mainly from Europe 22 production offices overseeing production Controls every stage of transport chain	Extensive testing for quality and monitoring of conditions Build long-term relationships with suppliers
Zara	HQs A Coruña, Spain Sales EUR 5.3 billion 990 stores in 64 countries 69,240 employees	Spain 39.6% Rest of Europe 40.6% Americas 11% ROW 8.9%	50% of production by Group's own Spanish or close by factories Rest sourced primarily from Asia and Non-EU Europe	Quality control and speed strategy based on "production in proximity" concept External manufacturers subject to quality and ethical control Maintain stable relationships with suppliers

3.3 Aggregate trade statistics and the case studies

56. There appears to be a divergence between the retailers' claim that they source 80-90% or more of food items locally and economy-wide data on import penetration in consumer goods. We calculated the unweighted average import penetration for the OECD countries for which data are available for the period 1990-2003 in the OECD-STAN database for "Agriculture, hunting, forestry and fishing", "Food, beverages and tobacco", and "Textiles, clothing and footwear". The result is presented in Table 3. Clearly, the average, minimum and maximum import penetration rates have increased in all three major consumer goods sectors.

Table 4. Import penetration, selected sectors, 1990 and 2003

	1990			2003		
	Average	Max	Min	Average	Max	Min
Agriculture, hunting, forestry and fishing	15.8	37.2 (NLD)	6.2 (USA)	20.8	50.9 (NLD)	8.0 (USA)
Food products, beverages and tobacco	14.6	34.8 (NLD)	5.0 (USA)	21.5	42.2 (NLD)	7.7 (USA)
Textiles, textile products, leather and footwear	37.1	80.2 (NOR)	7.7 (MEX)	59.4	88.4 (NOR)	28.2 (ITA)

Source: OECD STAN database

Note: Unweighted averages are reported. Countries included for all sectors are: Finland, France, Italy, Japan, Mexico, Norway, Portugal, the United Kingdom and the United States. In addition Denmark and the Netherlands are included for agriculture and food, Austria for textiles and food and Germany for agriculture.

A likely explanation for the difference between developments in import penetration and retailers' claim that they source locally is that the final stage in the production process is done locally, while the import content of the products has increased.

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4   How are market structure in the retail sector and trade in consumer goods linked?

57.   This section applies the gravity model in order to explore the linkages between market structure in the retail sector and bilateral trade in consumer goods. The gravity model is the workhorse model for analysing the relations between trade and trade costs and is based on the observation that bilateral trade is proportional to the trading partners' combined market size and inversely proportional to bilateral trade costs. With popularity comes scrutiny and as state of the art econometricians have taken interest in the model, some weaknesses and flaws have been revealed, the most important being that the model and the most commonly used estimation techniques do not explain the considerable number of zero trade flows among country pairs. Of all the about 40 000 possible bilateral trade flows in the world economy, only about 20 000 is observed for total merchandise trade and the number is smaller when breaking the data down to specific sectors. Various approaches have been suggested to solve this problem, neither entirely satisfactory. In the technical annex we propose a new methodology for solving this problem and apply it to the estimations.

58.   The consumer goods categories analysed are food and beverages (BEC category 1) and other consumer goods (BEC category 6). The country coverage in the data is all OECD countries as reporters and 144 of their trading partners. In 2005 food and beverages accounted for 28% of total OECD imports of consumer goods, compared to 72% for non-food consumer goods. The usual controls are included in the regressions which are next augmented by various features of the retail sector. We also control for bilateral tariffs in all regressions. We are particularly interested in the association between trade and:

- internationalisation of the retail sector;
- market concentration in the retail sector;
- proliferation of private labels.

59.   Comparing food and non-food sectors, we find that distance and having a common border is more strongly associated with trade in food than in non-food items. A possible explanation is that food is perishable to a larger extent than non-food items. In addition, as discussed in section 2.2, food products are more likely to be replenished every day. Besides consumer tastes may also differ more over distance for food than for non-food items. Having a common language appears to be more important for trade in non-food consumer goods. The details of the regression results are presented in Annex 3.

4.1   Does foreign investment in the retail sector stimulate trade in consumer goods?

60.   Several alternative measures of foreign operations in retail services were considered. First we use a bilateral dummy for country pair *ij* which is one if a retailer in country *i* has an affiliate retail outlet in country *j* and zero otherwise. The data are available for the years 2003, 2004 and 2005 from Deloitte (2005; 2006; 2007).   We find that the bilateral dummy is significantly associated with higher trade flows between home and host country of the retailer. Thus, the commercial presence of a retailer from country *i* in country *j* is associated with about 20% higher imports of food and beverages (BEC category 1) and 17% higher imports of other consumer goods (BEC category 6). We did not, however, find any significant evidence that the presence of international retailers has an effect on the extensive margin (*i.e.* whether or not the country pair had positive trade flows). Thus, it appears that retailers enhance existing trade flows rather than creating new ones.

61.   We also explored whether there is a relationship between outward investment in the retail sector and exports from the home country to the host country of the retailer. On this we did not find any conclusive evidence. Most OECD countries are significant net importers of consumer goods, and do probably not have comparative advantage in consumer goods sectors.

62.   It is quite plausible that there is a causal relationship between trade in consumer goods and internationalisation of the retail sector. Previous analyses of the driving forces behind the internationalisation process have emphasised the attractiveness of market opportunities in foreign markets, particularly fast-growing emerging markets where the retail sector is not well developed and private consumption is growing rapidly (ATkerney, 2006; Deloitte, 2006). Therefore, it is unlikely that retailers establish foreign affiliates in order to access suppliers in the host country.[25] Furthermore, since the estimates control for all country-specific unobserved variables (through fixed effects), the results are unlikely to be due to spurious correlations. Our results thus suggest that internationalisation in the retail sector stimulates trade in consumer goods. The detailed regression results are presented in Annex table A3.2.

63.   We finally explored the impact of bilateral stocks and flows of foreign direct investment in the retail sector, for which data are derived from UNCTAD's MNE database. This database turned out to have too many gaps for reliable results.[26] Yet, we found stocks of FDI to be positively, but not statistically significantly related to trade in consumer goods.

4.2   Does market concentration in the retail sector affect trade in consumer goods?

64.   This section explores the relationship between market concentration in the retail sector and trade in consumer goods. There are several possible measures of market concentration. The share of the five largest retailers in total retail sales in each importing country measures ownership concentration.[27] This share is calculated from data from Mintel and is available for the years 2001, 2003 and 2005. We find market concentration to have a relatively large and negative impact on trade in consumer goods. A one percentage point increase in the market share of the five largest retailers is related to a reduction in trade value by 1.2% for food items and 2% for non-food items.

65.   Another measure of market concentration is the number of retailers per 1000 inhabitants in a country. This measure reflects geographical concentration and does not necessarily reflect the degree of market competition. We do, however, find a statistically significant, but not very large negative correlation between the share of the five largest retailers and the number of retail outlets per 1000 inhabitants. It thus appears that the two measures reflect different aspects of market concentration.[28]

66.   Data on the number of retailers are available from Eurostat for the European Union plus Norway and Switzerland; the US Census Bureau publishes data for the US; and Japan Bureau of Statistics publishes survey data for services industries for Japan.[29] Total retail density was found to be positively associated

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[25] Although as the case studies show, they do indeed establish sourcing/procurement offices in a number of developing countries in order to access and monitor suppliers. The FDI dummy does not comprise sourcing/procurement offices.

[26] Bilateral stocks of FDI in the retail sector were only available for 9 countries (Germany, Denmark, Finland, France, UK, Italy, Japan, Portugal and USA).

[27] Mintel kindly provided us with these data. We did, however, find the data difficult to replicate as it is not clear what the denominator in the reported market share is. The share used here takes the sales of the five largest retailers as reported by Mintel divided by private consumption expenditure. A possible problem with this is that private consumption expenditure includes expenditure on a host of services, including housing that may take a different share of consumer expenditure in different countries. However, all reporters are OECD countries with similar expenditure patters, so this should not be a serious problem.

[28] The correlation coefficient is -0.24, significant at a 1% level.

[29]http://epp.eurostat.ec.europa.eu/portal/page?_pageid=1996,45323734&_dad=portal&_schema=PORTAL&screen=w elcomeref&open=/&product=EU_MASTER_distributive_trade&depth=2:

with food imports and negatively associated with non-food imports. A 10% increase in the number of retailers per 1000 inhabitants is associated with a 3.7% increase in food imports and a 3.3% decline in non-food imports. For food imports the probability of zero trade is also positively associated with retail density, suggesting that the higher the retail density, the fewer the countries the home country would import from.

67. Since the two measures of market concentration are not strongly correlated, we also ran regressions where both measures of market concentration were included. The results suggest that ownership concentration has the strongest effect on trade. For food the two measures of market concentration point in the same direction; both ownership and geographic concentration are associated with lower imports. This finding indicates that high market concentration in food retailing could constitute a trade barrier in its own right. For non-food consumer goods the results are less clear. Ownership concentration is associated with lower imports, but geographic concentration is associated with *higher* imports. A possible explanation is that a high ownership concentration may reduce competition, while a geographical concentration (after controlling for ownership concentration) may result in a more efficient scale and larger total sales.

68. In section 2 we argued that there is a possible trade-off between technical efficiency due to scale economies and competition in the retail sector. The policy framework that shapes the market structure could be relevant for how this trade-off is solved. For instance regulation of the retail sector often restricts the entry of large format retailers and may in such cases lead to a more fragmented market than would be the case in the absence of such regulation, and possibly also more fragmented than what is optimal from an efficiency point of view. Two studies of the Japanese retail sector address this issue. Flath (2003) argues that Japan's retail sector structure characterized by relatively small retailers is a function of Japan's scarcity of living space and the inconvenience of using a car in urban areas, and less a result of regulation.[30] Guner *et al.* (2006) in contrast, argue that regulations in the form of size restrictions have had a large impact on the average size and productivity of retailers.[31] Thus, conclusive evidence on this issue is hard to come by.

69. We make an attempt to shed more light on this issue by including the Economics Directorate of the OECD's indicator of regulation in the retail sector in our regressions. The indicator is described in Boylaud and Nicoletti (2001).[32] It is available for 1998 and 2003 and ranks countries on a scale from 0 to 6 where 6 indicates the strictest regulation. We split the sample in two groups, the first scoring below and the second scoring above average on this indicator. When splitting the sample this way, we find that the lightly regulated countries on average have 16% higher food imports than the heavily regulated countries, but for non-food imports the two groups had similar import patterns. The results are presented in detail in Annex Table A3.3.

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http://www.census.gov/epcd/www/concentration.html;
http://www.stat.go.jp/english/data/service/2004/index.htm

[30] Consumers do not have much opportunity to store food in their homes and therefore are willing to pay for nearby shopping.

[31] The authors make model simulations based on Japanese data and find that the regulatory framework in place may have increased the number of firms by 60%, reduced the average firm size by 50% and productivity by 25%.

[32] It should be noted that regulation in some countries mainly restricts entry of large format retailers. Thus, we do find a negative correlation between the strictness of the PMR index and the market share of the five largest retailers (-0.28)

4.3   Do private labels stimulate trade in consumer goods in general and do they stimulate imports from developing countries in particular?

70.   In order to investigate this question we introduce the share of private labels in total sales and GDP per capita in the gravity equation. Data on private labels are from ACNielsen, cover the years 2003 and 2005 and are available for 36 countries in 2003 and 38 in 2005. We introduce this variable for the importing countries – i.e. the OECD countries. The first step is to add this variable to the standard gravity equation. Interestingly, we find that private labels are positively associated with imports of non-food consumer goods and negatively associated with imports of food and beverages. Both are significant at a 1% level. A one percentage point increase in the private label share would increase imports of non-food consumer goods by 0.65%, while the same change in private label share would reduce imports of food and beverages by about 2%.

71.   Turning to the question of to what extent private labels have an impact on the sourcing of imports from developing countries, we first introduced GDP per capita in the regression. We found GDP per capita to be negatively related to sourcing of consumer goods, weakly so for food and strongly so for non-food items. I.e. OECD countries tend to source consumer goods from lower-income countries. Since consumer goods are typically labour-intensive, this is not surprising.

72.   We finally investigated whether, as has sometimes been claimed, there are indications that retailers help suppliers in poor countries access the OECD markets through their private label developments. As indicated in section 2.3 above, private labels fetch lower prices than branded goods. A possible way of keeping prices low and quality up to affluent consumers' expectations is to source from a limited number of closely monitored suppliers from low-cost countries. In order to assess this question we introduced a dummy variable which we called "poor" and which is unity if the exporter has a GDP per capita less than $1000 (in 2000-prices) and zero if GDP per capita is higher than this. The "poor" dummy is interacted with the private label share in order to explore whether a country's propensity to import from poor countries is affected by the market share of private labels.

73.   We find that the propensity to import from poor countries indeed does vary with the private label share in the importing country. For non-food items the marginal impact on imports of an increase in the private label share is -2 if the partner country is non-poor and 0.3 if it is poor. For food and beverages the marginal impact of an increase in the private label share is -2 if the country is non-poor and 1.3 if it is poor. Thus, both for food and non-food items an increase in the private label share appears to shift sourcing to poor countries. The interaction term is a bilateral variable, so we also checked its robustness by running reporter and partner country fixed effects.[33]

74.   This result is consistent with the case study findings that retailers engage in own label fair trade on the one hand and on the other hand also introduce locally produced up-market, tightly controlled fresh produce under their private labels. The details are presented in annex table A3.4.

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[33] Recall that country fixed effects capture all country-specific variables, including income level, market size, regulation and features of the retail sector. The regressions are included in order to check robustness, but it is difficult to interpret the economic meaning of the estimated parameter.

4.4 Does the market structure of the retail sector affect a country's response to trade liberalisation?

75.   The question was analysed by Francois and Wooton (2007) who found that the marginal effect on trade of a change in the market power in the distribution sector is strongest in a free trade regime.[34] A similar result was obtained by Hummels *et al.* (2007) for shipping services. The latter study built on the well-known insight that when a firm has market power, the optimal mark-up over marginal cost increases with the price of the product, and found that freight rates indeed did increase with the tariff rate of the product being transported. Likewise, with market power in the distribution sector, some of the tariff cuts are absorbed by the distribution sector rather than passed on to consumers.

76.   The relationship between market concentration in the retail sector and trade in consumer goods has also been explored by Francois *et al.* (2007) who investigated to what extent the change in import prices following the phasing out of textiles and clothing quotas during the period 1995-2005 was passed on to consumers. They analysed import prices, producer prices and consumer prices in the European Union following the implementation of the Agreement on Textiles and Clothing (ATC), under which the last quotas were phased out January first 2005.[35] It was found that on average the pass-through was about 60% (*e.g.* a €1 reduction in the import price would reduce consumer prices by 60 cent). However, the average conceals large variation between countries and it was found that the structure of the retail sector could largely explain such differences. The more heavily regulated the retail sector, the more concentrated in terms of ownership and the more fragmented the sector in terms of physical retail outlets (retail density), the lower is the pass-through of import prices to consumer prices.[36]

77.   We use a similar approach as the previous studies, interacting retail sector indicators with bilateral tariffs and exploring to what extent the market structure in the retail sector has an impact on the trade response to trade liberalisation.[37] It is first noticed, as can be seen from Annex tables A3.2 and A3.3, that bilateral tariffs are highly significant both statistically and economically, and non-food imports are generally far more sensitive to tariffs than are food imports. This finding reflects that food demand is less price elastic than demand for most other consumer goods. In addition non-food items such as clothing and electronics are often produced within international supply networks and intermediate inputs cross borders and face trade costs several times before they reach the shop-shelf of the retailer, making them particularly sensitive to trade costs even if tariffs on intermediate inputs are lower than for final goods (Nordås 2004; 2007). In a regression with bilateral variables only, and where all country specific factors are controlled

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[34] Francois and Wooton (2007) analyses total imports of 22 OECD countries from 69 partner countries in 2001, using OECD regulation indicators for the road freight and retail distribution.

[35] Quotas were, however, reintroduced on imports from China as a safeguard measure. China's accession protocol to the WTO opens for such temporary measures.

[36] The Francois *et al.* (2007) study does, however, not take into account that quotas may have had a significant impact on the quality of textiles and clothing being exported. Since the quotas were given in physical units, exporters would maximize their revenue by filling the quotas with as high-quality, highly priced products as possible, even within detailed product categories. If the phasing out of quotas results in a shift to exporting higher volumes of lower priced goods, which indeed is found in a study on the US market (Harrigan and Barrows, 2007), then previously quota-restricted imports may compete with imports from countries with unrestricted access to the market rather than with local suppliers, and the share of low-cost products in total consumption may increase. If so, the pass-through-rate may be underestimated.

[37] Our approach differ from the Francois and Wooton (2007) study as we include all OECD countries and all partner countries for which data are available, we use a panel in most of the regressions, and our indicators refer to the retail sector only (not road transport), while our import data includes consumer goods only, which in turn are split into food and non-food.

for through importer and exporter fixed effects, the import elasticity with respect to tariffs was as high as -10.9 for BEC category 6 while it was a more modest -2.75 for BEC category 1 (see Annex Table A3.2).

78.   In order to assess a possible linkage between market concentration in the retail sector and trade liberalisation, we created a dummy which takes the value one if the market share of the largest five retailers is above average for our sample and zero otherwise. This variable divides the sample into two groups, one with a higher and one with a lower than average retail ownership concentration. This dummy was interacted with the bilateral tariff rate, in order to assess whether the two groups respond differently to trade liberalisation. We find that they do. Countries with a higher retail ownership concentration than average had an import demand elasticity of -0.75 for food and beverage items (BEC category 1), and an import demand elasticity of -7.5 for non-food items. The group of countries with a lower retail ownership concentration, in contrast, had an import demand elasticity of -2.4 for food items and -7.7 for non-food items. These findings suggest that retail ownership concentration makes a lot of difference regarding the effect of trade liberalisation on food items, while the difference is less important for non-food consumer goods.

79.   For both sectors the probability of being in the group of countries that does not export to the country in question is higher when the market concentration rate in the retail sector is higher. This finding supports the anecdotal evidence discussed in Section 2 that concentration in the retail sector tends to lead to concentration of sourcing, although more analysis on micro data is necessary in order to firmly establish this.

80.   We finally interacted tariffs with the product market regulation index for the retail sector again splitting the sample of countries into two groups – one with lower and one with higher than average regulation. As before we interacted this dummy with the bilateral tariff rate in the sector in question in order to assess whether the two groups respond differently to trade liberalisation, and thus the extent of complementarity between the two policy areas. We find that import demand elasticity was about -1 for food products and -3.7 for non-food products in the heavily regulated group and about nil for food products and -1 for non-food products in the lightly regulated group. The details are presented in Annex table A3.5.

5   Policy implications

81.   The policy discussion in this section is limited to trade policy considerations and other possible complementary policies. In a recent interview the director general of the WTO expressed concern that the "proliferation of 'green' and other product standards between large western retailers and consumer groups is likely to spark a new spat with developing countries that fear new barriers to their exports" and that new and tougher standards could offset the benefits of removing tariff barriers for developing countries.[38] This study indeed finds that the trade response to trade liberalisation depends on features of the retail sector, including its ownership and geographic concentration rate and the importance of private labels, which can be considered a private standard. It is also reasonable to assume that poor countries may have problems with complying with new and higher standards. The policy implications of these findings depend, however, on the motivation for such standards. If they are the result of consumer demand for quality at competitive prices, the best response from producers in developing countries is probably to upgrade their standards and for their governments and donors to support investment in quality. In the following we discuss the possible roles of retailers, policymakers and donors in enhancing the competitiveness of consumer goods producers in low-income countries.

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[38] "Trade dispute warning over 'green' product standards", Interview with Pascal Lamy, Financial Times 22. September 2007.

82.   Foreign retailers in low-income and emerging economies typically offer consumers new products, improved product standards and provide a market opportunity for local suppliers of consumer goods, particularly fresh food. Our finding that hosting an international retailer increases exports to the home country of the retailer is backed by a host of case studies documenting how retailers engage with local suppliers of specific products, providing incentives to comply with product and process standards in export markets. In addition, modern supermarket procurement systems promote healthier and safer production and processing systems also locally. In many cases suppliers to the local affiliate of the retailer over time become regional and sometimes even global suppliers to the retailer. Even when becoming a supplier to a foreign-owned retailer does not lead to exports, it may still open the entire domestic market to the local farmer or food processing plant, providing sufficient scale to invest in product quality and modern technology. This is most relevant in emerging economies where modern retailers provide new marketing channels for servicing the local, rapidly growing consumer demand.

83.   Reardon *et al.* (2007) reviews recent evidence on the retailers' role in promoting food exports from developing countries in further detail. They describe the retailers' approach to integrating a new developing market with weak supply capacity in their supply chains. They tend to first provide temporary price incentives in order to ease the supplier's credit constraints when investing in product and process upgrading. There is also anecdotal evidence that retailers persuade local banks to accept the supply contract with the retailer as collateral for financing such investments. Third, retailers enter partnerships with international or local logistics firms, wholesalers and processing firms in order to establish efficient supply chains. They also in many cases enter into partnerships with NGOs, donors or governments who complement retailers' and suppliers' own investments with public infrastructure, training, and other essential inputs.

84.   The obvious policy implication of these findings is that on balance opening up to foreign investment in the retail sector would raise welfare in the liberalising country. Although clearly benefiting consumers and providing incentives for the development of more competitive local suppliers, the entry of modern retailers could also undermine local 'mom and pop' stores and their suppliers. Strategies for easing adjustment for these are therefore desirable.   It must also be borne in mind that opening the market to foreign investment in the retail sector alone does not necessarily draw foreign retailers. Retailers are attracted by low country risk, market attractiveness and low market saturation, and many developing countries score poorly on risk and market growth potential (ATKernley, 2006).

85.   Consumer goods are typically labour and/or land-intensive and developing countries have potential comparative advantage in these sectors. Yet, particularly in Africa, such comparative advantage has not been fully exploited due to among other things lack of marketing skills, poor infrastructure and logistics services and inadequate product and process standards. In addition, the products that sell on the local African market are often very different from those that would sell in *e.g.* Europe and the United States. In such countries the gap between what is required for successful entry into modern retailer supply chains and the local capabilities may be too wide to be filled by market players alone.

86.   Aid for trade could play an important role in bridging this gap. Donors could assist with complementary functions that go beyond the retailer – supplier relationship but are essential for a more broad-based export industry. They could identify the bottlenecks in the supply chain where the private sector would not be inclined to invest, for instance because of externalities and public good characteristics, and channel aid for trade funds into such projects. Examples are infrastructure and logistics. But technical assistance in areas such as testing and documentation of quality, and raising awareness of the detrimental effects of time-consuming customs procedures and arcane bureaucracy could also help. In addition regulation on product standards should not be unnecessarily trade restrictive.

87.   Turning to policy implications for the OECD countries, we start with the relation between market structure and trade liberalisation. Here we have found clear evidence that there are substantial economies of scale in the retail sector and sourcing directly from abroad requires sizeable resources. If retailers operate close to or below the optimal scale for establishing international supply networks, an increase in market concentration could enhance trade.

88.   On the other hand if retailers have market power either on the buying or the selling side, they will typically not pass tariff reductions on to the consumer and the trade response to trade liberalisation may be undermined by the retailer. This may be the case for imports of food, and could seriously diminish the expected gains from trade liberalisation in agriculture and food processing industries. Therefore, in order to ensure that trade liberalisation is followed by gains in market access, there may be a role for complementary competition policy measures.

89.   The study has also raised more complex policy issues related to product standards (*e.g.* EU's REACH), food safety standards including the obligation to track a product and its ingredients, and retailers' response to such programmes. Here it is argued that such standards provide incentives for retailers to enter more complex relationships with their suppliers. Suppliers provide goods according to retailers' product specifications and delivery requirements while the retailer provides assistance in complying with the standards. The more complex the relationship, the more direct interaction between retailer and suppliers is required, and this is likely to favour local suppliers. Regulatory complexity can thus increase transaction costs, and such transaction costs may be higher when transactions are cross-border.

90.   Private standards for instance related to private labels are a difficult policy area and the jury is still out on whether or not private labels could distort competition to the detriment of suppliers, including foreign suppliers, and consumers or whether it increases competition and consumer welfare. Gabrielsen and Sørgard (2006) for instance show that private labels may under certain circumstances lead to higher prices of the branded goods and reduce total welfare, while for instance Steiner (2004) argues that private labels constrain the market power of branded goods suppliers to the benefit of consumers. Our evidence suggests that private labels may reduce import demand for food products and increase import demand in non-food products. The trade and competition impact thus appears to depend on product and market characteristics and no general policy conclusion can be made.

91.   To conclude, the retail sector is an increasingly important link in the supply chain and its role in international trade can no longer be ignored when analysing trade policy reforms in consumer goods. This paper has made a first attempt at such analysis and found that there are robust and economically important relations between international trade and recent developments in the retail sector. It was also found that there are substantial differences between food and non-food sectors, indicating that much more research is needed in order to indentify differences also within these two broad categories of consumer goods.

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ANNEXES

ANNEX 1. CASE STUDIES

AHOLD GROUP[39]

Table A1.1 Key Data, 2006

Home Country	Netherlands
Total (Net) Sales	€44.9 billion
Number of Countries	11
Number of Stores	3,480
Number of Employees	163,866

1.   Company Profile

Ahold is an international group of supermarkets and foodservices with operations in Europe and the United States. Ahold organizes most of its food retail business into two continental platforms, which operate supermarkets under local brand names. These two platforms coordinate operations under the names of Ahold USA and Ahold Europe. Ahold USA comprises of two major operating companies (Stop and Shop/Giant Landover and Giant Carlisle), which function regionally under several retail brands. Ahold USA also controlled US Foodservice, the second largest foodservice distributor in the US, until June 2007 when it was sold to a consortium. The reason given for the sale is that the company wanted to focus on its core business, which is retail, and that there are few synergies with foodservices.

Ahold Europe includes Albert Heijn, which is based in the Netherlands and comprises retail food stores, e-commerce, wine and spirits, pharmaceutical and health and beauty care stores. It also operates a company that supplies coffee to Ahold's subsidiaries and joint ventures. In the Netherlands, Ahold is a majority owner of Schuitema, a retail and wholesale company operating several stores around the country. Operations in Central Europe are based in Prague, Czech Republic and until recently comprised retail stores in Poland, Slovakia and the Czech Republic. However, after an end-2006 strategic review, Ahold is divesting in Slovakia and Poland, in the latter operations were sold to Carrefour in 2007. Finally, Ahold Europe participates in food retail operations through joint ventures, the most notable of them being ICA AB, operating in Sweden, Norway and the Baltic States, and Jeronimo Martins Retail (JMR) in Portugal.

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[39] The data contained in this section has been compiled through a questionnaire answered by Ahold Staff on April 26, 2007 and through information included in the 2006 Ahold Annual Report and the 2004 Ahold Sustainability Report.

Ahold owns 60% of ICA and 49% of JMR. However, after the 2006 review, it plans to divest completely from JMR[40].

With the retail business at the core of its activities, Ahold can count on 3,480 store locations as of end-2006, of which 1,088 are operated by franchisees and associates. Albert Heijn leads the way with 1,711 stores, followed by Stop & Shop/Giant-Landover (575), Central Europe (516), Schuitema (458) and Giant-Carlisle/Tops (267). Retail operations registered total sales (excluding intersegment sales) of 29.5 billion Euros, with Ahold USA contributing to around 60% of it (see Fig. A1.1). This contribution becomes (73%) higher when including Foodservices operations, with total net sales of the whole Ahold group amounting to 44.9 billion Euros, a slight increase from 44.0 billion registered in 2005. Net income reached 915 million Euros vis a vis the 146 million euro registered last year. (See table A1.1). Food retail contributes 66% to total sales, while Foodservices operations 34%.
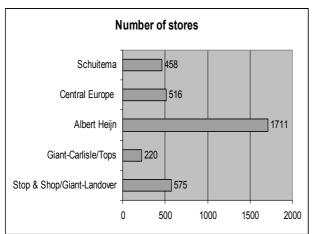
Figure A1.1 Number of retail stores and sales share by business segment
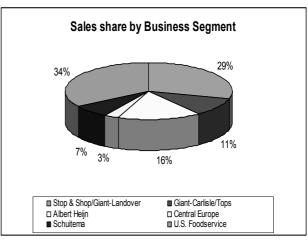
Table A1.2 Key AHOLD Group financial indicators

Fiscal Year	2000	2001	2002	2003	2004	2005	2006
Net Sales (in € Billion)	€40.8	€54.2	€62.7	€56.1	€44.0	€44.0	€44.9
Net Income (in € Million)	€920	€750	(€1,208)	(€1)	€883	€146	€915
ROE (%) [41]	N/A	N/A	N/A	15.86%	15.30%	16.14%	18.67%

Note: the large change in 2004 number is because of change from GAAP to IFRS reporting.

2.   Sourcing

Ahold's sourcing strategy is mixed. While general merchandise is bought at a continental level, the majority of purchases and distribution is done regionally or at a continental level. Both food and non-food items are being sourced internationally, whose quantity depends on the operating company: it can vary from 30% to 70% of the assortment. Procurement is conducted at multiple levels, with operating

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[40] Other divestures around the world took place in 2004 and 2005. A list of them can be found in note 12 of the 2006 Ahold Annual Report.

[41] ROE is taken from WorldScope

companies free to make some selections, and regional buying centres sourcing continentally to increase scale and to distribute effectively. Replenishment systems are being employed to integrate store ordering systems with distribution centres and suppliers. To increase efficiency, optimal truck utilization is also being performed. Overall, Ahold's food and retail service segments sources from over 10,000 independent suppliers. Products for re-sale represent the majority of the group's purchases, and consist of branded and private labels products as well as perishable goods. Ahold, as many other competitors, uses B2B e-marketplaces, mostly the Agent for Retail Information and Collaborative Solutions (Agentrics). These tools bring transparency to the value chain and provide the opportunity to expand the traditional supplier's base while pursuing efficiency gains and cost reductions.

3. Branding

Usage of private labels is closely linked with the sourcing strategy. Ahold Europe has recently-launched a Next Generation Sourcing (NGS) programme, in which Albert Heijn in the Netherlands, ICA in Sweden and Norway and Ahold Central Europe (ACE) joined forces to combine their purchasing of a large range of products for their stores. Following successful pilots in 2005, the programme was officially launched in 2006 with the aim of achieving economies of scale within the Ahold group. Main focus has been given to the development by the three business units of privately branded products through the creation of dedicated private label 'sourcing hubs' – one in Zaandam, the Netherlands, the other in Stockholm, Sweden.

Through in-depth supply chain analysis of specific product lines, the three companies gain valuable understanding of each other's comparative advantages and identify opportunities for efficiency gains. ICA, for example is better equipped to deal with private label fish products than Albert Hejin, while in turn, Albert Hejin has accumulated more experience dealing with a larger variety of private labels, whose expertise can be transferred to ICA. In 2007, the NGS programme is expected to be extended to the company's 'A' brands, perishables and not-for-resale. Finally, the programme is also expected to bring efficiency through the use of Ahold's own logistical capacity to move goods around, bringing transport costs down and profiting from lower suppliers prices that can be found outside the region of operation.

4. Suppliers

Increased supplying opportunities have expanded the number of alternative sources available to Ahold. Parallel increased screening of suppliers is needed and Ahold tends to resort to independent third parties to audit food safety, product quality and social accountability. In particular, in early 2005, Ahold joined the Business Social Compliance Initiative (BSCI), a European alliance of 50 retailers and importers, whose objective is to improve working conditions among employees of suppliers in high risk countries. Current suppliers are progressively undergoing BSCI audits, and in case of deficiencies, they have the chance to requalify by putting in place remedies that address the highlighted issues. On the other hand, prospective suppliers are required to answer a set of CSR questions on every Request for Proposal. These questions aim to assess the vendor's methods of compliance with governmental guidelines and international standards in the area of social responsibility.

The company is also running a programme, called the Ahold Sustainable Trade Development (ASTD), which provides expert assistance to producers and manufacturers in the developing world. Supplier development, especially in Africa, focus on growing the capability of farmers to export tropical fruits and vegetables, especially organic and Fair Trade products. Initially piloted in Ghana, the program has expanded into 10 countries in west and southern Africa[42], and now it exceeds an export value of 100

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[42] These countries are Burkina Faso, Ghana, Mali and Senegal in the West African region and Angola, Malawi, Mozambique, South Africa, Zambia, and Zimbabwe in Southern Africa

million euro. This collaborative programme aims to support suppliers to reach minimum standards for production and for quality to meet the demand from developed countries. Albert Heijn, in particular, seeks to provide its consumers with a year-round offer of combined fresh organic and Fair Trade products, which are often sourced through the ASTD programme.

CARREFOUR GROUP[43]

Table A1.3 Key Data, 2006

Home Country	France
Total (Gross) Sales	€97 billion
Number of Countries	29
Number of Stores	12,547
Number of Employees	456,616

The Carrefour Group is the top European retailer and ranks second in the world behind Wal-Mart. In 2006, this international, multi-format group operated in 29 countries, reporting a net sales growth of 6.4%. This result was mainly driven by a combination of organic growth and acquisitions accompanied by a recovery of market shares in the French market as well as significant sales increases at the global level, especially in China, Greece, Poland, Colombia and Argentina. This strategy has been complemented by the disposal of non-strategic underperforming businesses; Carrefour withdrew from the Korean, Czech and Slovak markets in 2006 and discontinued supermarket operations in Spain, China and Brazil, while acquiring hypermarkets in Spain and Romania.

Stores are divided into five retail formats. Hypermarkets contribute the most to sales with 58.7%, followed by supermarkets (23.8%), Hard Discount (9.5%), Convenience and Cash & Carry, which combined account for 8% of sales. Sales remain fairly Euro-centric, with France and the rest of Europe accounting for 86.8% of sales while the Americas and Asia contribute to 7.3% and 5.8% of sales respectively (see Figures A1.2 and A1.3).[44] The latter two, however, are showing the highest percentage growth in net sales, increasing in 2006 respectively 16.8% and 14% from 2005.

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[43] The data contained in this section has been compiled during an interview with Carrefour Staff on June 12, 2007

[44] Carrefour Group Annual Report 2006
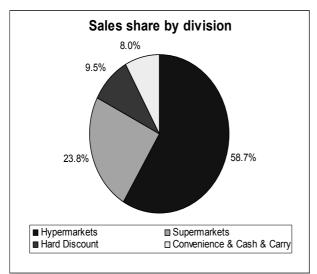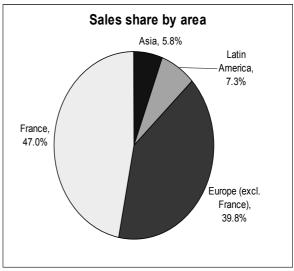
Figure A1.2 Sales (2006) by division and by geographical area

Sales share by division

8.0%
9.5%
23.8%
58.7%

■ Hypermarkets   ▨ Supermarkets
■ Hard Discount   □ Convenience & Cash & Carry

Sales share by area

Asia, 5.8%
Latin America, 7.3%
France, 47.0%
Europe (excl. France), 39.8%
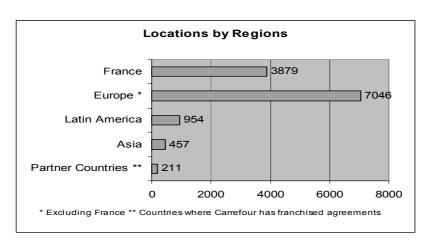
Figure A1.3 Carrefour Group locations by regions

Locations by Regions

France — 3879
Europe * — 7046
Latin America — 954
Asia — 457
Partner Countries ** — 211

0   2000   4000   6000   8000

* Excluding France ** Countries where Carrefour has franchised agreements

This trend confirmed that market pressures on price and sales growth have driven the group into a strategy of consolidation of European operations while pursuing expansion with more joint ventures in foreign markets and seeking efficiency gains though a closer collaboration with key suppliers. Financial performance in 2006 reflected this targeted strategy, with net sales and net income reaching 77.9 and 2.4 billion Euros respectively. The French market, in particular, showed signs of recovery, with 0.5% increase in grocery market shares. (See Table A1.2)

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Table A1.4 Key Carrefour Group financial indicators

Fiscal Year	2000	2001	2002	2003	2004	2005	2006
Net Sales (in € Billion)	€64.8	€69.4	€68.7	€70.4	€72.6	€73.0	€77.9
Net Income (in € Million)	€1.066	€1.438	€1.539	€1.737	€1.859	€1.582	€2.431
ROE[45]	13.17%	17.56%	21.85%	23.54%	22.16%	16.86%	23.15%

2. Sourcing

Carrefour's sourcing strategy focuses on developing local sourcing capability through long-term partnerships with SMEs. In 2006 85% of the Group's own brands were manufactured by SMEs. Food items tend to be sourced locally while non-food items account for about 98% of total international sourcing. Local sourcing, however, represents 90% of total sales value. Thus, the group's stores carry a mix including products negotiated at the international level by the Group Merchandise department and national products sourced by local country purchasing offices, which include regional products. The sourcing in the non-food category, which focuses especially on textiles, electronics and hardgood products, is mostly done through the Shanghai office. Nine other regional buying office centres have been located to cover groups of countries and coordinate regional sourcing operations. For instance, Brazil covers Latin America, Bangladesh covers Pakistan, etc.

Contracts with suppliers at the global level are assigned transparently through electronic marketplaces like Argentrics, where in 2005 Carrefour conducted 10,000 auctions in 18 countries with a base of 24,000 suppliers. Carrefour's sourcing strategy aims to strengthen its commercial dynamics through price roll backs to leverage economic scale. The auction system combined with non-food sourcing in China and the other buying offices is designed to cluster consumer needs through store segmentation according to the local purchasing power.

3. Branding

As part of the sales expansion strategy, Carrefour offers a broad array of own branded food and non-food items, expanding the offer aggressively in the French market, where in 2006 it introduced 2,000 new product listings under the Carrefour name. Moreover, local supplier partnering means selecting those that can provide quality products. These partnerships have fostered the creation of brand lines offering regional products: Reflets de France (France), Nuestra Tierra (Spain), Terra d'Italia (Italy), Souvenirs du Terroir (Belgium) and Tierra de Colombia (Colombia) have been launched as quality line products that value local taste. In 2005, the total number of Carrefour Quality Lines worldwide amounted to 363 among which 228 in Europe, 95 in Latin America and 40 in Asia.

The group's increased diversification in activities performed by large retailers has registered the progressive appearance of private labels in several non-food activities. House ware lines in Latin America, tableware in China, pharmaceuticals in Italy and ready-to-wear garments in France are among the latest examples of own branded goods launched by Carrefour. About 95% of the textile products sourced in China are being sold under private labels, thanks to the close relationship developed with over 500 local suppliers, which are provided with detailed designs and instructions for the final products.

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[45] Calculated using Carrefour's Consolidated Financial Statements published in successive Annual Reports (2002 - 2006). In this case the ROE is obtained by dividing Total Net Income with Shareholder Equity.

4.   Suppliers

Depending on where it operates, Carrefour relies on 4,000 to 15,000 suppliers on a national basis. As mentioned, Carrefour is developing close ties with its suppliers, basing the relationship on the mutual interest to succeed. For SMEs in particular, Carrefour's retail outlets can be used as a vehicle to enter national and international markets and can provide ready-made market insights and export assistance. Providing long-term support has helped Carrefour to gather dedicated SMEs for the development of quality goods to be put on the shelves of retail outlets. In-country partnerships have given birth to supplier clubs, which facilitate know-how sharing through the organization of yearly forums. The centrality of SMEs is particularly relevant in France (the single highest sales area), where they represent 74% of suppliers, equivalent to about 4,000 companies

This type of upstream work on quality with suppliers requires a rigorous selection process. This is guided by the 2005-revised Social Charter adopted by the group, which is also complemented by a set of benchmarks and an audit methodology to monitor suppliers.[46] Suppliers are being scored according to these requirements along a scale from A to D, with only A and B quality suppliers becoming eligible for partnership with Carrefour[47]. However, those that do not make it can be   re-audited, where Carrefour can assess whether corrective steps have been taken to improve the rating. As of the end of 2006, 1,460 social audits had been conducted, of which 1290 initial audits and 251 re-audits. In 2006, the group's international purchasing department ordered 390 audits, with re-audits (53) accounting for 14% of the total. When a change in rating is caused by the incapability of some suppliers to meet new international standards and regulatory changes, Carrefour itself can provide them with the technical assistance to fill the gap. The number of social audits performed remains nonetheless small in scale when compared to the total number of suppliers that work with Carrefour on a national basis.

METRO GROUP[48]

Table A1.5 Key Data, 2006

Home Country	Germany
Total Sales	€60 billion
Number of Countries	30
Number of Stores	2,378
Number of Employees	263,794

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[46] Three audit steps are planned: a) an internal control conducted Carrefour's quality teams; b) an external control conducted by professional auditors and set to include initial and regular re-audits, c) random checks conducted via Infans, an association created through cooperation between Carrefour group and the International Federation for Human Rights (IFHR) where the latter represents the majority of interests.

[47] Sometimes, when local regulation prevents suppliers from respect some elements in the Social Charter, as in the case of China, the supplier are given a C grade but are considered eligible for partnership with Carrefour.

[48] The data contained in this section were compiled during an interview with METRO AG Staff on February 22, 2007.

1.   **Company Profile**

METRO Group, which ranked 4th in global retail sales and generated 55.9% of their turnover outside of Germany in 2006, has been extremely successful in its international expansion as a result of various adaptation strategies including a focus on modern and efficient supply chain management. METRO Group was formed in 1996 as a result of a merger of the retail companies Asko Deutsche Kaufhaus AG, Kaufhof Holding AG, Metro Cash & Carry and Deutsche SB-Kauf AG. The company is composed of METRO AG, the strategic management holding company, 4 sales divisions that operate independently with specific sales concepts, and cross divisional companies that provide specific services across brands and formats.

The sales divisions include Metro Cash & Carry, a self-service wholesale format that targets commercial customers and large scale consumer including hotels, restaurants and small food retailers, Real, the hypermarket brand focusing on food and non-food items, Extra, the supermarket brand that stocks mostly food items, Media Markt and Saturn electronic consumer retailers, and Galeria Kaufhof, a department store that targets Germany and Belgium. The cross-divisional service providing subsidiaries are responsible for procurement, logistics, information technology, marketing, and real estate management for all four sales divisions. With 2,378 locations in 30 countries in Europe, Asia, and Africa, the METRO Group has been actively expanding their international presence in both retail and wholesale formats[49]. (See Figure A1.4).
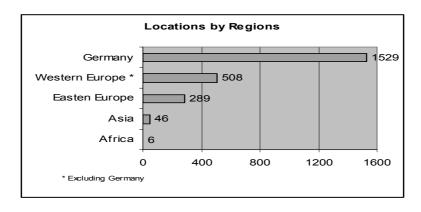
Figure A1.4 Metro Group locations by regions

The company's financial performance has been marked by steady growth in annual sales. The share of turnover generated outside of Germany has also been on the rise, with international sales consistently exceeding the domestic share since 2004. (See Table A1.3 and FigureA1.5)
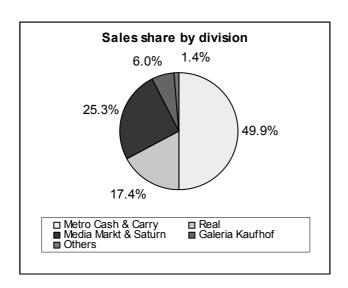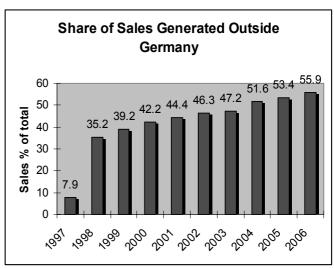
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[49] International Profile, METRO Group

Table A1.6 Key METRO Group financial indicators

Fiscal Year	2000	2001	2002	2003	2004	2005	2006
Total Sales (in € Billion)	€46.9	€49.5	€51.5	€53.5	€56.4	€55.7	€59.9
Net profit (in € Million) [50]	€359	€401	€443	€496	€828	€531	€1.056
Return on equity after taxes	16.2%	16.4%	18.0%	19.4%	19.1%	12.2%	19.7%

Figure A1.5 Sales by division and % of sales generated outside of Germany

2. Sourcing

Metro's sourcing is done through one of its cross-divisional companies, METRO Group Buying International (MGBI). Sourcing is mainly done directly from the producer in the interest of increased supply chain efficiency. Across food and non-food categories, 90% of the food products, which comprise 70 to 80% of total sales, are locally sourced[51] and the remaining 10% are sourced internationally. In the non-food category, which includes textiles and electronics, the sourcing ratio differs significantly with many of these products being sourced from Asia through the Hong Kong branch of the buying group.

There has also been a move towards increased regional procurement across market segments with similar consumer taste. This allows the buying group to bundle volumes, which secures them better buying terms, and to increase supply chain efficiency. For example, Parma ham sourced in Italy is sold in France via the regional distribution centre in Milan. Within the regional procurement networks, the buying group adopts a one price for one product philosophy. This allows the buying group to take advantage of any price differences between producer subsidiaries and to source from the lowest cost provider in the region. Metro is also a member of the Agentrics online B2B group in which suppliers are invited to compete in online auctions for procurement contracts. In 2004, €1.45 billion of Metro's €46 billion procurement spending

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[50] Allocable to shareholders of METRO AG

[51] This includes sourcing from local subsidiaries of international producers.

was through Agentrics and continues to rise.[52] These strategies have the potential to decrease the number of suppliers in the system, and offer increased market access opportunities for those suppliers that are able to perform.

3.   Branding

Private labels are increasingly available in each of the METRO Group retail and wholesale formats and account for approximately 15% of total sales, although this figure varies greatly across product lines. Of these private label lines, only one uses the Metro brand name while the others are artificial brand names, not directly associated with the retailing or wholesale brand. These products are generally intended for mature markets and demand for them varies across regions due to economic and cultural factors. In Eastern Europe, for example, customers tend to prefer branded products.

Private labels target both the budget segment of the market as well as providing premium labels which compete with "A" brand products from the leading producers. In the case of premium labels, prices are usually around 10 to 20 percent lower than the "A" brand equivalent. Whenever possible, these private label goods are sourced from a single supplier in order to create quality uniformity and allow for larger volume efficiency. This single sourcing strategy is likely to increase international trade and market access for suppliers involved in the production of private label goods.

4.   Suppliers

METRO Group's numerous suppliers are linked into a single system to facilitate transparency and competition for procurement contracts which provide access to a significant and expanding international market. METRO Group has a diverse range of around 12.500 suppliers representing producers across the spectrum from multinational corporations (MNCs) to small farmers. Small suppliers produce approximately 20-30% of total product value and tend to be active in the supply of food products. Suppliers are linked into the MGBI system through the Metro link supplier portal which provides access to all relevant information regarding account management and supplier performance. Suppliers are evaluated through a score card system on product quality, delivery, and packaging with results published on Metro Link to allow suppliers to compare their performance to that of other suppliers.

The selection of suppliers is product and price driven. Products must meet quality standards, which are monitored by the buying group, and possess traits that set them apart from goods already carried by METRO Group. Suppliers are also faced with increasing packaging, shipping, and storing standards and rising demand for adherence to Efficient Unit Load (EUL) specifications. These packaging standards require increased investment by suppliers but allow the retailer to fit shipments into trucks and warehouses more efficiently and can cut logistics costs by 13-27%.[53] The requirements are part of the effort by the Global Standards One (GS1) organization to develop and coordinate harmonized communication standards for manufacturers and retailers globally. The GS1 has been instrumental in creating uniform labelling through the development of Global Trade Identification Number (GTIN), a standardized Global Location Number, and standardizing Electronic Data Interchange messages through EANCOM. Metro makes an effort to integrate their suppliers into the electronic data management system, but still accommodates a small number of small suppliers that rely on paper.

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[52] Agentrics, http://www.metro-link.com/metro-link/htm

[53] ECR Europe Experts, http://www.metro-link.com/metro-link/htm

TESCO[54]

Table A1.7 Key Data, 2006

Home Country	United Kingdom
Total Sales (Gross)	£43.1 billion
Number of Countries	11
Number of Stores	2710
Number of Employees	450,000

1.   Company Profile

Tesco represents one of the fastest growing retail conglomerates in the world. It went from being the third retail group in the UK in 1992 to be currently ranked 3rd on a worldwide scale. Its supermarket and convenience store retail formats have successfully expanded internationally and now count with over 2700 store locations worldwide. The UK company was formed in 1919 and began own label production in 1924. Overseas expansion started in the late 1990's with the appearance of Tesco stores in Hungary, Poland, the Czech Republic, Slovakia, Ireland, Taiwan and Thailand. In the last decade Tesco continued its overseas growth entering into Japan, Turkey, Malaysia, the US, and China. This expansion into Asia and Eastern Europe contributed to the rapid sales growth and constitutes an important pillar in the company's business strategy. Other recent trends are the further development of private label ranges as well as the increased diversification of services offerings, which now include mobile phone and financial services. Sales and consumer spending growth are supported by Tesco's multi-channel retail options, which go from hypermarket to convenience stores, and are complemented by non-food product and services. With expansion to the US market as the next step, group gross sales exceeded £43.1 billion in 2006, with the most dynamic sales growth occurring in the Asian region. The UK remains the greatest net sales contributing region (76%), followed by the rest of Europe (13%) and Asia (11%).

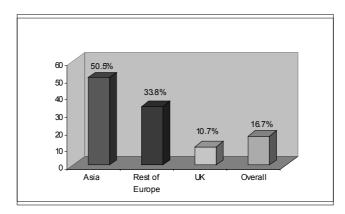**Figure A1.6 Increase in Sales 2006**

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[54] The data contained in this section has been compiled during an interview with Tesco Staff on 02/03/2007 and through information included in Tesco 2006 Annual Review and the 2006 Corporate Responsibility Review.

2. Sourcing

Tesco's retail operations are still predominantly UK-based, but sourcing practices have taken different modalities depending on regions of operations. In general, sourcing is organized through national procurement teams in coordination with an international buying group. Sourcing is extremely integrated across retail formats which range from convenience stores to hypermarkets stocking between 2,000 and 40,000 product lines per store. Sourcing tend to vary across regions due to differences in consumer taste and product availability. Food items have a tendency to be sourced locally unless local conditions impede their production as in the case of, for example, tropical fruits. In those cases then, the sourcing tends to come from a single supplying location, which varies depending on the quality and competitiveness of the products and their associated transportation costs. Spain, for instance, is used as the source of citrus fruits for the whole European region, while in the case of tomatoes from Poland these supply only the Central European region.
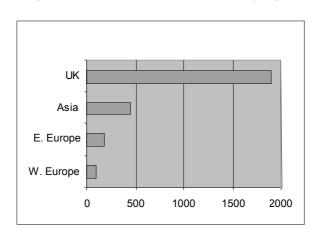
Figure A1.7 Number of store locations by region

Outside the UK, Tesco is also engaged in active campaigns to promote local products, which include, for instance, the 'One Tambon, One Product' programme in Thailand and the 'Teraz Polska' program in Poland. In the non-food category, these items tend to be sourced internationally through the buying group headquarters in Hong Kong and the 8 branches in other countries. There also seems to be a trend to move from national to regional distribution centres. Currently the company operates 30 centers with a new opening underway in Slovakia to service the Central European market. Recently, Tesco promoted environmental initiatives, which will provide 'carbon mile' labelling on all Tesco food products (See Box 2). This programme aims at introducing transparency through increased consumers' awareness of the environmental impacts of their grocery decisions. This strategy may increase demand for locally sourced food items or impact company's logistical shipping choices.

3. Branding

In the UK, Tesco carries around 20,000 private label products in the food and non-food categories including over 1200 organic products lines, 400 'Healthy Living' products, 150 'Free From' products and 100 Fair trade lines, that cater to different market segments in the Value, Finest, and Lifestyle categories. Tesco's general product range has increased 40% in the last 5 years with significant growth in private label products particularly in the non-food category. Within the Fair trade lines, Tesco carries 14 private labels stocking products like sugar, mangos, coffee and chocolate from Latin America or roses, citrus fruits,

plums, apples, grapes and tea from Africa. When performing a comparison of price margins for a sample of Tesco UK goods, the result is that the margin for private labels over branded items is reportedly between 35% and 68% higher.

Table A1.8 Selected Sample of Own Label Vs. Branded Product Comparison

Product Type	Own Label Price	Branded Label	Branded Price
Smooth Peanut Butter 340g	£.67	Sunpat	£.99
Tooth paste 100ml	£.39	Colgate Regular	£.93
Lentils, 500g	£.69	Merchant Gourmet	£1.99
Pasta Sauce 500g	£.54	Ragu	£1.24
Orange Juice, 1 liter	£.79	Minute Maid	£1.62

4.   Supplier Relations

In the UK, Tesco works with around 4000 suppliers, ranging from small farmers to large multinational producers, and over 1500 of which have worked with Tesco for over 5 years. The company is increasingly sourcing directly from suppliers, and this, in turn, is inducing significant transfer of technology and backward linkages to the local economy. This is the case, for instance, of cut flower production in Kenya where Tesco, by progressively eliminating intermediaries, brings benefits to local suppliers and their local communities. In particular, Tesco has contributed to quality life improvements by establishing medical facilities and schools near the Kenyan supplying farms.

The company strives to maintain long-term relationships and has taken steps to facilitate the integration of suppliers into their modern supply chain through strategies like "Tesco in a Box", which helps suppliers assimilate relevant best technological practices. Tesco is also performing practices such as back-hauling, which allows the company to increase supply chain efficiency and reduce carbon emissions. Perhaps a greater contribution to efficiency is given by the usage that Tesco makes of its supermarkets club-card. Monitoring local store purchase habits allows Tesco to map demand heterogeneity and the potential for consumption increases at the store level. This let Tesco better tailor marketing and shelf space to meet customer needs. And when Tesco shares club-card information with its suppliers, it helps them with their direct marketing, leading to significant business growth and improved efficiencies[55].

GAP, INC.

1.   Company profile

Founded in 1969, Gap, Inc. is a leading international speciality retailer of clothing, accessories and care products. In 2006, the company's total sales represented USD 15.9 billion, of which USD 1.5 billion

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[55] See Farmers Weekly at: http://www.fwi.co.uk/Articles/2006/08/14/97093/tesco-clubcard-data-are-invaluable-to-businesses.html, checked on May 31, 2007.

was from international sales. The company currently has 3,100 stores in six countries, employing 150,000 employees worldwide. The headquarter is located in San Francisco, California and the product design offices and other central functions are located primarily in New York City, San Francisco and London. Gap, Inc. does business under five different brands, in some cases using sub-brands (such as GapKids) to target different market segments and consumer age groups.[56]

Most of the company's sales remain concentrated in the US and Canada (see Figure A1.8). Gap, Inc. recently started expanding its operations in the Middle East and South Asia through franchise agreements. In the last few years, the company has experienced difficult times, characterised by flagging sales and decreasing net earnings. For example, net earnings represented USD 778 million in 2006 compared to USD 1.1 billion in 2005, and earnings per share were USD 0.93 cents for the year, compared to USD 1.24 a year earlier. The overall less than historical performance of Gap, Inc. has raised speculation that a private equity group or strategic rival could bid for the company.[57]
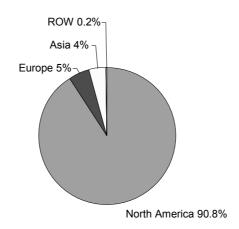
Figure A1.8 Percent of sales by region, 2006

Source: Gap, Inc. website.

2.   Production and sourcing

Gap, Inc. designs all of its products but does not own any factories, purchasing its merchandise from a diverse source base of approximately 780 producers with facilities in some 56 countries around the world (see Figure A1.9 for a regional breakdown of production facilities). In 2006, only about 2% of its merchandise sold was produced domestically while the remaining 98% was made outside the US, with China accounting for 20% of the total. No supplier accounted in the same year for more than 4% of the purchase and Gap, Inc. generally represents no more than 20% of a factory's business.

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[56] Gap, Banana Republic, Forth & Towne, Old Navy and Paperline.

[57] http://www.just-style.com/article.aspx?ID=97601&lk=dm.
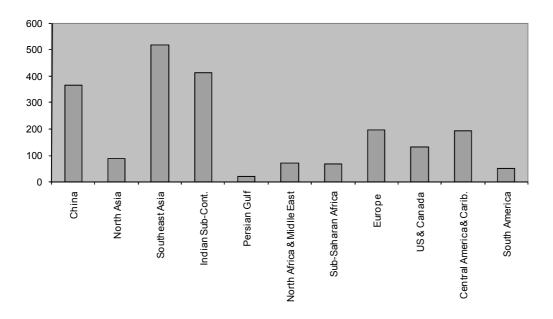
Figure A1.9 Number of approved factories by region,2005

Source: Gap, Inc. website.

This procurement strategy is designed to provide the company with flexibility to respond to business fluctuations according to changes in customer preferences dictated in part by fashion and season. Each of Gap, Inc.'s brands has different production priorities at different times. For some garments, the price of finished goods is the key consideration while for others quality or speed of delivery of products may be more important. Limiting each supplier's importance, so that no single producer can affect the company's overall operations significantly, is also seen as essential to respond to other factors that may adversely affect sourcing operations, including trade restrictions.

All merchandise is shipped to distribution centres which then move it to the different stores. Most of these centres are located in North America in light of its large market share, while the international business is supported by distribution centres in the United Kingdom and Japan. Distribution centres also maintain the replenishment inventory (rather than the stores), which can be quite high especially prior to peak selling seasons as the company builds up inventory levels. Gap, Inc.'s diversified global sourcing strategy requires special attention to demand and price trends and to selection and timing of merchandise purchases.

3.   Supplier relations

Each supplier wishing to manufacture for the Gap, Inc. needs to undergo a comprehensive evaluation system to gain approval and begin manufacturing, a process that can take up to a year to complete. In 2004-2005, the company piloted an integrated sourcing scorecard for producers to improve the process for assessing manufactures. Factories receive an overall rating based on performance with respect to cost, quality, speed-to-market, innovation and labour standards. Based on the results of the pilot, the company is

currently in the process of refining the scorecard and incorporating it into its buying process. An integral part of the evaluation system is the verification of compliance with the Gap, Inc. Code of Vendor Conduct.

Once approved a producer is evaluated and monitored on a periodic basis. According to the company, in 2005 4,438 inspections were carried out in 2,118 factories around the world, covering over 98% of garment factories approved during that year. The company strives to build closer relationships with factories to help them better understand and meet its standards for quality and working conditions. However, serious compliance violations have led to termination of businesses relations. In 2005, the company reportedly revoked approval of 62 garment factories for compliance violations, representing 2.4% of its factory base.

HENNES & MAURITZ[58]
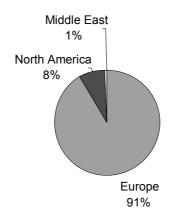
1.   Company profile

H&M is one of the largest and fastest growing own-branded fashion retailers in the world. In 2006, the company's sales reached SEK 80 billion (USD 11.2 billion) excluding VAT and have increased by 72% over the past five years. H&M has continued to significantly expand and today has more than 1,300 stores spread over 28 countries, employing more than 60,000 people. Stockholm is home to the headquarters and a number of central functions, including deign and buying, finance, advertising and logistics, but there are national offices in most of the sales countries.

H&M is well known for being successful in its international expansion through very efficient management of production and logistics, and reduction of lead times. Europe remains by far the company's largest market accounting for over 90% of the sales (see Figure A1.10), with Germany, the UK and Sweden holding the first three places (see Figure A1.11). The North American market is expanding rapidly and H&M also launched a franchise operation in Dubai and Kuwait during the autumn of 2006, though franchising was not previously part of the company's establishment strategy.

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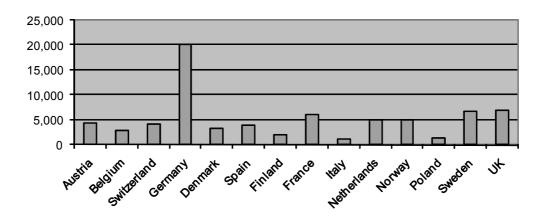
[58] This case study has been prepared with material contained in the H&M website complemented by additional available information. H&M has provided further information.

Figure A1.10: Percent of sales by region, 2006

Source: H&M website.

Figure A1.11 Sales in largest European markets, 2006 SEK million

Source: H&M website.

2.   Sourcing and logistics

H&M does not have any factories of its own, sourcing all its garments from around 700 suppliers who in turn use subcontractors. Altogether, around 2,000 production units employing more than 700,000 people are involved in manufacturing the company's products. 60% of the suppliers are located in Asia and the

rest mainly in Europe, with some minor production taking place in Africa and Central America. China is H&M's most important sourcing market, accounting for around 30% of the total.[59]

H&M has 22 production offices located in main sourcing countries and regions. There are 11 such offices in Asia (e.g. China and Bangladesh), 9 in Europe (e.g. Italy and Turkey) and 1 each in Africa and Central America. The production offices are responsible for the outlets in the country, placing orders and overseeing production. The country production managers work autonomously but have contact with the main office in Sweden on a regular basis. H&M's structure is thus marked by a decentralised system of decision making with a strong central management.

Every stage of the transport chain is controlled by H&M, which acts as importer and wholesaler, as well as retailer. The stock management is mostly handled within H&M while transport functions are contracted to third parties. Garments are distributed to H&M stores via distribution centres located in most sales countries. Upon arrival, goods are checked and sent on to the stores or to warehouses which restock product levels in stores in accordance to selling trends. IT development is an integral part of the continuous increase in efficiency of H&M's logistics.

3.   Supplier relations

The selection of suppliers is driven by cost-efficiency, transport time and quality. The production offices in each main sourcing country or region are responsible for ensuring that the selected suppliers produce items at competitive prices and delivered on time. Lead time considerations vary depending on different products, with requirements ranging from two to three weeks up to six months. For high-volume basic fashion goods it is advantageous for H&M to place orders far in advance, while trendier garments in smaller volumes require significantly shorter lead times.

Ensuring the quality and safety of products also takes place at the production offices and is the result of extensive testing, including checking for shrinkage, twisting and colourfastness, as well as ensuring that the chemical requirements have been met. Furthermore, production offices carry out checks to ensure compliance with H&M's Code of Conduct that applies to suppliers and that production takes place under good working conditions. The company's strategy is to build long-term relationships with suppliers to help them understand and meet quality standards, as well as live up to social standards and environmental requirements.

Trade policy and in particular import quotas are another factor influencing sourcing decisions. In September 2005, for example, when European Union authorities declared the re-establishment of some temporary quotas on Chinese imports, H&M was among those hit, leaving thousands of products stranded in warehouses. Although EU trade officials subsequently reached an agreement with China after weeks of intense negotiations, the episode led H&M to move some of its production out of China.[60]

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[59] Http://www.bloomberg.com/apps/news?pid=20601087&sid=aLYM2IoSJ_2o&refer=home.

[60] Http://www.fashionunited.co.uk/news/archive/hnm2.htm.

ZARA

1.   Company profile

Zara is the flagship enterprise of the Inditex Group[61], one of the largest fashion retail groups in the world. In 2006, the company's sales rose to over EUR 5.3 billion, representing more than 65% of the Group's total. The first Zara shop opened in 1975 in A Coruña (Spain), the city that witnessed the Group's early beginnings and which is now home to its headquarters. Zara's known international success in competitively priced fashionable clothes is due to a strategy that emphasises short lead times, producing lower quantities of items but with a large number of styles. This allows it to quickly respond to consumer trends while reducing risks associated with exposure to any single product. It also results in higher margins as discounts represent only about 18% of its products, roughly half the level of competitors.[62]

Zara has continued to expand reaching a store presence in 64 countries by January 2006, with more than 990 stores in Europe, the Americas, Asia and Africa. Expansion efforts were directed at international markets, with 111 new shops outside Spain out of the 138 net openings in 2006. This growth was particularly significant in large European markets such as Germany, Italy and the UK, as well as Japan. Taking the Inditex Group together, Spain and the rest of Europe remain by far the largest markets accounting for over 80% of total sales (see Figure A1.12).

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[61] Inditex has seven other retail chains: Kiddy's Class, Pull and Bear, Massimo Dutti, Bershka, Stradivarius, Oysho and Zara Home.

[62] http://www.3isite.com/articles/ImagesFashion_Zara_Part_I.pdf.

Figure A1.12 Percent of sales by region, 2006
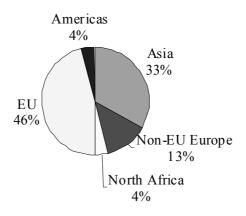
Source: Inditex website.

2.   Production and sourcing

Zara and the Inditex Group's production structure are designed for greater flexibility and speed in the manufacture of products demanded by consumers. The "production in proximity" concept aims at ensuring this quick response: around 50% of total production takes place in European Union countries and is manufactured in the Group's own factories or by suppliers significantly integrated with the Group's dynamics. The remaining production of mostly basic products is sourced primarily from Asia and non-EU European countries (see Figure A1.13[63]) and supplied to the stores through logistical centres based in Spain (each chain has its own logistical centre).

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[63] Figures for 2006 were provided by Inditex. However, 2005 figures are used here because they are more disaggregated by region.
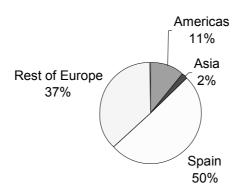
Figure A1.13 Percent of production by region, 2005

Americas
4%

Asia
33%

Non-EU Europe
13%

North Africa
4%

EU
46%

Source: Inditex website.

The regional breakdown of employees in the Group's own factories and stores reveals that the vast majority of them are concentrated in Spain and in the rest of Europe (see Figure A1.14[64]). The higher labour costs incurred by the Group in producing mostly in Europe are compensated by higher margins, as well as strategies to keep costs down. For example, Zara carries out hardly any advertising campaigns. Instead, it relies on highly visible store location, shop window layout and product display.

Figure A1.14 Percent of employment by region, 2005

Americas
11%

Asia
2%

Rest of Europe
37%

Spain
50%

Source: Inditex website.

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[64] 2006 figures are not yet available.

3.   Supplier relations

The company's strategy of quality control, speed and high market responsiveness is based on producing and sourcing largely in Spain or neighbouring EU countries. Nevertheless, external manufacturers are also subject to close monitoring for achieving best supplying conditions and to ensure compliance with the Group's codes of conduct, including a specific one developed for them to ensure ethical behaviour and good working conditions[65]. The Group strives to maintain stable relationships with external suppliers to facilitate the attainment of these goals.

ANNEX 2 TECHNICAL ANNEX

The regressions estimating the trade impact on the aspects of the retail sector of interest is based on the gravity model. The point of departure is the simple gravity equation:

$$M_{ij} = \frac{Y_i Y_j}{d_{ij} T_{ij}} \tag{1}$$

M_{ij} denotes imports to country i from country j, Y represents income (*i.e.* GDP), d_{ij} signifies distance between the trading partners and T_{ij} symbolise trade costs. Distance has often been used as a proxy for trade costs, but as shown by Hummels *et al.* (2007), differences in distance can explain only a small proportion of differences in shipping costs. We therefore need to introduce a trade cost function that captures features of the distribution sector as well as the costs related to search for suppliers and establishing and enforcing contracts with them. The cost of establishing and enforcing contracts are routinely assumed to be related to having a common language, common legal systems, common currency etc.

$$Tij = f(t_{ij}, lang, adj, c_{ij} rm) \tag{2}$$

Here t_{ij} represent tariffs, *lang,* and *adj,* represent dummies indicating whether a country pair has common language, or a common border, while $c_{ij} rm$ represents the retail cost, *i.e.* the marginal cost of the retailer times a mark-up. Depending on the market structure in the retail sector, the trade costs function can take different forms.

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[65] The Code of Conduct for External Manufacturers and Workshops, which Inditex approved in February 2001.

The discussion is this paper has documented that the retail sector is subject to economies of scale and thus not perfectly competitive. Further, retailers engage in international trade directly and incur some of the search and contract costs that are usually included in the trade costs aggregate. This case is conceptually similar to Hummels *et al.* (2007) who focused on maritime transport and shipping costs. Assume that there are n_{ij} retailers in country i importing from country j. For simplicity, assume that they are symmetric. Further, assume that retailers have marginal cost c_{ij} and a fixed cost of sourcing from country j denoted C_{ij}. Goods are differentiated by country of origin.[66] Consumers in country i have a preference for product variety reflected in the utility function:

$$u_i = q_{i0} + \sum_j q_{ij}^{(\sigma-1)/\sigma} \tag{3}$$

The first term represents a numeraire good, while the second term aggregates differential goods from different countries indexed by j and the elasticity of substitution between any two goods is σ. Consumers maximise utility subject to their budget constraint and this yields demand for each variety as follows:

$$q_{ij} = \frac{\sigma}{\sigma-1} p_{ij}^{-\sigma} \tag{4}$$

The consumer price is defined as $p_{ij} = p_j \tau_{ij} + f_{ij}$ where p_j is the c.i.f. import price, t_{ij} is 1+ the tariff rate and f_{ij} is the amount charged by the retailer per unit of sales. The elasticity of import demand with respect to the retailer's charge is given by

$$\frac{\delta q_{ij} f_{ij}}{\delta f_{ij} q_{ij}} = -\sigma \frac{f_{ij}}{p_j \tau_{ij} + f_{ij}}$$

We notice that the elasticity depends on the share of the retailer's charge in the consumer price. There are *n* retailers in the economy, and for simplicity it is assumed that they are identical. Each retailer will maximise profits on sales of imported goods from country j, $\pi_{ij} = Q_{ij}(f_{ij} - c_{ij}) - C_{ij}$ The profit-maximising retail charge is then given by:

$$f_{ij} = c_{ij} + \frac{c_{ij} + p_j \tau_{ij}}{n_{ij}\sigma - 1} \tag{5}$$

We notice that the retailer's profit maximising charge increases with the tariff rate and declines with the number of retailers in the economy. The relation between the retail mark-up and the tariff rate stems from the fact that the retail charge constitutes a smaller share of the consumer price the higher is the tariff. The retailer can thus charge a higher mark-up with less adverse impact on sales the higher the tariff rate. By the same token, the retail mark-up also increases with the c.i.f. import price and declines with the demand elasticity. Finally, the retail margin (*i.e.* the retail charge divided by the marginal cost) is given by:

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[66] We abstract from product differentiation within countries and product categories in this paper.

$$rm = 1 + \frac{1 + p_J \tau_{IJ} / c_{ij}}{n_{ij}\sigma - 1} \tag{6}$$

Combining equations (1), (2) and (6) gives us the gravity equation that incorporates an imperfectly competitive retail sector.

Santos Silva and Tenereyro (2006) showed that it using Poisson pseudo maximum likelihood estimator (PPML) for estimating the gravity equation yields unbiased and effective results. Moreover, PPML allows the inclusion of zero trade flows. However, it does not distinguish between the decision to enter a market and the decision to extend existing trade flows. We believe that these two decisions are different and that they may respond differently to changes in the exogenous variables. Furthermore, when analysing particular sectors such as consumer goods, the zeros may be explained by two different processes. Some countries may have zero exports of consumer goods to the importing country in question because they do not have a comparative advantage in the sector or because trade costs are prohibitive (the true zeros). Others may not trade with each other simply because there are limits to how many markets the local companies can enter.

The zero inflated Poisson technique (zip) allows for both these features of international trade at a sectoral level. The technique first predicts whether a country pair is in the group of true zeros (*i.e.* not having comparative advantage or facing prohibitive trade costs). Next a Poisson model is generated to predict the counts for those country pairs that are not in the group of certain zeros, but do (or could have) traded with each other. Finally the two models are combined. The Vuong test indicates whether zip estimates are better than PPML, and when this test shows preference for zip, that is the technique applied. Since we do not have any particular variable that indentifies the true zeros, as a starting point we include the same variables in the probit and the Poisson model.[67]

$$\rho_{ij} = \Phi \left(\begin{matrix} \alpha_0 + \alpha_1 \ln y_i + \alpha_2 \gamma_j + \alpha_3 \ln(dist_{ij}) + \alpha_4 \ln(1 + t_{ij}) \\ + \alpha_5 lang + \alpha_6 adj + \alpha_7 c_{ij} + \alpha_8 \ln(n_{ij}) \end{matrix} \right)$$

$$M_{ij} = \exp \left(\begin{matrix} \hat{\beta}_0 + \beta_1 \ln y_i + \beta_2 \gamma_j + \beta_3 \ln(dist_{ij}) + \beta_4 \ln(1 + t_{ij}) \\ + \beta_5 lang + \beta_6 adj + \beta_7 c_{ij} + \beta_8 \ln(n_{ij}) \end{matrix} \right) \tag{7}$$

The first constant incorporates the elasticity of substitution, σ, which is assumed to the same across countries. While the market concentration rate in the retail sector is included directly in the equation to be estimated (through *n*), private labels and international operations are not. However, as discussed in section 2, private labels are likely to increase the fixed costs of sourcing, while reducing marginal costs. Having a commercial presence in a country is also expected to reduce the marginal cost of sourcing from that country.

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[67] The variables that define comparative advantage, including factor endowments and technology are typically picked up in the country fixed effects in short panels as the one used in this study. Finding an indentifying variable has been a problem when using Heckman regressions for distinguishing between the extensive and intensive margin. The zip technique avoids this problem and is arguably more appropriates since when trade costs become prohibitive is probably more a matter of degree than about the presence of a particular cost component.

ANNEX 3 REGRESSION RESULTS

Table A3.1 The correlation between labour productivity and size of enterprise, 12 European countries, 1995-2004.

Variable	Coefficient
Capital per worker	0.12*** (0.02)
One employee	0.52*** (0.03)
2-4 employees	0.61*** (0.03)
5-9 employees	0.70*** (0.03)
10-19 employees	0.71*** (0.03)
20-49 employees	0.68*** (0.03)
50-200 employees	0.69*** (0.03)
More than 200 employees	0.78*** (0.03)
Number of observations	481
R squared	0.88

Note: Standard errors are reported in parentheses. *** indicates statistical significance at 1% level. The countries included are Austria, Belgium, Denmark, Finland, France, Germany, Italy, Norway, Portugal, Spain, Sweden and the United Kingdom. Regressions control for country fixed effects. Source of data: Eurostat.

Table A3.2 The relationship between foreign direct investment in retail and imports of consumer goods, 2003, 2004, 2005

Zero inflated Poisson maximum likelihood regressions; reporter and partner fixed effects.

Variable	Food	Non-food
ln distance	-0.664*** (0.00)	-0.527*** (0.00)
Common border	0.724*** (0.00)	0.356*** (0.00)
Common language	0.213*** (0.00)	0.377*** (0.00)
FDI dummy	0.181*** (0.00)	0.162*** (0.00)
ln (1+t)	-2.730*** (0.00)	-10.82*** (0.00)
N	10673	10588
Ow zero	1144	812
Vuong test	2.65***	2.97***

Note: Standard errors are reported in parentheses. *** and ** indicate statistical significance at 1% and 5% level respectively. Robust standard errors are not compatible with the zero-inflated Poisson command.

Table A3.3 The relationship between market structure in the retail sector and imports of consumer goods

Zero inflated Poisson maximum likelihood regressions; partner fixed effects

Panel A Food, retail density

	(1)	(inflate)	(2)	(inflate)
ln reporter GDP	0.849*** (0.00)	-0.693*** (0.02)	0.811*** (0.00)	-0.644*** (0.05)
ln distance	-0.754*** (0.00)	0.992*** (0.08)	-0.699*** (0.00)	1.113*** (0.20)
Common border	0.409*** (0.00)	1.020*** (0.35)	0.484*** (0.00)	1.429** (0.68)
Common language	0.455*** (0.00)	-0.0168 (0.08)	0.541*** (0.00)	-0.473** (0.19)
ln(1+t)	-1.638*** (0.00)	-0.786** (0.40)	-1.061*** (0.00)	0.278 (0.89)
ln retail density	0.367*** (0.00)	0.114*** (0.03)	0.238*** (0.00)	0.0943 (0.10)
PMR low			0.195*** (0.00)	0.0793 (0.09)
Observations	16251	16251	3747	3747
Vuong	5.118***		3.582***	

Panel B. Food, market share of 5 largest retailers

Zero inflated Poisson maximum likelihood regressions

	(1)	(inflate)	(2)	(inflate)	(3)	(inflate)
ln reporter GDP	0.66***	-0.69***	0.65***	-0.97***	0.71***	-0.68***
	(0.00)	(-0.04)	(0.00)	(-0.09)	(0.00)	(-0.06)
ln distance	-0.76***	1.23***	-0.75***	1.29***	-0.76***	1.40***
	(0.00)	(-0.16)	(0.00)	(-0.36)	(0.00)	(-0.24)
common border	0.46***	-5.91	0.49***	-6.13	0.43***	-4.72
	(0.00)		(0.00)		(0.00)	
common language	0.35***	-0.54***	0.36***	-0.70**	0.44***	-0.39***
	(0.00)	(-0.16)	(0.00)	(-0.29)	(0.00)	(-0.2)
ln tariffs	-0.95***	2.28**	-0.15***	1.47	-1.08***	0.21
	(0.00)	(-0.97)	(0.00)	(-2.41)	(0.00)	(-1.33)
ln (1+ share 5 largest)	-1.20***	-1.08***	-2.65***	-1.79**	-1.62***	1.57*
	(0.00)	(-0.36)	(0.00)	(-0.78)	(0.00)	(-0.86)
Ln retail density					0.168***	0.11
					(0.00)	(-0.13)
Low PMR			0.15***	0.13		
			(0.00)	(-0.13)		
Observations	6746	6746	2104	2104	3974	3974
Vuong	16.32***		6.533***		10.64***	

Panel C Non-food Poisson Maximum likelihood regressions

	(1)	(2)	(3)	(4)	(5)
Ln GDP reporter	0.84***	0.87***	0.91***	0.87***	0.73***
	(0.01)	(0.04)	(-0.03)	(-0.04)	(-0.04)
Ln distance	-0.54***	-0.61***	-0.67***	-0.69***	-0.74***
	(0.03)	(0.07)	(-0.05)	(-0.08)	(-0.06)
Common border	0.32***	0.25*	0.12	0.04	0.14
	(0.06)	(0.13)	(-0.08)	(-0.15)	(0.11)
Common language	0.60***	0.67***	0.72***	0.77***	0.56***
	(0.06)	(0.13)	(-0.08)	(-0.12)	(-0.1)
Ln tariffs	-7.41***	-4.70**	-7.56***	-6.49***	-5.55***
	(0.18)	(2.07)	(-1.53)	(-2.61)	(-1.92)
Ln retail density	-0.33***	-0.28***			-0.36***
	(0.03)	(0.08)			(-0.06)
Ln (1+ share 5 largest)			-1.99***	-2.24***	-3.32***
			(-0.35)	(-0.6)	(-0.5)
Low PMR dummy		0.03		-0.14	
		(0.08)		(-0.10)	
N	14318	3341	6124	1937	3639
Pseudo R^2	0.93	0.92	0.93	0.93	0.94

Note: Standard errors are reported in parentheses. ***, ** and * indicate statistical significance at 1%, 5% and 10% level respectively. Robust standard errors are not compatible with the zero-inflated Poisson command, but are reported where the PPML estimator is used. Inflate reports the coefficients of the probit regression of the probability that trade is zero corresponding to the Poisson estimate reported in the column to the left of it. Panel B reports regressions for non-food consumer goods. For these regressions the Voung test indicated that ordinary Poisson is better.

Table A3.4 The relation between private labels and imports of consumer goods, 2003 and 2005

Pseudo Poisson maximum likelihood regressions

	Food				Non-food			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Ln GDP reporter	0.77*** (0.00)	0.77*** (0.02)	0.77*** (0.03)		0.87*** (0.03)	0.87*** (0.07)	0.87*** (0.07)	
Ln GDP partner		0.61*** (0.02)	0.61*** (0.02)			0.77*** (0.03)	0.77*** (0.03)	
Ln distance	-0.73*** (0.04)	-0.53*** (0.04)	-0.53*** (0.04)	-0.66*** (0.04)	-0.47*** (0.06)	-0.33*** (0.09)	-0.34*** (0.09)	-0.56*** (0.04)
Common border	0.57*** (0.11)	0.87*** (0.14)	0.87*** (0.13)	0.74*** (0.10)	0.44*** (0.13)	0.54*** (0.17)	0.53*** (0.17)	0.35*** (0.10)
Common language	0.17* (0.10)	0.06 (0.10)	0.06 (0.10)	0.23*** (0.09)	0.60*** (0.11)	0.10 (0.13)	0.10 (0.13)	0.38*** (0.11)
Ln (1+t)	-0.79 (0.69)	-2.32*** (0.91)	-2.40*** (0.91)	-4.76*** (1.13)	-2.58* (1.48)	-2.41** (1.22)	-2.43** (1.22)	-10.73*** (1.67)
Ln private label sh	-2.06*** (0.40)	-1.77** (0.49)	-2.00*** (0.52)		0.65* (0.38)	0.68 (0.80)	-2.00*** (0.52)	
Poor dummy		-0.15 (0.10)	-0.64*** (0.22)			0.29*** (0.12)	0.50 (0.86)	
Poor*ln private label sh			3.30*** (1.00)	4.96*** (0.56)			2.30** (1.11)	3.27*** (0.58)
N	6333	6158	6158	6158	6407	6219	6219	6219
Pseudo R^2	0.90	0.78	0.78	0.88	0.92	0.74	0.74	0.94

Note: Standard errors are reported in parentheses. ***, ** and * indicate statistical significance at 1%, 5% and 10% level respectively. Regressions (1) and (5) are with partner fixed effects, regressions (2) and (6) introduces the a dummy that is one if the partner country has a lower GDP per capital than $1000, regressions (3) and (7) introduces the interaction term and regressions (4) and (8) contains bilateral variables only plus reporter and partner fixed effects.

Table A3.5 Relationship between trade liberalisation and market structure

Zero-inflated Poisson regressions, partner fixed effects (inflate not reported)

	Product market regulation and tariffs				Market concentration and tariffs			
	Food		Non-food		Food		Non-food	
	Poisson	inflate	Poisson	inflate	Poisson	inflate	Poisson	inflate
ln GDP reporter	0.778*** 0.00	-0.641*** -0.04	0.875*** 0.00	-0.636*** -0.04	0.659*** 0.00	-0.338*** -0.02	0.905*** 0.00	-0.432*** -0.03
ln distance	-0.678*** 0.00	0.0898 -0.09	-0.478*** 0.00	-0.198* -0.11	-0.752*** 0.00	0.208*** -0.03	-0.672*** 0.00	0.259*** -0.04
Common border	0.508*** 0.00	0.384 -0.45	0.439*** 0.00	0.456 -0.48	0.460*** 0.00	-5.874 -38981	0.122*** 0.00	-5.895 -67269
Common language	0.092*** 0.00	-0.806*** -0.16	0.684*** 0.00	-0.871*** -0.15	0.345*** 0.00	-0.338*** -0.10	0.721*** 0.00	-0.335*** -0.12
ln (1+t)	-0.911*** 0.00	-0.858 -0.90	-3.661*** 0.00	-2.485* -1.33	-2.364*** 0.00	-1.479** -0.72	-7.660*** 0.00	-2.965*** -1.14
Low pmr	0.021*** 0.00	-0.359*** -0.12	-0.139*** 0.00	-0.215 -0.14				
low pmr*tariff	1.584*** 0.00	3.581*** -1.24	2.597*** 0.00	1.238 -1.87				
ln (1+share 5 largest)					-2.274*** 0.00	-1.356*** -0.34	-2.032*** 0.00	-3.266*** -0.42
high share 5 largest*tariff					1.613*** 0.00	1.978*** -0.75	0.177*** 0.00	5.720*** -1.16
N	5421	5421	5434	5434	6746	6746	6622	6622
Vuong	4.252***		3.829***		18.56***			

Note: Standard errors are reported in parentheses. ***, ** and * indicate statistical significance at 1%, 5% and 10% level respectively. Regressions (3) and (4) include positive trade flows only as the PPML estimator could not find a solution when zero flows were included.