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TERRITORIAL SUPPLY CONSTRAINTS: IMPACT ON CONSUMER WELFARE

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A Study for EuroCommerce

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ABSTRACT

Territorial Supply Constraints (TSCs) are illegitimate practices, which are not justified to meet different consumer tastes/preferences and/or national standards and regulations. TSCs are imposed by suppliers to restrict retailers' and wholesalers' ability to source centrally or in the country of their choice. TSCs force retailers to source products domestically and/or prevent them from "parallel trading" products from another Member State. TSCs- besides to being economically undesirable- infringe Single Market rules by severely limiting retailers' freedom to choose where to source supplies.

TSCs thus restrict retailers' and wholesalers' legitimate expectation to be able to choose how to run their business and how to acquire the products they wish to sell, especially where, as is the case with many major brands, these are "must-have" products. A must-have product is one to which consumers are largely more loyal to the brand than to the retailer, which gives the supplier considerable power in dictating the price and contractual terms for supplying it. Retailers have no choice but to carry that product, as consumers would immediately turn to a rival retailer who carries the brand. From an economic point of view, TSCs segment markets and enable brand manufacturers to price discriminate between different countries. Price discrimination is unavoidably associated with a substantial misallocation problem, implying that consumers are excluded from consumption in high-price countries in exchange for additional consumption by consumers in low-price countries. Such a misallocation is in opposition to the fundamental economic motive of a free market participant – to seek trade opportunities which make both trading partners better off (so-called Pareto-improving trade). As TSCs work counter to this fundamental motive, the enforcement of TSCs by their nature leads to considerable *rent-seeking costs* or *social costs of monopoly*, which have to be taken into account in order to obtain a full and realistic picture of their adverse economic effects.

Recent empirical work has shown that prices for branded goods are often higher in small countries (like Belgium, Greece or Ireland), while they are often lower in larger countries such as Germany and Spain. Given this empirical evidence, we can summarise the main advantages of addressing TSCs in terms of competition and single market law:

1. In the absence of TSCs, prices in currently high-price markets will approach currently lowest price-levels observable in larger EU countries. The retail market is already highly competitive, and retailers will have no choice but to pass on these price changes to final consumers for fear of losing them to a competitor. As a result, consumers in currently high-price markets such as Ireland, Greece, and Belgium will unambiguously benefit.
2. Consumers in currently low-price countries are unlikely to be significantly affected by such a levelling of prices. This can be explained by the fact that markets currently enjoying low prices (such as Spain and Germany) are also large, so that economies of scale will persist and attempts by suppliers and retailers to increase prices will lose customers and market share to competitors.
3. Allowing retailers to seek arbitrage opportunities eliminates not only the misallocation effect of price discrimination enforced by TSCs, but will also most likely lead to a positive output effect to the benefit of consumers.
4. Suppliers will save the costs of monitoring and enforcing a price-discriminating TSC-regime against retailers deviating from the price levels imposed by suppliers.

5. Allowing retailers to choose where to source products can encourage innovation for manufacturers in enhancing the consumer attractiveness of their products and thus their share of scarce shelf space in brick and mortar retailing.

The argument that price discrimination can be welfare-enhancing is based on theoretical assumptions that brand suppliers are likely to withdraw from markets and reduce product introductions. However, in such (unlikely) instances, bilateral contracts between manufacturers and retailers can ensure Pareto-improving trade, such that the main arguments for maintaining price discrimination under TSCs become questionable.

We have, in the light of this, analysed the RBB study (2013), which argues that price discrimination is ubiquitous, mirrors market efficiency and raises brand manufacturers' profits, which is economically necessary because of fixed costs and the need for investment. We show that none of the arguments put forward is convincing or grounded in sound economic principles.

A major argument adduced by proponents of TSCs, is that the absence of price discrimination and enforced national supply agreements will make new product introductions in allegedly less "wealthy" countries no longer attractive. A sound economic analysis shows that this is unrealistic. First, countries where consumers have a relatively lower willingness to pay for new product innovations are often the countries which actually experience the highest brand prices in Europe. Second, in a country in which the introduction of a new product at the (already low) price seen in a large competitive market would still be too high for consumers, it is possible for the manufacturer and the retailer to reach a Pareto-improving agreement on a price which would attract consumer interest. This is unaffected by whether the supplier would be able to enforce TSCs or not.

We therefore conclude that policy-makers should consider an approach to TSCs which will allow retailers and wholesalers to source freely across the European market, and which will enhance both social welfare and in particular consumer welfare. Thus, the European Commission is correct in regarding TSCs as an artificial cross-border trade barrier preventing retailers, and ultimately consumers, from benefiting from the European Single Market.

SUMMARY

What are TSCs?

TSCs are illegitimate restrictions imposed by suppliers of products which restrict retailers' ability to source centrally and distribute across the EU, or purchase in the country of their choice. TSCs are not justified on grounds of different consumer taste/preferences and/or national standards and regulations. They restrict retailers' freedom to negotiate with whom, and/or where they wish to buy their products within the European Single Market and thus constitute a barrier to cross-border trade. Retailers are deprived of the possibility to parallel import and arbitrage opportunities, respectively. To prevent retailers from trying to circumvent TSCs and as a means of enforcement, manufacturers use retaliatory measures to punish non-compliance, such as rationing of quantities or withholding supplies altogether. Brand manufacturers are able to exercise this market power, as retailers depend on the manufacturer's supply of branded goods, many of which are must-have products.

A practical example of TSCs

The *AB InBev case*[1] showed that AB InBev abused its dominant position in the Belgian beer market by hindering imports ("parallel trade") of its Jupiler and Leffe beers from the Netherlands into Belgium. Wholesale prices are significantly lower in the Netherlands than in Belgium. The investigation, which led to a 200 million euros fine on AB InBev, showed that these practices created anti-competitive obstacles to trade and partitioned the European Single Market along national lines.

What is the impact of TSCs?

TSCs allow brand manufacturers to segment markets along national lines with the intention to engage in price discrimination. As a result, retailers face higher wholesale prices at which they are obliged to purchase. As the retail market is highly competitive, retailers have to pass on high wholesale prices to final consumers. Thus, "*consumers are negatively affected by higher prices and a narrower product choice and do not benefit from access to better prices and the smooth functioning of the Single Market*." (European Commission, 2013, p. 21)

TSCs result in significant price differences at the wholesale and the retail level across Europe. This observation is supported by a recent study of the European Central Bank, which finds considerable border effects across Europe; i.e. *"prices vary substantially more across countries than within countries"*, which is *"strong evidence of market segmentation"* (ECB, 2015, p. 1). Especially smaller countries, e.g. Greece or Ireland, experience higher prices for branded goods, while large countries, e.g. Germany or Spain, exhibit the lowest prices for branded products.

As our study shows, TSCs carry with them substantial inefficiencies and consumer harm. Looking at the pattern of price differences in Europe, we conclude that TSCs cannot be justified on economic grounds. This points to policymakers addressing TSCs in B2B relations in terms of competition and single market

[1] For further case details, refer to the European Commission's press releases of 13 May 2019 (available at http://europa.eu/rapid/press-release_IP-19-2488_en.htm) and 30 November 2017 (available at http://europa.eu/rapid/press-release_IP-17-5041_en.htm.

law in order to strengthen market integration and bolstering the effective functioning of European markets in the grocery and related non-food markets. The removal of market partitioning would improve not only consumer welfare, but also overall market efficiency.

Undesirable effects of TSCs

To analyse the effects of TSCs on consumers, we compare the current situation with TSCs with the counterfactual situation in the absence of TSCs. Using the results of the ECB study with reference to price differences in small and large European countries, we consider a two-country case with a high-price and a low-price market. We stress the following two main adverse effects of TSCs enforced by dominant brand manufacturers:

First, TSC-induced price discrimination leads to a robust adverse outcome, the so-called misallocation effect, which produces an allocative inefficiency, a loss in consumer welfare and a reduction of total welfare (see Schmalensee's *misallocation effect* (1981)). This misallocation effect brought about by TSCs means that goods are not efficiently allocated among consumers: Consumers in high-price markets are excluded from consumption in exchange for consumption by consumers in low-price markets. As the former have a higher willingness to pay than the latter, the misallocation effect always reduces consumer surplus.

Second, the establishment and enforcement of TSCs involves additional costs, as those resources could be put into more productive use elsewhere in the economy (see Posner's *rent-seeking costs* or *social costs of monopoly*, 1975). We identify the following costs: (1) retaliatory measures in the form of punishment strategies for retailers that try to circumvent TSCs; (2) significant organisational costs on the manufacturer's side with a fragmented structure of national sales offices to enforce the TSC requirements and discriminatory prices; and (3) spurious product differentiation to hinder retailers' arbitrage incentives and opportunities. In addition, retailers must incur the cost of mirroring the fragmented manufacturer's supply structure, which produces an inefficient organisation in the entire value chain and ultimately higher costs to consumers resulting from these artificially-imposed inefficiencies.

Finally, TSCs tend to lead to dynamic inefficiencies in terms of innovation incentives. Shelf-space is limited, so that a new product innovation must replace an existing product. It follows that a higher profit associated with an existing product will reduce the incentive to invest in a new quality-enhanced product (see Arrow's *replacement* effect (1962)).

Positive effects of addressing TSCs

Our economic analysis leads us clearly to the conclusion that consumers are better off in the absence of TSCs. By being able to source cross-border at the lowest price possible, retailers make wholesale cost-savings which they need to pass through to final consumers due to competitive market conditions in retail markets. Thus, consumers in a high-price country would benefit considerably from a price decrease to the level of the lowest price levels observable in large EU countries. Furthermore, consumers in the current low-price countries will not be disadvantaged to any significant degree. The current low-price country will continue to be an attractive market because of its size. In addition, the intensity of competition in it will render a price increase in a low-price country like Germany unattractive and very difficult to impose.

Consequently, with the removal of TSCs, the misallocation effect disappears, and goods are efficiently allocated as consumers with a high valuation for the good are no longer excluded from consumption. Furthermore, the above-mentioned additional costs of enforcing TSCs are avoided as there will be no longer a need for policing discriminatory supply regimes. Rather, one can expect the removal of TSCs to lead to a more efficient allocation of productive resources on the brand manufacturers' side and efficient organisation of the entire value chain.

With regard to the two cases where price discrimination has been presented by its proponents as welfare-enhancing – market withdrawal and reduced new product introductions – we note that, in both scenarios, the manufacturer and the retailer have a shared interest in reaching agreement on marketing arrangements to maintain a presence in the markets in question and introduce new products. As these agreements are possible without TSCs, we can conclude that neither scenario is convincing or grounded in sound economic principles.

Addressing the RBB Economics Study

As part our study, we assess the study of RBB (2013). RBB claims to analyse the economics of TSCs and concludes that *"blanket rules aimed at reducing cross-border price differentials are likely to harm the consumer"* (RBB, 2013, p. 4). The study backs the view that TSC-induced price discrimination increases economic welfare and ultimately benefits consumers, as price discrimination reflects the efficient functioning of a market.

We argue on the contrary that the RBB study fails to deliver convincing economic arguments in favour of TSCs. It justifies TSCs segmenting national markets with a rather circular argument that national consumer markets are segmented. In addition, it neglects the trans-national nature of manufacturers' operations and the vertical business relationship between manufacturers and retailers, ignoring the vertical restraint aspect of TSCs. The RBB study presents several arguments in favour of TSCs, based on the assumption that increasing manufacturers' profits is in the interest of consumers. We show that none of the arguments put forward can stand any rigorous economic scrutiny.

Conclusion: economic advantages of removing TSCs

The main advantages of removing TSCs can be summarised as follows:

1. In the absence of TSCs, prices in the current high-price markets will approach currently lowest price-levels observable in larger EU countries. The retail market is already highly competitive, and retailers will have no choice but to pass on these price changes to final consumers for fear of losing them to a competitor. As a result, consumers in currently high-price markets such as Ireland, Greece, and Belgium will unambiguously benefit.
2. Consumers in currently low-price countries are unlikely to be significantly affected by such a levelling of prices. This can be explained by the fact that markets currently enjoying low prices (such as Spain and Germany) are also large, so that economies of scale will persist and attempts by suppliers and retailers to increase prices will lose customers and market share to competitors.
3. Allowing retailers to seek arbitrage opportunities eliminates not only the misallocation effect of price discrimination enforced by TSCs, but will also most likely lead to a positive output effect to the benefit of consumers.

4. Suppliers will save the costs of monitoring and enforcing a price-discriminating TSC-regime against retailers deviating from the price levels imposed by suppliers.
5. Allowing retailers to choose where to source products can enhance innovation for manufacturers in enhancing the consumer attractiveness of their products and thus their share of scarce shelf space in brick and mortar retailing.

Price differences for the same good will not disappear completely, but gradually diminish. Markets which are no longer segmented will allow the free movement of goods and European consumers to benefit from access to better prices in the European Single Market. In the longer run, with artificial market segmentation no longer possible at B2B level, a more efficient structure and organisation of the entire value chain in European retail and thus significant consumer benefit, will result.

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1. INTRODUCTION

The aim of the study is to provide an economic analysis of the question how territorial supply constraints (TSCs) imposed by powerful brand manufacturers on retailers affect market outcomes in retail markets, in particular from a consumer point of view. We focus on the food value chain but most of our analysis also applies to many non-food markets. Our study includes a critical assessment of the RBB Economics study entitled "Territorial supply constraints: the economic arguments" published in April 2013 (in short: RBB study). The RBB study concludes that cross-country price differentials due to TSCs do not negatively affect consumers but – rather to the opposite – "*reflect the efficient functioning of markets*" (RBB, 2013, p. 2). As we will show, such a conclusion is not valid under a reasonable and fair interpretation of the relevant economic theory and taking available empirical evidence about patterns of price differentials of branded goods in Europe into account.

TSCs are illegitimate restrictions imposed by suppliers of "must-have" products to restrict retailers' and wholesalers' ability to source centrally or in the country of their choice. TSCs are not justified on grounds of different consumer taste/preferences and/or national standards and regulations and constitute a cross-border trade barrier. This implies, *"(…) that a retailer, based in one Member State and dealing with a multinational supplier is not given the choice to decide from which national entity of the supplier he would preferably source the desired products and is instead referred to a specific national subsidiary*." (European Commission, 2018b, p. 91). Thus, TSCs force retailers to source products domestically and/or prevent them from "parallel trading" products from another Member State. Thus, TSCs – besides to being economically undesirable – are basically illegitimate practices, as they infringe the Single Market rules by strongly limiting retailers' freedom to choose their suppliers.

Our stance against TSCs is based on the fundamental view that any TSC artificially segments markets from a retail buyer's perspective (i.e. the B2B manufacturer-retailer market). Powerful brand manufacturers have strong incentives to segment markets through TSCs to be able to charge different prices for the same good in different national markets; i.e. brand manufacturers unambiguously increase their profits through TSC-induced price discrimination. It is then straightforward that TSCs deter retail buyers from Pareto-improving trade opportunities (i.e. arbitrage opportunities, which do not harm any other party but increases welfare of the trading parties). The reason is that TSC-backed price discrimination must lead to inefficient product allocations in retail markets. This phenomenon is called the *misallocation effect* of (third-degree) price discrimination in microeconomic theory. It follows directly from the fact that price discrimination excludes consumers from consumption in high-price countries in exchange for additional consumption by consumers in low-price countries. Thus, consumer surplus must decline because excluded consumers have a higher willingness to pay than the gained consumers.

TSCs separate national markets, enable powerful brand manufacturers to price-discriminate between these markets, and lead to substantial consumer price differences across EU countries. Because of the associated misallocation of consumer goods, they are not compatible with the "effective functioning of markets." In fact, the opposite is true, so that brand manufacturer must take costly measures (which constitute additional social costs of their monopoly power) to deter retailers from engaging in privately and socially valuable (cross-border) trade opportunities. Our analysis of more sophisticated theories (of monopolistic and oligopolistic price discrimination and new product innovations, for instance) largely confirms that **TSCs imposed by powerful manufacturers harm both market efficiency and consumers,**

whereas banning TSCs would improve not only consumer welfare but also overall market efficiency. Thus, banning TSCs would improve consumer welfare and the functioning of the internal market in the European Union (EU).

Prices for international branded grocery products vary greatly within the EU. While some of this variation can be explained by local cost factors, such as different VAT rates or transportation costs, price differences are, to a significant part, a result of TSC-backed price discrimination. That is, retailers cannot freely optimise the buying side of their businesses and have to source nationally when sourcing abroad would be efficient.

TSCs allow segmenting the retail buyer market and result in significant wholesale price differences between individual countries. This was recognised by the European Commission, in both its Green Paper on unfair trading practices in the business-to-business food and non-food supply chain in Europe in 2013 and in the Commission staff communication on "A European retail sector fit for the 21st century" (European Commission 2013 and 2018b, resp.). Retailers cannot offer consumers the product price, choice and quality, which they would like to. TSC are not only to the detriment of retailers but ultimately also to the detriment of consumers. Such market segmentation stands in sharp contradiction with the purpose of a functioning European Single Market which guarantees the free movement of goods and services within the EU. It is generally believed that the creation of a common market increases competition and efficiency so that price differentials across countries must largely disappear. However, this optimistic view turned out to be largely invalid, whenever concentration is high at the European level and powerful suppliers are able to implement business practices of market segmentation. A TSC constitutes a plain barrier to trade, which cements the segmentation of national markets in the EU. We largely concur with the Commission's assertion that "*such practices are likely to undermine the functioning of the Internal Market and could negatively affect consumers through higher prices and a narrower selection of products.*" (European Commission, 2009b, p.10 f.)

The outright market segmentation through TSCs is a common practice among powerful brand manufacturers, which obviously deprive retailers – and indirectly consumers – from the benefits of an effective functioning of the common market in the EU. Interestingly, EU legislators adopted regulations erasing cross-border trade barriers in B2C markets. The so-called Geo-Blocking Regulation has become effective in December 2018.[2] The geoblocking regulation prohibits online sellers to discriminate consumers based on their nationality, place of residence or place of establishment within the internal market. The regulation, therefore, enables consumers to shop for the best price within the entire EU internal market. The implementation of the Geo-Blocking Regulation has led to the contradictory situation that it makes B2C arbitraging more effective, whereas B2B arbitrage opportunities cannot be realised as long as brand manufacturers insist on TSCs. While consumers are able to buy a certain product online and purchase it from another EU country, retailers are not able to source freely cross-border.

This study is organised as follows. Section 2 introduces the problem of TSCs. Section 3 presents the theoretical background of TSCs and argues economically that TSCs are to the detriment of consumers, so that a ban of TSCs should be beneficial both from a consumer and a social welfare (market efficiency)

[2] See Regulation (EU) 2018/302 on addressing unjustified online sales.

perspective. Section 4 provides a critical assessment of the arguments in favour of TSCs put forward in the RBB study. Section 5 concludes.

2. THE PROBLEM OF TERRITORIAL SUPPLY CONSTRAINTS

Key messages

- TSCs are illegitimate practices imposed by suppliers of must-have products in order to restrict retailers' and wholesalers' ability to source centrally or in the country of their choice. Retailers are not given the choice to decide from where to source their goods. Retailers are instead redirected to a specific national manufacturer's subsidiary.
- Brand manufacturers enforce TSCs by ways of retaliatory measures like rationing supply quantities and/or raising wholesale prices.
- TSCs allow brand manufacturers to segment markets along national borders, which enables them to charge different prices for the same product in different countries. This results in significant price differences across countries in Europe.
- Consequently, TSCs force retailers and consumers to pay higher prices. Retailers must buy branded goods nationally. Thus, retailers facing a relatively high price, must buy at this price and will pass on the high wholesale price to final consumers.

2.1 TERRITORIAL SUPPLY CONSTRAINTS AS A CROSS-BORDER TRADE BARRIER

TSCs are illegitimate practices imposed by suppliers in order to restrict retailers' and wholesalers' ability to source centrally or in the country of their choice. They are not justified on grounds of different consumer taste/preferences and/or national standards and regulations and constitute a cross-border trade barrier. This implies

> *"(…) that a retailer, based in one Member State and dealing with a multi-national supplier is not given the choice to decide from which national entity of the supplier he would preferably source the desired products and is instead referred to a specific national subsidiary." (European Commission, 2018b, p. 91).*

Thus, TSCs force retailers to source products domestically and/or prevent them from "parallel trading" products from another Member State. Thus, TSCs are illegitimate restrictions, as they infringe the Single Market rules by strongly limiting retailers' freedom to choose their suppliers.

Thus, brand manufacturers *refuse to supply* certain products cross-border, which is equivalent to the creation of a trade barrier. In addition to the refusal of supply, it is not possible for the retailer to negotiate prices on a transnational level in the first place. In contrast, major branded goods manufacturers insist to negotiate (prices) at a national level through their *national subsidiaries*. Hence, retailers cannot freely choose from whom and/or where to buy their products within the EU.

Retailers cannot exploit *arbitrage opportunities*, which arise when a retailer is able to buy a good at a relatively low price abroad for resell in its home country market, where the wholesale price is higher. Normally, in line with the free movement of goods, retailers should be able to source goods in the country of their choice, be it on regional, national or international grounds. TSCs aim at reversing market

integration by disabling retail buyers' cross-border sourcing option. In other words, TSCs enable suppliers to *segment* national markets, which allows them to charge different prices in different countries. The European Commission refers to TSCs as a driver for market segmentation, "*limiting competition and resulting in likely significant discrepancies between wholesale and consumer prices or the choice of products offered to consumers across the EU*" (European Commission, 2018a, p. 13).

TSCs are a result of brand suppliers' market power and they are widely used. They are usually enforced in case of so-called must-have (branded) goods in the food and non-food sector. In case of a must-have product, consumers are more loyal to the brand than to the retail stores, which implies that consumers switch the store when a must-have product is not listed. Thus, retailers are economically dependent on sourcing those goods because consumers expect retailers to carry them in their assortment. In other words, delisting those brands is not an option for most retailers (see Maelen, Breugelmans and Cleeren, 2017). For the second observation, we refer to the case of Belgium. According to a recent study of the Benelux countries, out of 66 surveyed retailer companies, 89% indicated that they operate under TSC restraints (Benelux, 2018, p. 2, 7). The Benelux-study also states that 67-77% of the respondents mentioned that TSCs have a negative effect on consumer prices.

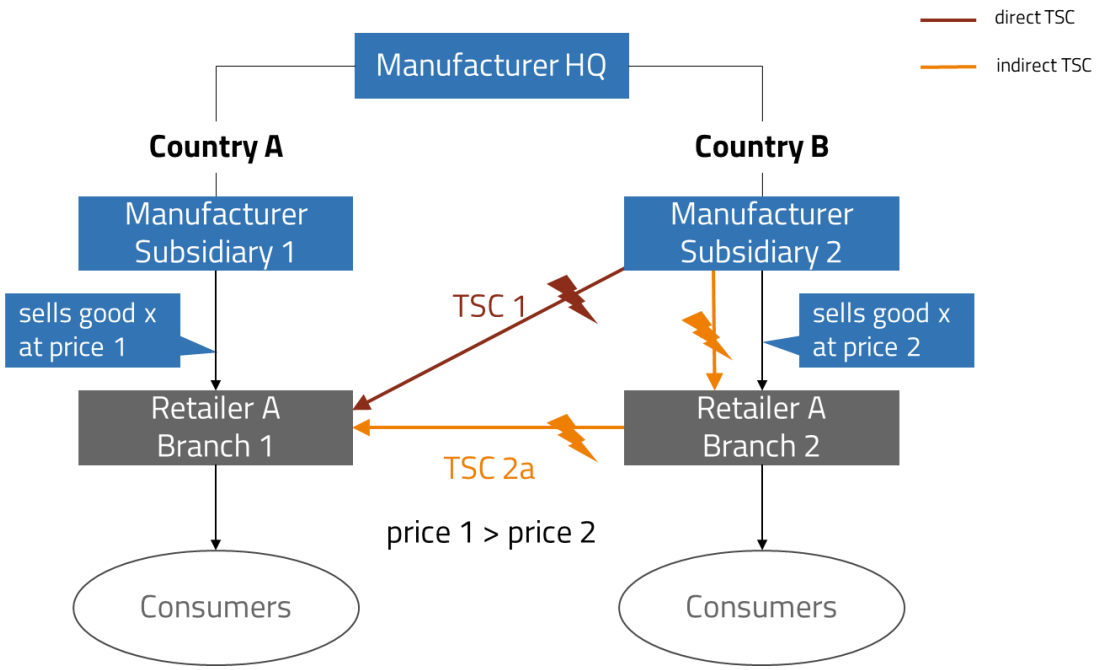
To better understand the working of TSCs, the following two figures illustrate trading relations (and those blocked by TSCs) for the case of an international retailer (Figure 1) and the case of national retailers (Figure 2). The manufacturer produces a branded good and sells it in two different countries A and B. To enforce TSC-backed price discrimination (we suppose a higher wholesale price in country A than in country B), the manufacturer operates two subsidiaries 1 and 2 (one in each country), which are under the supervision of the manufacturer's headquarters. In Figure 1, the retailer is also active in both countries. Given that a TSC is in place, the manufacturer's subsidiaries charge prices for the good in each country separately with the understanding that the price charged in country A (B) is only valid for resale in country A (B). As the price is higher in country A than in country B, the retailer may decide to source the good cross-border; namely, to buy the good at the lower price in country B to serve consumers in country A. There are two different ways to purchase the good in country B with the intention to serve consumers in country A. Either, the retailer directly contacts the respective manufacturer's sales subsidiary in country B to order some quantity for resale in country A, or the goods are entirely ordered in country B and the retailer takes care of transferring the goods to its premises in country A. In the latter case, the manufacturer will not directly observe the final destination of its goods if he does not take measures to monitor and control the retailer's business.

The figure shows the impact of the TSC strategy. If the retailer's branch 1 (located in country A) wishes to purchase the good (at the best price) directly from the supplier's subsidiary 2 (located in country B) to serve consumers in country A, a direct TSC (TSC-type 1) is exercised on the retailer. By that, direct cross-border trade is blocked by the supplier's commitment to implement a TSC. Precisely, the manufacturer commits to a refusal-to-deal policy in all cases where a foreign retailer branch asks for delivery in another country. At the same time, the manufacturer's sales agent in country B (which could also be an agent-wholesaler) refers the retailer branch 1 (located in country A) to the respective manufacturer's sales agent in country A (i.e. its subsidiary 1 located in country A). Thus, the retailer is left with buying the identical good at the higher price in country A.

In addition, the manufacturer must also ensure that price differentials are not undermined by the retailer's arbitrage incentives to purchase the good for country A from its second branch in the low-price

country B. To suppress this type of cross-border trade, the manufacturer enforces an indirect TSC (TSC-type 2a). To do so effectively, **the manufacturer must monitor and control the retailer's business**. If the manufacturer gets informed about the retailer's plan to purchase from its second branch to serve consumers abroad, **the manufacturer must ration the supply to the retailer's branch 2 to constrain the transfer of the good to foreign markets**. If the manufacturer does not have this information, the retailer can successfully procure the good from its second branch. However, such a situation can only last for a short period of time, as the manufacturer will detect the retailer's cross-border activities which will then trigger punishment measures by the manufacturer to discipline the retailer to make him comply with the TSC-requirement.

FIGURE 1: TYPES OF TSCS FOR AN INTERNATIONAL RETAILER



Source: DICE Consult.

Figure 1 in short:

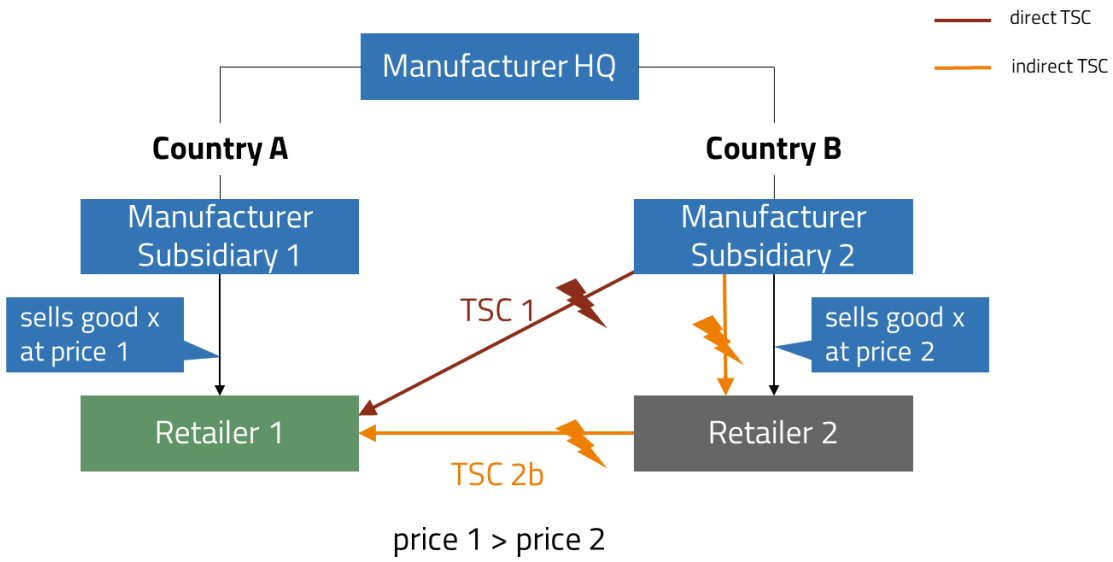
An international retailer produces a branded good in its headquarters HQ. The manufacturer operates two subsidiaries that are located in countries A and B. The retailer is also active in both countries: in country A with its branch 1 and in country B with its branch 2. Given that a TSC is in place, the manufacturer's subsidiaries charge prices for the good in each country separately with the understanding that the price charged in country A (B) is only valid for resale in country A (B). As the price is higher in country A than in country B, the retailer would like to source the good cross-border at the lower price in country B to serve consumers in country A.

To encounter the retailer's sourcing requirement, i.e. arbitrage incentives, the manufacturer imposes a direct and/or an indirect TSC, TSC1 and/or TSC2a, respectively. Referring to TSC 1, cross-border trade is blocked directly by the supplier's commitment to implement a TSC vis-à-vis the retailer. The manufacturer commits to a refusal-to-deal policy in all cases where a foreign retailer branch asks for delivery in another country and refers the retailer to its subsidiary 1 in country A. Referring to TSC 2a, cross-border trade is blocked indirectly by the supplier: If the manufacturer gets informed about the retailer's plan to purchase from its second branch to serve consumers abroad, the manufacturer rations the supply to the retailer's branch 2 to constrain the transfer of the good to foreign markets. Thus, the retailer is left with buying the good at the higher price in country A.

Additionally, as shown in Figure 2, the manufacturer must also suppress arbitrage opportunities among different retailers located in different countries to maintain price differentials. Thus, the manufacturer must also prevent cross-border trade between independent wholesalers and retailers. Therefore, the following applies as well with regard to the arbitrage opportunities for wholesalers and the term "retailer" in Figure 2 could be replaced by "wholesaler." Equally to Figure 1, we assume that a manufacturer sells the identical good in two different countries at different prices, where country A is the high-price country and country B is the low-price country. Compared to the previous case, the retailer is now only active in one country so that retailers 1 and 2 are independent legal entities. As the price in country B is lower than in country A, the retailer located in country A would like to source the good cross-border in country B from the manufacturer's subsidiary 2. Again, this type of cross-country trade is effectively blocked by the manufacturer's direct TSC-constraint (TSC-type 1); i.e. by refusing to sell to retailer 1 and referencing the retailer to the respective sales subsidiary (or agent-wholesaler) in country A.

It is noteworthy to emphasise that a manufacturer's TSC-requirement also implies that cross-border trade between independent retailers must be blocked to sustain price differentials. The manufacturer does so by imposing an indirect TSC (TSC-type 2b). Let us assume that retailer 1 would like to enter into a contract with retailer 2 regarding the supply of the manufacturer's good. Retailer 2 is willing to resell the good to retailer 1 located in the high price country A. In such a case, the supplier enforces a punishment strategy on retailer 2 (for instance, a refusal to supply or a quantity constraint) in order to prevent cross-border trade. As mentioned above, the implementation of a direct and indirect TSC does not only hold for different retailers but also hold for a third party like an independent wholesaler. The wholesaler buys from the manufacturer and likes to resell to retailers located abroad. Again, such a trade opportunity cannot be exploited when a brand supplier uses a TSC-market segmentation strategy for the purpose of price discrimination.

FIGURE 2: TYPES OF TSCS FOR DIFFERENT NATIONAL RETAILERS



Source: DICE Consult.

Figure 2 in short:

A manufacturer produces a branded good in its headquarter HQ and sells it in country A and B through its respective subsidiary. Two different retailers are active: Retailer 1 is only active in country A whereas retailer 2 is only active in country B. As the price in country B is lower than in country A, retailer 1 would like to benefit from arbitrage opportunities and source the good cross-border in country B. Retailer 1 can do this either by trying to source directly from the manufacturer's subsidiary 2 in country B or by buying from retailer 2 in country B. Again, these types of cross-country trades are effectively blocked by the manufacturer's direct and/or indirect TSC, TSC 1 and/or TSC 2b respectively. Referring to TSC 1, the manufacturer refuses to sell to retailer 1 and references the retailer to the respective sales subsidiary (or agent-wholesaler) in country A. Referring to TSC 2b, the supplier enforces a punishment strategy on retailer 2 located in country B (for instance, a refusal to supply or a quantity constraint) in order to prevent cross-border trade with retailer 1 located in country A.

It is noteworthy to emphasise that the implementation of a direct and indirect TSC does not only hold for different retailers but also hold for a third party like an independent wholesaler. The wholesaler buys from the manufacturer and likes to resell to retailers located abroad. Again, such a trade opportunity cannot be exploited when a brand supplier uses a TSC-market segmentation strategy for the purpose of price discrimination.

Thus, TSCs protect price differences between countries against strong arbitrage trade opportunities of retailers and wholesalers. In Figures 1 and 2, for instance, the price for the branded good is higher in country A than in country B. Due to competition in the retail sector, the retailer located in country A has to pass on the higher price charged by the manufacturer to final consumers.

TSC have many features in common with so-called vertical restraints imposed by powerful manufacturer on retailers. Retailers can be regarded as less powerful because of intense competition among retailers vis-à-vis final consumers. Vertical restraints (including TSCs) may infringe Article 102 of the Treaty on the Functioning of the European Union (TFEU). However, this legal instrument can only be used to stop TSCs if an abuse of a dominant market position can be shown. As the issue of an abuse of dominant market

position is typically quite complex and difficult and because of retailers being dependent on a "cooperative" business atmosphere with manufacturers who produce must-have branded goods, competition law has not been much effective with regard to TSCs so far.

2.2 HOW ARE TERRITORIAL SUPPLY CONSTRAINTS ENFORCED?

One of the key factors in the enforcement of TSCs is the *retailer's economic dependency*. The *retailer cannot credibly switch* to another supplier and terminate the existing relationship. This is especially true for must-have products. In case of a must-have product, consumers are more loyal to the brand than to the retail stores, which implies that consumers switch stores when a must-have product is not available anymore.

Thus, to remain a competitive market player, the retailer has to keep must-have products in its assortment. A retailer cannot switch to another manufacturer's brand or to a private label substitute. Furthermore, a retailer engages in a long-term business relationship with the manufacturer, which is why the retailer is not willing to take actions against a manufacturer who enforces constraints on the retailer, which could jeopardise a long-standing business relationship with a major brand supplier. Because of the inability to switch suppliers, the manufacturer has a *superior bargaining position* vis-à-vis the retailer. In fact, in case of powerful brand manufacturers, the manufacturer is able to dictate contracting conditions by making take-it or leave-it-like offers. In case of must-have brands, the buyer power of even the largest retailers becomes relatively small when facing the strongest brand manufacturers in Europe (OECD, 2014, p. 111). This is why a manufacturer can enforce different prices for the same products and sets prices rather on a national level than on a European-wide level.

Retailers are forced to source domestically through a strict refusal-to-deal-policy at foreign sales offices. By that, an international manufacturer commits to serve a retailer located in a specific country only through its sales office located in that specific country. Sales offices located in other countries will refuse to deal with the retailer. The European Commission (2018b, p. 92, fn. 245) provides the following examples, where manufacturers communicated a strict refusal-to-deal policy to retailers: *"(1) International sweets manufacturer who gave a written refusal to sell from anywhere other than the national office to a retailer, (2) International ice manufacturer who refused to sell to a retailer other than from the national office based on a company policy that does not support cross-border, (3) International detergent manufacturer who refused to sell to a retailer a specific detergent due to marketing reasons."*[3]

A manufacturer can effectively restrict cross-border trade by retailers in several ways. The manufacturer's contract could stipulate a "territory clause" (explicitly or implicitly), such that the retailer must sell the product only in the country of contracting. Alternatively, the manufacturer could threaten to take *retaliatory measures* against retailers who try to circumvent TSCs. Accordingly, the manufacturer then *threatens to punish* retailers who deviate from the TSC-clause. Deviating retailers face retaliatory measures such as restrictions on deliveries or business disruption like a sudden delivery stop or delivery delay with regard to the product the retailer tried to ship cross-border. It might be also possible that the manufacturer puts pressure on the retailer in the following year's contract renewal round by raising the

[3] These examples were presented by BSH advisory at the High Level Forum Expert Group for the Single Market on 9 November 2017 (European Commission, 2018b, p. 92, fn. 245).

product price. Ultimately, the manufacturer might threaten to terminate the existing business relationship altogether.

In sum, **the manufacturer rations supply quantities in the low-price country (which is the originating country for possible cross-border trade opportunities) and/or raises wholesale prices for deviating retailers**. In general, it is sufficient for the manufacturer to exercise a *credible threat* on retailers. If a threat is credible, a retailer will not deviate and will not try to source centrally or cross-border to keep the business relation intact. Consequently, there is not always a need for a manufacturer to carry out threats. As the AB InBev case (see Box below) reveals, it can be expected that brand manufacturers will carry out those threats and use the above described punishment strategies to discipline deviating retailers.

Case study: The AB InBev case

For a prominent recent example, we refer to the *AB InBev* case, in which the Commission imposed a 200 million euros fine on AB InBev for abusing their dominant position on the Belgian beer market by hindering imports ("parallel trade") of its Jupiler and Leffe beers from the Netherlands into Belgium, where wholesale prices are significantly lower than in Belgium[4]. The practices in question include:

"1) AB InBev changed the packaging of some of its Jupiler beer products supplies to retailers and wholesalers in the Netherlands to make these products harder to sell in Belgium, notably by removing the French version of mandatory information from the label, as well as changing the design and size of beer cans.

2) AB InBev limited the volumes of Jupiler beer supplied to a wholesaler in the Netherlands, to restrict imports of these products into Belgium.

3) A number of AB InBev's products are very important for retailers in Belgium as customers expect to find them on their shelves. AB InBev refused to sell these products to one retailer unless the retailer agreed to limit its imports of less expensive Jupiler beer from the Netherlands to Belgium.

4) AB InBev made customer promotions for beer offered to a retailer in the Netherlands conditional upon the retailer not offering the same promotions to its customers in Belgium." (European Commission, press release IP/19/2488 of 13 May 2019)

It is noteworthy that the European Commission not only states that AB InBev limited access of Dutch retailers to key products and promotions in order to prevent them from bringing less expensive beer products into the Belgian market (i.e. quantity rationing in the low-price market), it also refers to changes of packaging to prevent resale cross-border. The latter observation points at spurious product differentiation (also referred to as dual qualities) which appears to be widely used by brand manufacturers to make cross-border trade artificially costly or to deter it fully.

The *AB InBev* case brings the problem of TSCs into focus of antitrust enforcement, and the Commission takes a critical stance on this kind of trade restriction. Margrethe Vestager, Commissioner in charge of competition policy, said: "*Consumers in Belgium have been paying more for their favourite beer because of AB InBev's deliberate strategy to restrict cross border sales between the Netherlands and Belgium. Attempts by dominant companies to carve up the Single Market to maintain high prices are illegal. Therefore we have fined AB InBev €200 million for breaching our antitrust rules.*"**.** (European Commission, press release IP/19/2488 of 13 May 2019)

The above described practices, which are essentially a TSC imposed by AB InBev on Belgian retailers infringe Article 102 of the Treaty on the Functioning of the European Union (TFEU) that prohibits the abuse of a dominant market position. Accordingly, the Commission's view on TSCs is that such practices deprive consumers from the advantages of the European Single Market with regard to choice and lower prices. These practices have created anti-competitive obstacles that partitioned the European Single Market to the detriment of consumer welfare.

[4] For further case details, refer to the European Commission's press release of 30 November 2017, available at http://europa.eu/rapid/press-release_IP-17-5041_en.htm.

2.3 EMPIRICAL EVIDENCE OF PRICE DIFFERENCES WITHIN EUROPE

TSCs apply to a large number of international brand products in the food and near non-food sector (often referred to as Fast Moving Consumer Goods; in short FMCG). There is evidence that TSC-backed price discrimination is responsible for price differences across European countries, both at the wholesale and the retail level.

For instance, the Belgian Competition Authority conducted a review of the Belgian supermarket sector (Belgian Competition Authority, 2012) in which TSCs are identified as a major competition concern. This concern is made explicit in the OECD (2014) country report of Belgium: "(…) *it appears that multinational food producers use national borders to segment customers (territorial supply constraints) and apply higher wholesale prices for Belgian supermarkets (…)"* (OECD, 2014, p. 77).

Information about wholesale prices and contracts between brand manufacturers and retailers are not publicly available.[5] However, concerning consumer price differences in the retailing sector, the ECB has published empirical findings on price differences across the euro area. While the Commission's Green Paper already provided summary statistics on intra-EU price dispersion for selected food products (European Commission, 2013, p. 20), the ECB study uses a rich dataset with brand-level data.[6]

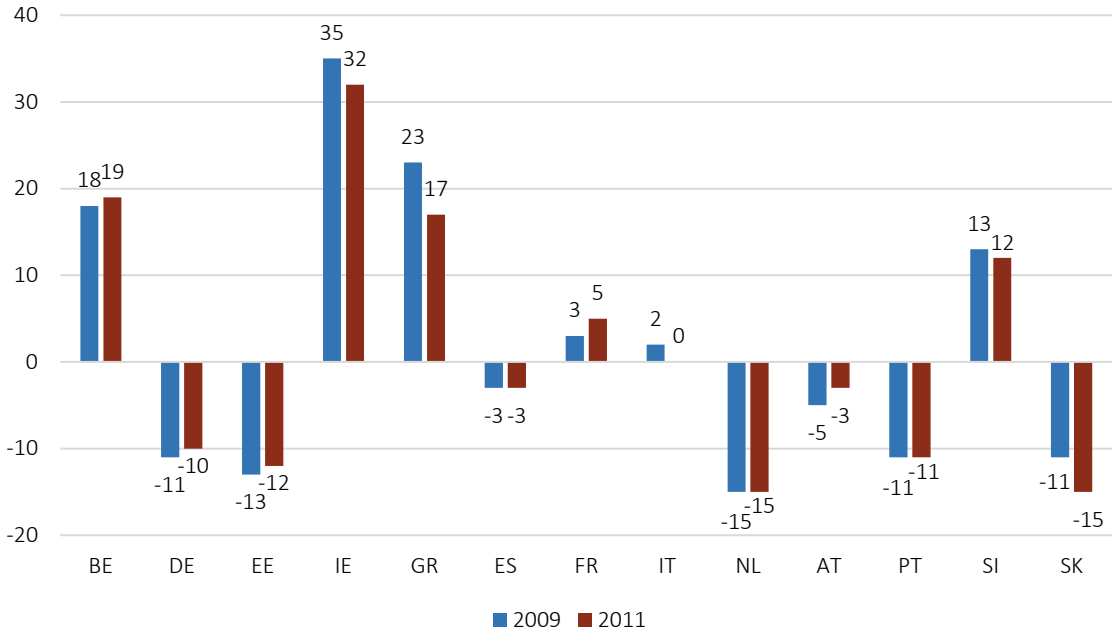
Figure 3 (which is based on ECB, 2015, p. 4) illustrates how prices for branded goods differ between countries in Europe for the time period between 2009 and 2011.[7] The figure shows for the euro area countries the median difference of branded goods' prices (in percentage terms) from euro area average price levels. For example, in 2011, the majority of all brands in Belgium is by 19% more expensive than the euro area average price level of the brands. In contrast, in Germany, the majority of brands has prices that are 10% below the euro area average price levels.

[5] Based on personal communication with members of EuroCommerce, the authors of this study learnt that international retailers face very different wholesale prices in different countries for the same branded good. Such wholesale price differences of branded goods are a problem in all product categories.

[6] See ECB (2015, p. 2) for a description of the used dataset. The data covers 13 euro area countries and 45 product categories with details on four brands per product category.

[7] The ECB study highlights price differences between euro area countries for selected products. For example, a unit of paper towel is 3.5 times more expensive in Greece than in the Netherlands. Carbonated soft drinks are the cheapest in Germany at around 70c per liter, while they are the most expensive in Belgium and Ireland at around 1.20€ per liter. The highest maximum price dispersion of about 220% concerns dry pasta: In Ireland, a kilo costs about 2.60€, whereas it costs only about 1.20€ in Italy (see ECB, 2015, p. 5).

FIGURE 3: BRANDED GOODS ONLY- MEDIAN DIFFERENCE FROM EURO AREA AVERAGE PRICE LEVEL (EXCL. VAT)



Source: DICE Consult based on ECB (2015, p. 4).

The ECB study makes several empirical statements in association with the data behind Figure 3.

1. *"(…) [A]mong the products and countries in the dataset, many products in Germany, Spain and the Netherlands tend to be relatively cheap, while they are relatively expensive in Belgium, Ireland and Greece (…)"* (ECB, 2015, p. 3).

2. *"During the period under review [2009-2011], there is substantial price dispersion with only limited convergence."* (ECB, 2015, p. 3)

3. *"It should be noted that the brand-level data on prices and volumes show that Ireland and Greece tend to be either the most expensive or among the most expensive countries in a majority of the product categories, while Germany and Spain tend to be among the least expensive countries."* (ECB, 2015, p. 3)

4. *"Price dispersion remains even when controlling for quality differences. (…) [E]ven in this case the mean and median price difference between the cheapest and most expensive regions across the euro area countries is a full 220% and 181%, respectively."* (ECB, 2015, p. 4)

Furthermore, the ECB study reveals "*the presence of significant border effects, as prices vary substantially more across countries than within countries*" (ECB, 2015, p. 1):

> *"Cross-country price dispersion is about five to seven times higher than within-country price dispersion. (…) Even for a set of identical products, the average unit price dispersion for the exact same product is 20% across countries and 4% within countries."* (ECB, 2015, p. 6)

Moreover, the ECB study finds that price dispersion regarding retail prices for branded products amounts to 28% across countries, whereas within a country, price dispersion accounts for 3% (ECB, 2015, p. 1, 6), which is showing the strong border effects across euro area countries.

These results show two patterns of international price differences for branded goods in the grocery sector, which are important for our economic assessment of TSCs. *First*, large countries like Germany and Spain experience relatively low prices across all product categories, while relatively small countries like Ireland and Greece consistently experience the highest prices.[8] *Second*, the ECB study refers to two aspects of the German and the Spanish retailing market, which put downward pressure on consumer price levels: (i) a high share of private label products and (ii) a consumer shopping behaviour, which intensifies price competition. Precisely, the ECB study states:

> *"Greece and Ireland tend, on balance, to have higher market shares for the leading brand in most of the product categories, thus implying higher monopoly power and higher mark-ups. At the same time private label goods tend to have low shares of the market in these countries. By contrast, Germany and Spain seem to be characterised by significantly lower market shares for the leading producers and a significantly higher share of private label products. Consumer behaviour also seems to differ. On average, Greek and Irish consumers tend to buy smaller pack sizes and have lower consumption intensities of the products included in the data, while German and Spanish consumers display the opposite behaviour."* (ECB, 2015, p. 4)

2.4 SECTION SUMMARY

We summarise our main results as follows:

- TSCs are a result of brand manufacturers' market power and they are widely used. Retailer are often economically dependent on the brands (must-have products).
- TSCs restrict the free movement of goods across borders. Due to TSCs, goods cannot be freely transferred cross-border. This observation does not only hold for cross-border trade between different retailers/wholesalers, but also for cross-border shipments within a single retailer's logistic system.
- TSCs allow brand manufacturers to segment markets along national borders from retailers' and wholesalers' perspective, which enables them to charge different prices in different countries (i.e. to price discriminate consumers based on their place of residence).
- TSCs block retailers' arbitrage opportunities. Retailers have strong incentives to take advantage of sourcing cross-border when a good is priced differently in various countries because of price

[8] We note that the countries' market size differences are large. Germany is by far the biggest market for food in the European Union (in 2017, Germany was the 4th largest economy in the world).

discrimination. By purchasing at the lowest price, retailers could offer their customers the same product also at a lower price. These profitable arbitrage opportunities, which are in the interest of consumers, cannot take place under the TSC-requirement.

- Brand manufacturers must build an organisation to enforce TSCs. Manufacturers have to set up national sales offices and they have to monitor and control retailers to be able to sustain price differences across countries. A manufacturer enforces TSCs by ways of retaliatory measures against retailers who deviate from the TSC-clause.
- TSCs force retailers and consumers to pay higher prices. Retailers must buy branded goods nationally. Thus, retailers facing a relatively high price, must buy at this price and will pass on the high wholesale price to final consumers. If retailers were able to buy at a low price abroad, then consumer prices would also decline. Thus, consumer welfare is harmed by TSCs.
- TSCs result in significant price differences across countries in Europe. As major branded goods manufacturers using TSCs can charge national prices, prices for the same good vary significantly between countries at the wholesale and the retail level.

The ECB study (ECB, 2015) finds that there are considerable border effects within European countries; i.e. "*prices vary substantially more across countries than within countries," which is "strong evidence of market segmentation*" (ECB, 2015, p. 1). Prices for branded goods are often higher in small countries, while brand prices are often smallest in large countries. The ECB study has shown that large countries (e.g. Germany) often exhibit the lowest prices for brands, while small countries like Ireland and Greece experience consistently the highest brand prices in Europe. Thus, and in line with statements of the European Commission and findings concerning the Belgian grocery market, retailers and consumers in small countries are more likely to face higher prices for brands than retailers and consumers in large countries.

3. THE ECONOMICS OF TERRITORIAL SUPPLY CONSTRAINTS

Key messages

- Price discrimination leads to a so-called misallocation effect which means that consumers in high-price countries are excluded from consumption in exchange for additional consumption by consumers in low-price countries. The misallocation effect reveals the most important inefficiency that TSCs necessarily induce: an allocative inefficiency, a loss in consumer welfare, a reduction of total welfare.
- In addition, the enforcement of TSCs involves considerable rent-seeking costs. We identify the following rent-seeking costs: (1) retaliatory measures in the form of punishment strategies for retailers that try to circumvent TSCs; (2) significant organisational costs on the manufacturer's side with national sales offices to enforce the TSC-requirement and discriminatory prices; and (3) spurious product differentiation to hinder retailers' arbitrage incentives.
- Retailers must mirror the fragmented supply-structure, which induces an inefficient organisation of the entire value chain.
- In absence of TSCs, the misallocation effect is no longer present and retailers will pass on the price changes to final consumers. Prices will go down in the high-price market to the level of the currently lowest price-levels observable in large EU countries. Thus, the effect of banning TSCs and price discrimination benefits both consumer and society as whole.
- In those instances, where price discrimination is potentially socially beneficial, both manufacturers and retailers have strong incentives to reach "promotional" agreements, which are not restricted by a TSC-ban.

3.1 THE BASIC INEFFICIENCY HYPOTHESIS

We take a consumer perspective, so that the economic assessment of TSCs – first of all – boils down to the question how consumer prices and consumer welfare are affected by this type of barrier of trade. In its Green Paper, the European Commission assumes a negative relationship between TSCs and consumer welfare. Specifically, the European Commission states that

> *"[i]f not justified on objective efficiency grounds (such as logistics), such restrictions on cross-border sourcing are likely to lead to price discrimination based on the country of establishment of the buyer. As a result, consumers are negatively affected by higher prices and a narrower product choice and do not benefit from access to better prices and the smooth functioning of the Single Market."* (European Commission, 2013, p. 21)

In the following, we present the economic theory, which we will show is supportive of the Commission's assertion that there is a cause-effect relationship between TSC-enforcement and (negatively affected) consumer welfare. The Commission already points at retailers' incentives to source at the lowest price, which is obviously constrained when TSCs are effective:

> *"(…) [R]etailers seek to source from the lowest cost wholesale outlets or supplier subsidiaries and put pressure on manufacturers by contracting directly with competing suppliers to offer private label products."* (European Commission, 2013, p. 20)

As retailers typically operate under conditions of intense competition, they have strong incentives to contract with the most cost-efficient sellers in Europe. It is straightforward that TSCs are a barrier to cross-border trade erected by manufacturers to counter retailers' incentives to save on buying costs. A similar view is expressed in the Commission's press release of 30 November 2017 concerning its *"Objections to AB InBev for preventing cheaper imports of beer into Belgium"*, which we have discussed in Section 2.2.

While it appears to be intuitive that TSCs directly harm retail buyers and consumers because of the plain fact that they deter retailers from sourcing most cost-efficiently, the economic theory of TSCs is more complicated because of the market power the brand manufacturer has. Because of the manufacturer's market power, we cannot treat prices as given. The manufacturer will respond to a change in the regulatory environment (i.e. a TSC-ban) in a way to maximise its profit under the new regulatory constraint. Theoretically, **the economics of TSCs then becomes an exercise of the economics of third-degree price discrimination under monopolistic or oligopolistic supply structures.** While this theory may appear to lead to ambiguous results at a first glance, we will show below that it offers some quite robust theoretical relations and predictions, which are informative for policy makers concerned about TSC-induced price discrimination.

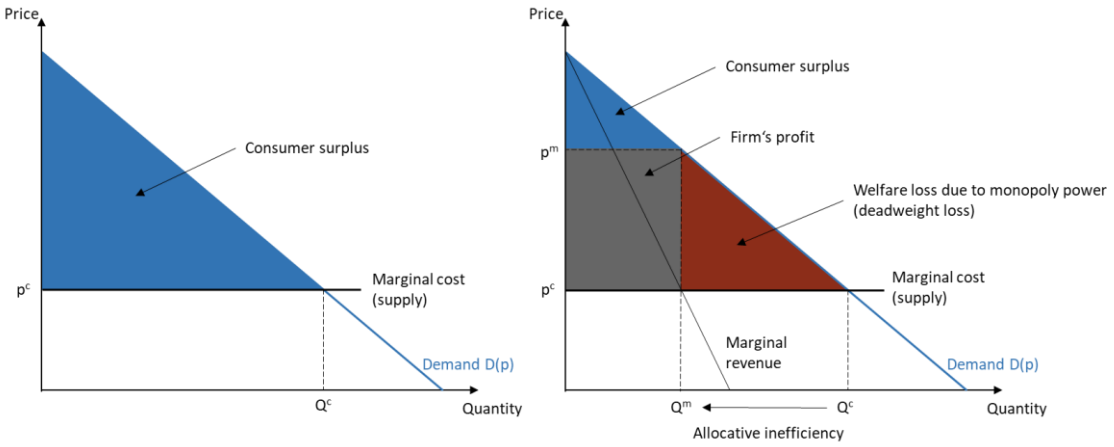
3.2 CONSUMER WELFARE AND MONOPOLY POWER

We present in the following the relevant economic theory and show how it is properly interpreted with reference to the issue of TSCs. Before, we clarify some basic economic concepts, which one needs to understand the policy implications of the relevant economic theories.

We take a consumer surplus perspective to evaluate TSCs. Economists typically refer to social surplus, which is defined as the sum of consumer surplus and producer surplus (or profits), to evaluate a policy intervention like a ban of TSCs. However, as we will see below, the perspective on consumer surplus is by large aligned with the social surplus objective in case of TSCs.

An economic analysis starts with the perfect competition benchmark, which refers to an idealised market for a homogenous good with many small suppliers and buyers. In such a market, both social welfare and consumer welfare are higher under perfect price competition than under monopoly. The left panel in Figure 4 depicts a graphical representation of consumer surplus in case of perfect price competition for a given market demand curve. The concept of the market demand implies that individual or regional demands are perfectly integrated in an idealised market (i.e. consumer arbitrage is perfect, so that only a single price is sustainable in a competitive market equilibrium). A lower price, i.e. a higher quantity, implies an increase in consumer surplus. The lowest possible price a firm can charge is the price p^c, which is equal to its marginal costs of production (marginal costs are the additional costs per unit associated with a small increase in output). Accordingly, the marginal cost function (which is horizontal in Figure 4) represents the supply function in the market. Under perfect competition, price equals marginal costs, so that p^c is the competitive price.

FIGURE 4: PERFECT COMPETITION BENCHMARK VERSUS MONOPOLY OUTCOME



Source: DICE Consult.

Explanation of Figure 4

The left and the right panel compare the market outcomes under perfect competition (left panel) and under monopoly (right panel). A market always consists of a demand curve (representing consumers' willingness to pay) and a supply curve (representing suppliers' willingness to sell). The market demand curve D(p) gives the total quantity which consumers buy for a given market price. The supply curve is given by firms' marginal costs (here: equal to variable costs); it is the minimal price a firm must get to be willing to supply a certain quantity. In Figure 4, marginal costs are constant, so that firms are willing to sell any quantity if the price does not fall short of marginal costs. The inverse of the demand curve, P(Q), gives consumers' maximum willingness to pay for a certain total quantity. Reading the demand function this way, we get that consumer surplus is the area below the demand curve, which represents consumers' gross utility, minus the market price they have to pay.

Under perfect competition (left panel), the market price equates supply and demand, so that the market is cleared at the price p^c. The total quantity produced and consumed is then Q^c. As the price is equal to marginal costs, firms make no profits. The total gains from trade are the social surplus of the market. Social surplus (or, social welfare) is the sum of consumer surplus and producer surplus. In the left panel, consumer surplus and social welfare are given by the blue area.

Under monopoly (right panel), the monopolist sets a price (or, equivalently, a quantity) to maximise its profits. Profits are given by revenues (i.e. price times quantity: $p*D(p)$) minus costs (marginal costs time quantity; $MC*Q$). The monopolist chooses a price such that marginal revenue is equal to marginal costs, which gives the monopoly price p^m and the monopoly quantity Q^m. The monopolist realises a strictly positive profit (grey area in the right panel), $(p^m-MC)*Q^m$, while consumer surplus reduces to the blue area in the right panel. The allocative inefficiency of the monopoly solution is given by the reduction of the total consumption quantity from Q^c to Q^m; that is, the monopolist rations the market to raise the market price above marginal costs and to maximise its profit. The allocative inefficiency is associated with a reduction in social surplus (deadweight loss), which is equal to the red triangle in the right panel. Consumer surplus decreases under monopoly because of two reasons: first, the allocative inefficiency results in too little consumption, and second, a price increase that allows the monopolist to extract consumer surplus.

The resulting consumer surplus is given by the blue triangle in the left panel of Figure 4. It is the net gain of trade realised by all consumers jointly.

Consumer welfare is lower in case of monopolistic price setting. The right panel in Figure 4 illustrates that consumer welfare is lower, when a firm can increase the price because of market power. A monopolist with market power is able to raise the price above marginal costs until the profit maximising price p^m is reached. This results in a profit equal to the grey shaded area in the right panel of Figure 4. It is noteworthy, that – taking a long-term perspective – this price is higher than necessary to recover total costs (including fixed costs). Market power reduces so-called static welfare, i.e. it induces allocative inefficiencies as prices are too high and the quantity sold is too low. When prices are above marginal costs, this leads to higher producer surplus, which is not high enough to compensate for the lower consumer surplus caused by higher prices. The welfare loss caused by monopoly is given by the red triangle, which is called the deadweight loss of monopoly power. **The higher the price, the larger the deadweight loss and the smaller the consumer surplus**.

Figure 4 also shows that both welfare measures, consumer welfare and social welfare, lead to the same evaluation of monopoly power. Specifically, social welfare maximisation (i.e. maximisation of the sum of consumer and producer surplus) requires that price is equal to marginal cost; a point which is reached at quantity Q^c. In fact, the exercise of monopoly power implies a strictly lower quantity (see Q^m in the right panel) which is the allocative inefficiency of monopoly power. This allocative inefficiency goes hand in hand with a reduction in consumer surplus. Thus, maximisation of consumer surplus (under the constraint that firms are willing to supply) also implies an efficient allocation at point Q^c.

3.3 TYPES OF PRICE DISCRIMINATION AND THEIR MAIN EFFECTS

An efficient allocation can also be implemented with some, quite particular, discriminatory pricing arrangements, which may lead one to conclude that price discrimination is beneficial whenever there is monopoly power. Such so-called first-degree price discrimination is, however, only a theoretical benchmark, which is not governing TSC-induced price discrimination (which is a sort of third-degree price discrimination; see below). We, therefore, have to describe in more detail price discrimination strategies, to be able to properly distinguish between different types of price discrimination, which is important for deriving and assessing policy recommendations.

Price discrimination occurs when the same good is sold at different prices, where price differences cannot be attributed to differences in costs (Varian, 1989, p. 598). While a good's price can change over time (intertemporal price discrimination), we are concerned with the case that the same good is sold at the *same time* at different prices. In this regard, economic theory distinguishes between first-degree, second-degree, and third-degree price discrimination (see, for instance, Varian 1989).

- First-degree price discrimination refers to perfect "personalised pricing" which means that a firm can extract all gains from trade from any single buyer.
- Second-degree price discrimination stands for the case that a firm offers a menu of contracts among buyers can choose (for instance, quantity discounts based on order volumes),
- Third-degree price discrimination refers to the case that **different buyer groups** (as retailers or consumers in country A and country B) **pay different prices** (which is the relevant type for analysing TSCs).

The ambivalence of price discrimination always depends on the reference point against which price discrimination is evaluated. If the benchmark is perfect competition (i.e. many small suppliers of a homogenous good), then the "law of price" must hold, such that all firms' marginal costs and all consumers' marginal valuations are the same. In such a competitive equilibrium, there is no way for a Pareto-improving trade; or, in other words, all gains from trade are exhausted. Intuitively, the competitive equilibrium is the result of firms' and buyers' profit-motive to trade as long as there is scope for a gain from trade. Under prefect competition, any form of price discrimination is doomed to fail.

If we refer to a monopolistic or oligopolistic (i.e. imperfect competition) supply structure, the right panel of Figure 4 is instructive to understand the effects of price discrimination. As we have described above, under a simple linear price, p, (i.e. every good is sold for some Euros per unit of quantity) the monopolist realises a profit equal to the grey shaded area. It is noteworthy, that a powerful supplier may see this market outcome as suboptimal:

- There are still consumers realising strictly positive rents (the sum of consumer surplus is given by the blue shaded area) and,
- There are consumers not yet being served with a willingness to pay which exceeds the supplier's marginal production costs.

Introducing the ability to price discriminate, the supplier has incentives to further exploit consumers (i.e. to get a hand on strictly positive consumer surplus; see blue area) and to serve additional consumers if this does not infringe negatively on surplus extraction. While the former motive is generally against consumers' interest, the second motive may lead to a better allocation (i.e. more consumers are served) because of the associated quantity expansion effect. There is, therefore, an ambiguity concerning the assessment of price discrimination: On the one hand, it may be used to extract additional consumer rents, and on the other hand, possibly more consumers are served, which would be attractive from a social welfare perspective (or, an allocative efficiency view).

With that we are ready to understand the general ambivalence of price discrimination with which the theoretical economic literature "struggles." This becomes perhaps most apparent under first-degree monopolistic price discrimination. As a simple uniform price implies an allocative inefficiency (price is larger than marginal costs), first-degree price discrimination allows the monopolist to expand output until the point of an efficient allocation is reached, where price equals marginal costs. However, from a consumer point of view, perfect price discrimination is not preferred because all gains from trade are then extracted by the monopolist. Put another way, consumers as a whole are better off if the monopolist is restricted to setting a uniform price per unit, because this implies a strictly positive gain from trade for consumers.

When it comes to TSCs, we deal with third-degree price discrimination, which refers to the case where a firm charges different prices to different groups of consumers having different (observable) characteristics, preferences and face different competitive supply structures. Consumers are naturally separable by their geographic locations. This holds at the regional and at the national level. Firms may thus try to charge different prices to consumers located at different points in the geographic space. Third-degree price discrimination is therefore completely different from first-degree price discrimination, and the analysis is also different.

3.4 DISTINGUISHING RETAILER AND CONSUMER DEMAND FOR BRANDED GOODS

Before we start with the analysis of third-degree price discrimination, we next clarify the role of retail buyers as representatives of consumers in B2B-relations with branded manufacturers.

A retailer serving consumers represents the demands of its customers in its trading relations with suppliers. Economists refer to the so-called "derived demand" which says that the demand of a retailer at the wholesale level is "derived" from the consumer demands which the retailer serves or may potentially serve. If competition at the consumer level is perfect, then the retailer's willingness to pay for an input good (e.g. a branded product) is equal to final consumers' willingness to pay. If there is some market power of retailers in consumer markets, this willingness to pay is reduced, but still governed by final consumer demands. Thus, we can conclude that **retailers are the representatives of consumers in B2B-market relations**. Quite simply, **given a certain mark-up retailers charge and given the intensity of retailer competition, their demand in the business relation with brand manufacturers is fully a representation of the final consumer demand they are facing**.

While the demand of a retailer vis-à-vis a brand manufacturer is naturally given by the aggregate of *all* consumer demands, which the retailer serves or may potentially serve, this is no longer the case when TSCs are enforced. In those instances, the retailer demand in country A represents only the national demand of consumers located in country A, which are in the outreach of the retailer. Accordingly, the retailer demand in country B can only represent the consumer demand in country B. Thus, TSCs directly imply a fragmentation of the total demand an international retailer may have at the national level.

While consumer demands may or may not be geographically separated, it is fair to assume that the picture is totally different from the retailer's point of view. Retailers not only have the capacities to engage in cross-border trades or can support centralised orders logistically, but they are also often active in many countries, which makes it easy for them to compare prices and to buy at the lowest possible price. Thus, while different regional or national markets may be separated from a consumer point of view, this is not true for retailers.[9] Rather the opposite is true: **National markets are integrated from a retailer's demand perspective, so that – in particular substantial – price differentials should not be sustainable because of retailers' strong incentives to take advantage of them**. Because of this very fact, price differentials at the wholesale level should virtually disappear across Europe.

However, this is not what we observe in case of branded goods in Europe's grocery retailing industry. A major reason, apparently, seems to be the enforcement of TSCs by brand manufacturers on retailers, which aim at cementing market segmentation of national European markets. As a result, retailers' demands are restricted to the national level. **Market integration fails when manufacturers can impose and enforce TSCs, which suppress trade and arbitrage opportunities between countries in Europe**.

Any form of price discrimination affecting retailers will ultimately affect also final consumers. Intense competition in the retailing market means that retailers, who operate on narrow margins, may have to pass on a change in wholesale prices to their consumers. Economic theory shows that the **more competitive the downstream market, the more likely it is that price changes will be passed on to consumers fully**. The retailing market is generally regarded as being highly competitive (European

[9] The Geo-Blocking Regulation will reduce regional market segmentation from a consumer perspective.

Commission, 2014, p. 38; European Commission, 2009a, p. 8), which implies that price changes at the wholesale level are consistently passed on to final consumers.

3.5 ANALYSIS OF TSC-INDUCED THIRD-DEGREE PRICE DISCRIMINATION

3.5.1 THE MISALLOCATION EFFECT

TSCs are an integral element of a brand manufacturer's price discrimination strategy. While specific national costs (e.g. wages) and taxation factors may explain the observed differences in consumer prices between European markets to some extent, they do not justify the enforcement of TSCs on economic grounds. *First*, price differences are often so large that one would have to assume extreme cost differences, which is unrealistic. For instance, in the "Irish retailer"-case, mentioned in the Commission's Green Paper, it was found that *"prices of products sold in Ireland and in the UK respectively can differ by up to 130%, with Irish retailers being obliged to procure on the basis of the price list applying to Ireland"* (European Commission, 2013, p. 21). *Second*, to the extent that cost factors are "manageable" by manufacturers (i.e. they are the result of suppliers' decisions on production, location, personnel, assortment etc.), differences in costs across countries mirror inefficiencies on the supply side, which would not be sustainable if the common market functioned effectively. Thus, market segmentation enforced through TSCs makes cost differences sustainable, so that they directly counter market integration. *Third*, many of the cost differences (in particular labor, taxation, distribution costs) also have to be paid by a retailer who is willing to buy products abroad to take advantage of international price differences.

It is therefore reasonable to suppose that TSCs are not "justified on objective grounds (such as logistics)" and that "such restrictions on cross-border sourcing are likely to lead to price discrimination based on the country of establishment of the buyer" (European Commission, 2013, p. 21). Thus, **the only reason why a manufacturer enforces a TSC is to be able to engage in price discrimination**; namely, to charge different prices from buyers in different countries for the same product, a practice which is known as **third-degree price discrimination** in economic theory.

Price discrimination across different countries is driven by different national demands of final consumers. Intuitively, a firm charges a relatively high price to those who have a higher willingness to pay and a low price to those who have a lower willingness to pay. More formally, in a discriminatory outcome, a high price reflects a relatively low price elasticity of market demand and a low price mirrors a relatively high price elasticity of market demand.

There are two essential conditions for third-degree price discrimination. The first essential condition is that a firm (or manufacturer) must have a way to sort its customers according to their demand sensitivity, i.e. their willingness to pay. The second essential condition for price discrimination is the absence of arbitrage opportunities, i.e. the absence of international sourcing of buyers or resale among buyers. If a buyer, which is targeted by the seller as a low-price buyer, can resell the good to those buyers, which are targeted as high-price buyers, then the discriminatory outcome is not sustainable anymore, and price differences largely disappear.

The economic theory of third-degree price discrimination evaluates price discrimination under monopoly or oligopolistic structures (imperfect competition). This complicates the analysis substantially, because the simple monopoly solution is inefficient. The reason is that a profit-maximising monopolist sets a uniform price, which exceeds the perfectly competitive price, so that too little quantity is sold in the market (the monopoly price exceeds marginal costs).[10] The associated allocative inefficiency tends to be lower when the competitive intensity increases under less concentrated (oligopolistic) structures. However, **when products are differentiated, then the allocative inefficiency remains a source of inefficiency even under oligopoly**.

To analyse the effects of TSCs on consumers, we compare the current situation with TSCs with the counterfactual situation in absence of TSCs. **In case of TSCs, a monopolistic manufacturer can implement monopoly outcomes through third-degree price discrimination in every single country**. Suppose that a monopolist or a manufacturer with high market power sells the same products in *two* separate countries, country A and country B. He chooses the respective price in each market that maximise total profits. The manufacturer then optimally charges a lower price in the country with a higher price elasticity of demand and charges a higher price in the country with a lower price elasticity of demand. Such a discriminatory price structure maximises the monopolist's profit level above the level that would be realised when the monopolist is constrained to charge a uniform price for all national markets. That is, a **discriminating monopolist will always realise a higher profit than a monopolist setting a uniform price**.

Retailers have to accept the brand manufacturer's price structure because they depend on the availability of the brand in their stores as many brands are must-have products. Retailers also cannot source the brand abroad at a lower price due to the TSC requirement. Thus**, given that national demands are differentiated, it is always profit-maximising for a brand manufacturer holding market power to segment markets via TSCs and to engage in price discrimination vis-à-vis retail buyers**.

As TSCs are means to enforce price discrimination, the analysis of the economic impact of TSCs is first of all equivalent to the analysis of third-degree price discrimination.[11] There are two elements of this analysis: *first*, the impact of price discrimination on the allocation of consumption across markets (or, countries) and *secondly*, the impact on consumer surplus. The first question, which has been analysed extensively in the economic literature, also includes the analysis of the total output effect of price discrimination (for a certain product). It targets the allocative efficiency of the market outcome (i.e. social welfare), because an increase of the total consumption quantity is a necessary condition for third-degree price discrimination having a positive impact on social welfare. However, under third-degree price discrimination, the output effect must be very substantial, which casts substantial doubt on its overall social efficiency.[12]

The effect of third-degree price discrimination on social welfare (the sum of producer and consumer surplus) can be separated into a ***misallocation effect*** and an ***output effect*** (Aguirre, Cowan and Vickers, 2010, p. 1601). We consider the two-country case (see Schmalensee, 1981, for an extension to more than two markets). The literature assumes a "strong" market (with a relatively inelastic market demand

[10] This holds for the standard demand conditions such that a higher price implies a decrease in demand.

[11] TSCs involve not only price-theoretical effects (on which we focus in this section), but significant additional social costs because they are an instrument to segment markets, which make price discrimination between consumers located in different countries possible.

[12] In fact, total quantity can increase or decrease under third-degree price discrimination depending on characteristics of the demand functions, which are hardly empirically verifiable.

implying a relatively high price under price discrimination) and a "weak" market (with a relatively elastic market demand implying a relatively low price under price discrimination).

At this point, it is noteworthy that the ECB study has found that branded goods prices are relatively low in many large countries, like Germany and Spain, so that these countries qualify as "weak markets" according to the economic theory. It is noteworthy that markets are called "weak markets" because they exhibit a high price sensitivity of consumer demand (which also holds for the "derived" retailer demands vis-à-vis brand manufacturers), which implies a relatively low price for branded goods under price discrimination. Thus, the fact that a market is called a weak market has nothing to do with the size of the market. With regard to price discrimination across euro area countries, the ECB (2015) has shown that large countries often have low prices, so that they are weak countries in the terminology used in the price discrimination theory. Correspondingly, markets like Greece and Ireland, which experience the highest prices for branded good in the euro area, are called "strong" countries in price discrimination theory. Again this wording has been chosen not because of their size (which is, in fact, small relative to Germany and Spain), but because of the less price sensitive consumers and retailer demands vis-à-vis brand manufacturers, which imply the high prices for branded goods in these countries.

If we fix the total quantity of a brand sold at the level under a uniform (monopoly) price, then price discrimination always reduces social welfare, which is called the *misallocation effect* (see Schmalensee, 1981; Aguirre, 2006; and Aguirre, Cowan and Vickers, 2010). Starting from a uniform price (which is chosen optimally by a monopolist), the discriminating monopolist increases the price in the "strong" market and lowers the price in the "weak" market, which is equivalent to reallocating quantity from the high-demand to the low-demand market.[13] Thus, price discrimination causes a misallocation of the product from high-value to low-value consumers. This implies that the consumption of the good is not efficiently distributed among consumers, which creates scope for Pareto-improving trade.[14] This is the fundamental force, which drives a market into an efficient outcome. It is obvious that this reallocation always reduces consumer welfare because consumers in the weak-demand country value the reallocated goods less than excluded consumers in the strong-demand market. We, therefore, get the result that price discrimination unambiguously reduces allocative efficiency, consumer welfare and even social welfare, whenever total output does not increase under discrimination.

Since Pigou (1920), it is well-known that the misallocation effect is the only effect of price discrimination, if the considered demands are linear. As there is no additional output produced through price discrimination but consumption is shifted from high-demand consumers to low-demand consumers, welfare by any measure must decrease. The monopolist's profit increases, but this increase can never compensate for the loss in consumer surplus.

While this is the most robust finding in the price discrimination literature, the theoretical literature has identified conditions under which the second effect of a discriminating monopolist, the *output effect*, is positive. Robinson (1933), Varian (1985), Schmalensee (1981), and Aguirre, Cowan and Vickers (2010)

[13] The standard monopoly pricing formula requires that a profit-maximising monopolist sets a price which is inversely proportional to the absolute value of the market demand elasticity. As the demand in the strong market is assumed to be less elastic than the demand in the weak market, it follows that the discriminatory price in the strong market lies above the uniform monopoly price, while the price in the weak market tends to be lower.

[14] Recall that a Pareto-improvement means a change in the allocation of goods that makes the trading parties better off without making any other party worse off. If an allocation is not Pareto-efficient, two agents will always find it profitable to trade.

have identified conditions under which this effect is positive. Intuitively, demand in the weak market must be non-linear (very convex), so that the quantity expansion is large in the weak market when the price is reduced below the uniform price. This can happen if the quantity sold in the weak market is very low under a uniform price, but increases dramatically with a price decrease. Discrimination can then be attractive from a social welfare point of view (see, for instance, Varian 1985, Figure 4, p. 874). As we do not have any information about the curvature of demand functions, it is fair to say that there are no robust normative implications one can take away from this theoretical literature. Moreover, the net quantity increase must be very substantial, so that social welfare increases. If we take the linear demand model as an adequate approximation of a real-world demand curves, then we are left with the robust conclusion that **price discrimination leads to an allocative inefficiency (misallocation effect), a loss in consumer welfare and a reduction of total welfare**.

But even if we allow for nonlinear demand curves, the **observation that prices are relatively low in large countries like Germany and Spain and prices are relatively high in small countries like Ireland and Greece, is reassuring that the misallocation effect of price discrimination dominates the possible output effect, or market expansion effect**. This is easily seen when we start with the discriminatory price outcome, where the monopolist charges a relatively low price in the large market (say, Germany) and a high price in the small market (say Greece or Belgium). If the monopolist must charge a uniform price in both countries because of a TSC-ban, then the monopolist will not find it profitable to raise the uniform price much in the large low price country (say, Germany), because this would imply a large loss in sales because of the high price sensitivity in this market. As the weak market is large in size, the associated loss in sales is also large, which makes a price increase unprofitable. In other words, this reasoning (based on calibrating the incentive to raise the uniform price above the price in the weak market in accordance with the findings of the ECB (2015) study) leads us to the conclusion that the output effect of price discrimination is negligible when compared with the pronounced misallocation effect. Again, the reason is that **the monopolist will not find it profitable to raise the uniform price considerably above the discriminatory price in the weak country, which is highly competitive and large in terms of turnover**.

Figure 5 shows **the misallocation effect under price discrimination**, which is based on Schmalensee (1981). Country A is the "high-price" market and country B is the "low-price" market. The high-price market is characterised by a relatively inelastic demand, which allows a monopolist to set a relatively high price. Conversely, the situation in the low-price market is such that demand is relatively elastic (or, price-sensitive) which induces a discriminating monopolist to set a relatively low price. When discrimination is enforced through a market segmenting TSC, then the monopolist can set in every country the monopoly price. In case of a TSC-ban, the monopolist is constrained to set a uniform price for both markets, p^u. The uniform price must lie somewhere between the relatively high monopoly price in the high-price market and the relatively low price in the low-price market.

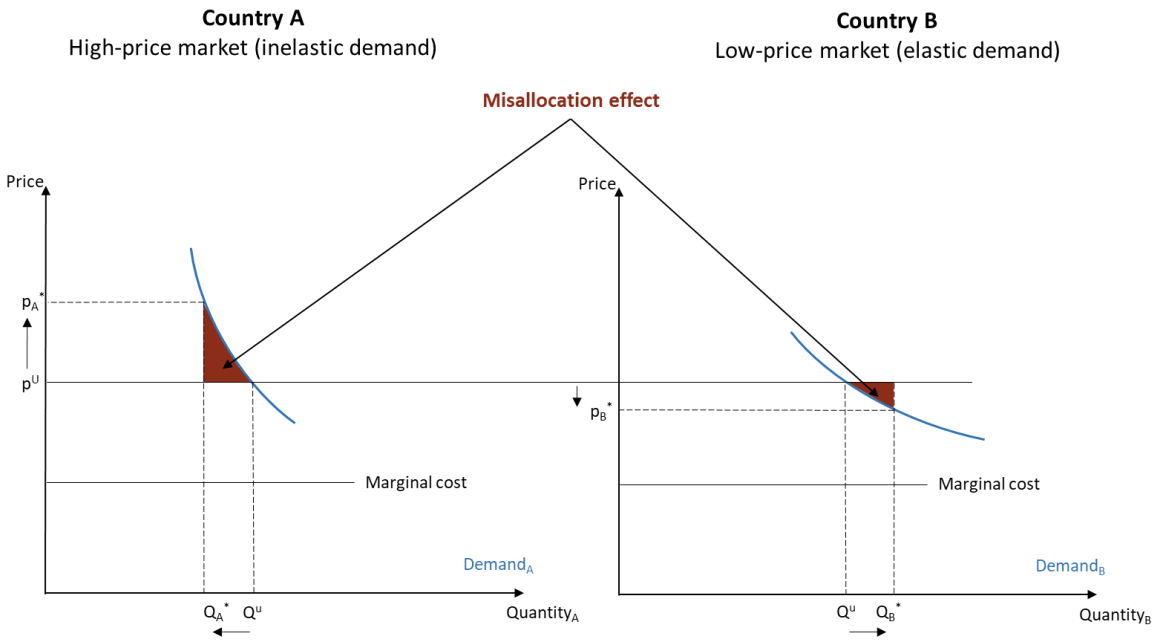
If discrimination is feasible, the monopolist will increase the price in the high-price market above the uniform price. Conversely, the price is reduced in the low-price market. Market segmentation, therefore, allows the monopolist to raise the price in country A from p^u to p_A^*, while the price is reduced in country B from p^u to p_B^* (see Figure 5). This change in prices implies that the quantity in country A falls whereas it increases in country B. In Figure 5, we assume that the total quantity is the same under price discrimination and under a uniform price. The net welfare loss due to third-degree price discrimination, namely, the misallocation effect, is depicted as the red-shaded areas in Figure 5. It mirrors the fact that **discrimination excludes high-value consumers in the strong market in exchange for additional**

consumption in the weak market. As consumers have lower willingness to pay (starting from the uniform price), the gain in consumer surplus in the weak country must be smaller than the consumer surplus loss in the strong market.

The overall change in welfare can only be positive, if total output expands in such a way that the increase in sales in country B exceeds the sales loss in country A. Inspecting Figure 5, it is obvious that this can only happen, if the quantity expansion in the weak market is much larger than the quantity reduction in the strong market. As the misallocation effect is substantial and robust, while the output expansion effect cannot be large taking into account that the weak market is large and the strong market is small, it is reasonable to assume that under the circumstances we currently observe in the EU (ECB, 2015), the misallocation effect dominates.

The only robust exception to this rule is the opening up of a new market through price discrimination (see, e.g. Schmalensee, 1981 and Varian, 1989). In those instances, an entire country is excluded from delivery of the product under a uniform monopoly price, because consumers' valuations of the product in the weak market are so low that the monopolist has no incentive to reduce the uniform price below the monopoly level in the strong market. Only in this extreme case, when price discrimination allows to serve a new market which would not be served under a uniform monopoly price, then price discrimination is beneficial for consumers and society as a whole. In this particular case, the price in the strong market stays put, so that nothing changes here, but the weak market is served under a substantially discounted price. It is noteworthy that this constellation is not critical for the evaluation of TSCs under the currently observed market outcomes in the EU. International brands are available in all markets, and it is highly unlikely that any brand manufacturer will withdraw its brand from an entire country (below we come to the issue of new product introductions). Moreover, as the weak market is typically large (again, the ECB 2015 study identifies large countries like Germany and Spain as low price countries), a withdrawal of brands from these markets is completely unrealistic.

FIGURE 5: MISALLOCATION EFFECT UNDER PRICE DISCRIMINATION



Source: DICE Consult based on Schmalensee, 1981, p. 246.

Explanation of Figure 5

The left panel is the high-price ("strong") market, where a profit maximising supplier sets a higher price than in the low-price ("weak") market (right panel). If the monopolist can discriminate, he charges the high price p^{A*} in the strong market (left panel) and the low p^{B*} in the weak market (left panel). The high price p^{A*} reflects a relatively inelastic demand curve. If TSC-induced price discrimination is not possible, then the monopolist must set a uniform price for both markets (otherwise, all buyers buy at the lower price). The uniform price p^U must lie between high price p^{A*} and the low p^{B*}. If we start with a non-discriminatory price, then price discrimination must increase the price in the strong market (price increase from p^U to p^{A*} in the left panel) and it must reduce the price in the weak market (price reduction p^U to p^{B*} in the right panel). Accordingly, the quantity consumed is reduced in the strong market (from Q^U to Q^{A*} in the left panel) and increased in the weak market (from Q^U to Q^{B*} in the right panel). This implies a reduction of social welfare equal to the sum of the red area in the left and the right panel. Social welfare must be smaller under discrimination if the quantity reduction in the strong market, Q^U-Q^{A*}, is equal to the quantity increase in the weak market, Q^{B*}-Q^U. Of course, if the former is larger than the latter, social welfare must also decrease.

To summarise, **a necessary condition for price discrimination to increase welfare is that total output increases substantially**. For this to happen, the **additional quantity supplied in the weak market must be much larger than the quantity reduction in the strong market**. The only case in which the output effect could be of considerable size and could offset the misallocation effect is **when discrimination allows to serve an entire market, which would not be served under a uniform price**. From this observation, one can derive a simple "market-exit-test" for evaluating the social welfare effect of banning TSCs for a certain brand: Take the country where the price is smallest under TSC-induced price discrimination. If the brand is not withdrawn from this market after a TSC-ban comes effective, then social welfare has increased. If however, the brand is withdrawn, then social welfare is reduced. As a market exit from a low-price market,

which are large countries like Germany and Spain, cannot be reasonably expected after a ban of TSCs, we are left with the prediction that social welfare and consumer welfare will increase with the implementation of TSC-ban.

But even if the brand would be withdrawn from some weak markets, then the assessment of TSCs should not change if these markets are relatively small when compared with the total output sold in Europe. This proposition was derived in Kaftal and Pal (2008, p. 569)[15]. They state: "(…) when only some markets are served by uniform pricing, price discrimination enhances welfare *if and only if* the aggregate size of the weak markets is *moderately large*." In other words, **if a brand manufacturer decides to withdraw its brand from some countries, then banning a TSC is still socially optimal when the size of these markets is relatively small compared to the total market**.

We note that our conclusions derived so far are in line with the academic literature. For instance, Schmalensee (1981, p. 246, emphasis added) concludes that the misallocation effect overweighs:[16]

> *"If one thinks that demand curves are about as likely to be concave as convex, and if one feels that the Marshallian measure should be taken as seriously as it is taken in most applied welfare analysis, the foregoing discussion might lead one to the conclusion that monopolistic third-degree price discrimination should be outlawed. As before, this must be qualified to some extent by the possibility that such discrimination makes it profitable to sell to markets that would not be served at all under single price monopoly. If discrimination makes possible a large volume of such new sales, it can lead to an increase in welfare even if total sales to previously served markets fail to expand."* (emphasis added by the authors)

We have singled out an instance under which price discrimination is socially beneficial; namely, the case when an entire market is not served under a non-discriminatory price. This exception from the rule that price discrimination reduces both social welfare and consumer surplus, deserves in the following some more remarks because it has been used as an argument in favour of TSC-induced price discrimination.[17]

3.5.2 NEW PRODUCT INTRODUCTIONS

Brand manufacturers defend price discrimination on the ground that it is necessary to ensure the introduction of a new product not only in a "strong" market country (with a relatively high price), but also in an allegedly "weak" market country. If a non-discriminatory price has to be charged, then selling the

[15] This holds for the linear demand case.

[16] In the quote, Prof. Schmalensee refers to the "Marshallian measure" of welfare, which is exactly the measure of social welfare we have introduced in Section 3.2. The Marshallian measure is therefore, the sum of consumer surplus and producer surplus. This measure is not concerned about the distribution of the gains from trade between firms and consumers but only cares about the aggregate value of the gains from trade.

[17] Price discrimination is sometimes attractive in pharmaceutical markets to ensure that poor countries are served with new drugs. However, price differences in patented prescription drugs are often the result of national health systems and bureaucracies, which regulate market entry of new drugs and drug prices to keep national health systems costs low. This makes the comparison with consumer goods markets irrelevant.

good at a low price in the weak market would not be profitable anymore so that weak markets are no longer served under a TSC-ban.

First of all, a "price skimming" strategy with a relatively high introductory price which is reduced over time, is an often observed business practice. One can interpret it as an intertemporal price discrimination strategy, which – per se – is not dependent on whether or not TSCs are feasible. Thus, a ban on TSCs would not restrict this type of monopoly pricing.

The question then is rather whether a ban on TSCs would persistently lead to less new product introductions in weak markets to keep the price in strong markets high. A necessary condition for this to happen is that the demand in the weak market is so low that no quantity is sold at the high price-level charged in the strong market. With reference to ECB (2015) findings concerning the price differences across countries in Europe, we can safely rule this possibility out.

But even if this may be a problem (for a weak small country), we have to take into account that the manufacturer does not sell directly to consumers but through the retailer interface. **This means that the manufacturer can always negotiate a "promotional" deal with a retailer located in the weak market**. Such a deal can stipulate incentives for the retailer to promote the sales of the good in the weak market. For instance, the manufacturer may offer a promotional price discount, which is below the regular price, whenever the retailer takes measures to sell the good to consumers in the target market of the campaign.

Such a promotional deal for the market introduction of the new product in the weak market is in principle always feasible because selling the new product in the weak market constitutes a Pareto-improvement; i.e. social welfare can only increase (given marginal costs are low enough) when this market is going to be supplied. **As the manufacturer can negotiate a bilateral contract with a retailer for the purpose of introducing the new product in the weak market, both should be able to reach such an agreement.** The retailer in those instances, and in sharp contrast to our analysis of third-degree price-discrimination (under normal circumstances), has strong incentive to agree on such a contract and to comply with the contract rules for the time of contract duration. We thus conclude, that **a ban on TSCs does not rule out socially valuable new product introduction, either because "weak" countries are large (like Spain and Germany) or because bilateral contracts between manufacturers and retailers can be concluded for Pareto-improving trades**.

3.5.3 OLIGOPOLISTIC PRICE DISCRIMINATION

Until now, we have mainly dealt with the benchmark case that the brand manufacturer is a monopolist. Considering oligopolistic competition between independently supplied brands (which we can assume to be substitutable but differentiated), leads us to the literature on duopolistic or oligopolistic third-degree price discrimination. This literature further demonstrates that **oligopolistic competition** (which is, of course, the more realistic case because even the strongest brands face competition by other brands) **makes it in general even less likely that the *output effect* of price discrimination is strongly positive**.

The critical academic work in this regard is Holmes (1989), which shows that the distinction between market demand elasticity and firm-level elasticity becomes important for the welfare assessment of price discrimination (and hence the enforcement of TSCs). The latter is equal to market elasticity plus the cross-

price elasticity. The effect of discrimination on total output now depends on the cross-price elasticities (which mirrors competitive intensity) among the brands in different countries. Under oligopoly, price discrimination is not only driven by differences in countries' market demands but also by the different levels of competitive intensity (i.e. the cross-price elasticities). This means, all other things being equal, a relatively high price in one country then mirrors a lower competitive intensity (e.g. because of a high share of brand consumers with a strong brand loyalty), while a relatively low price stands for high competitive intensity (e.g. because consumers are less loyal to a single brand and more easily substitute between them). This "competition" perspective is extremely relevant for the enforcement of competition laws.[18] Price discrimination now implies that the discriminating brand manufacturer holds a significant market position in the high-price country. Banning TSC-induced price discrimination thus directly protects retailers and consumers from an abuse of market power in the high-price market.

One practically relevant implication of Holmes' work is that if consumers always buy one of the oligopolistic supplied goods (that is, markets are "covered"), discrimination only gives rise to a rent extraction effect, while the total quantity consumed is the same under price discrimination and a uniform price. In other words, discrimination allows the firms to increase their average margins, so that consumers pay more on average.

Another implication of Holmes' work is that oligopolistic competition between brands in a certain product category raises additional doubt on the necessary condition for a welfare improving price discrimination, namely, that total output increases substantially with discrimination. The simple reason behind this observation is that a price reduction induces some consumers to switch from one brand to the other, so that a net market expansion effect (i.e. new consumers are entering the product category) of discriminatory pricing becomes less likely. Rather the contrary is likely, that total consumption of a brand is lower under discrimination. The reason is that a high price often mirrors the existence of loyal consumers who do not easily switch brands (i.e. cross-price elasticity is relatively low when compared with market demand elasticity). Conversely, a low price signals the opposite: a relatively large cross-price elasticity relative to the market demand elasticity. In those instance, Holmes (1989) has shown that price discrimination is likely to be welfare decreasing. Even worse, while under monopoly and linear demands total output stays the same, it will now unambiguously decrease giving rise to a much more negative assessment of price discrimination under oligopolistic supply structures. We note that this finding is relevant for the observed patterns of price differences in Europe (ECB, 2015). Countries like Germany and Spain are described as more competitive (because consumer shopping behaviour and a strong role of private label goods) than smaller high-price countries. Discrimination of oligopolists is then likely to induce relatively large quantity reductions (high prices) in small and uncompetitive markets, while prices in competitive large markets are largely the same under discriminatory pricing and uniform pricing (covered markets).

3.5.4 PRICE EFFECTS OF BANNING TERRITORIAL SUPPLY CONSTRAINTS

The benefits of a ban on TSCs result from our analysis of the negative effects of third-degree price discrimination, which is the result of an artificial segmentation of national markets through TSCs from

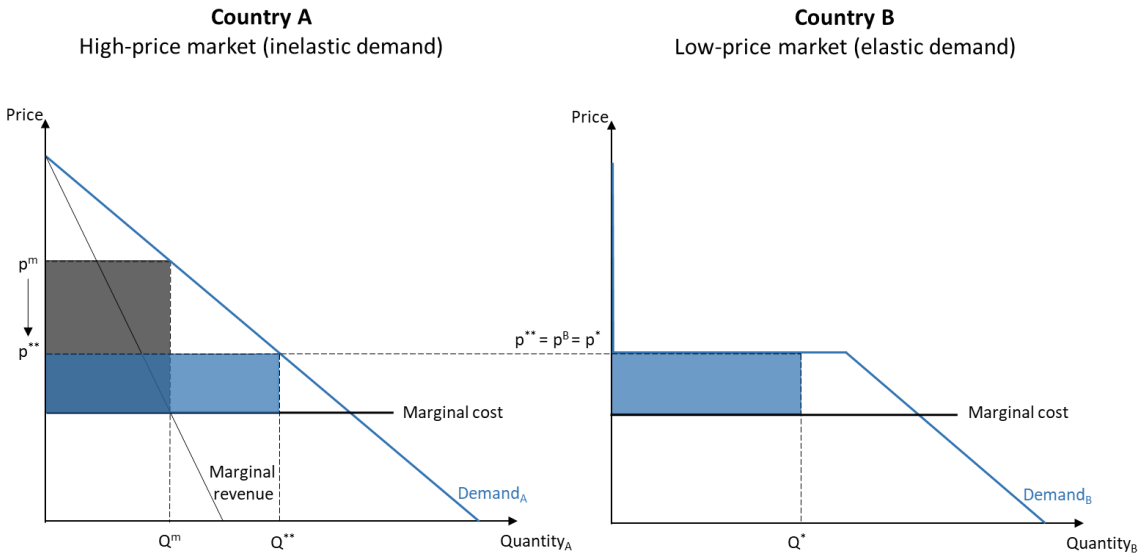
[18] In the AB InBev case, the Commission stated: *"In the Netherlands, AB InBev sells Jupiler to retailers and wholesalers at lower prices in Belgium due to increased competition."* (European Commission, press release IP/19/2488 of 13 May 2019; emphasis added by the authors).

retail buyers' point of view. In short, **prices will be higher with TSCs because retailers cannot structure the buying side of their businesses most cost-efficiently**.

Taking the price-theoretical perspective on TSCs, a "best-case" scenario is presented in Figure 6, which depicts the equilibrium prices before and after a TSC-ban. Suppose that a manufacturer with monopoly power sells the brand in two separate countries, country A and country B. The demand in country A is relatively inelastic such that it constitutes the high-price market. As we have done before, we can neglect the retailing stage, whenever competition in retailing is intense, so that aggregate retailer demand mirrors aggregate consumer demand in the respective country. When a TSC is enforced, then the monopolist can charge the monopoly price p^m in country A as depicted in the left panel of Figure 6.

As illustrated in the right panel of Figure 6, let country B have an elastic demand such that it constitutes the low-price market. More specifically, we suppose that the demand in the low-price market for the brand is perfectly price elastic. We assume the following market setting: Suppose that we deal with a product category (take e.g. Belgian beer), where consumers in the high-price market are relatively brand-oriented and brand-loyal. This gives rise to a relatively inelastic demand in country A (suppose Belgium) as depicted in the left panel of Figure 6. In country B (suppose France or the Netherlands), demand for Belgian beer is more elastic because consumers and retailers in France see different Belgian beer brands as substitutable (in other words, the French retailer may want to stock a Belgium beer brand, but is not very choosy which one to put into the shelves). This means, retailers' demands for a single Belgian beer brand becomes very elastic at the price of a competing Belgian beer. This situation is depicted in the right panel of Figure 6, where the demand in country B is perfectly elastic at the price of p^B per unit. This price is assumed to be below the discriminatory monopoly price in country A. We also fix the quantity sold in country B to some maximum capacity level (capacity constraint). Under discrimination, the brand manufacturer sets the monopoly price in country A equal to p^m and in country B it can only sell the quantity Q^* at price p^B.

FIGURE 6: PRICES IN ABSENCE OF TSCS



Source: DICE Consult.

Explanation of Figure 6

We assume the following market setting: a manufacturer with monopoly power sells its brand in two separate countries, country A and country B. Suppose that the monopolist sells a good, where consumers in country A are relatively brand-oriented and brand-loyal. This gives rise to a relatively inelastic demand in country A such that country A constitutes the high-price market. In country B, demand for the good is more elastic because consumers and retailers see various products as substitutes for the good. We assume that the demand in country B is perfectly elastic. Thus, country B constitutes the low-price country. We also fix the quantity sold in country B to some maximum capacity level (capacity constraint). Under TSC-backed price discrimination, the brand manufacturer sets the monopoly price in country A equal to p^m and in country B it can only sell the quantity Q* at price p^B, which is assumed to be below the discriminatory monopoly price in country A.

What would happen if TSC-backed price discrimination was no longer possible? Assuming a non-discriminatory price, the manufacturer will reduce the price in country A down to the price level in country B, if the brand manufacturer does not want to withdraw entirely from the low-price country B. Consumers in country A benefit from the decrease in price whereas consumers in country B are not going to be harmed by this adjustment. All consumers are jointly better off. Thus, the effect of banning TSCs and price discrimination benefits both consumer and society as whole.

What would happen if TSC-backed price discrimination was no longer possible? Assuming a non-discriminatory price, the manufacturer will reduce the price in country A (here: Belgium) down to the price level in country B, if the brand manufacturer does not want to withdraw entirely from the low-price market (France and the Netherlands). **Consumers in country A then benefit from the decrease in price whereas consumers in country B are not going to be harmed by this adjustment. All consumers are jointly better off. Moreover, the misallocation effect of price discrimination disappears** (which is mirrored by the allocative inefficiency, Q^{**}- Q^m, in the high-price market A). Thus, **the effect of banning TSCs and price discrimination benefits both consumer and society as whole**.

We think this scenario is quite likely to mirror what would happen when a ban on TSCs is introduced; namely, that **it is highly unlikely that the price will be increased in the market with the high-demand elasticity because this would lead to large losses in revenues** (again, prices are typically low in large countries as Germany; see ECB, 2015). But as there is no way anymore to discriminate between countries to the extent possible when TSCs are enforced, a substantial reduction of the price in the high-price market can be expected to occur. Referring to Figure 6, the manufacturer cannot, for example, decrease the price in country A and increase the price in country B, so that the new uniform price would be somewhere located in between p^m and p^B. Raising the price in country B is not attractive for the manufacturer because it would then lose its entire sales in country B, because of the very elastic demand. The larger the quantity sold in the market with the lower (discriminatory) price, the less likely it is that the manufacturer will rise the price in this market after a ban on TSCs. Put differently: **Foregoing all sales in a large market would be rather "self-destructive" for the supplier's brand name capital**.[19]

One could ask whether it would be possible that the consumers in country A might not benefit from the decrease in price since the retailer may not pass on the price reduction. As explained above, retailers face strong competition to lure consumers into their shops and consumers' loyalty with a store brand is weak. We can thus expect them to simply pass on price changes at the wholesale level to consumers. The pass on-rate may vary depending on the retailer type (e.g. when assortments differ) and concentration in retailing.

A caveat to our prediction as represented by Figure 6 is that the manufacturer would, instead of decreasing the price level in country A, keep the price level in country A as it is and decides to withdraw from the low-price country B fully (which could be the case if the country is small in size). In this case, as the relevant economic literature on (third-degree) price discrimination shows, banning price discrimination might be detrimental to welfare: The manufacturer's profit decreases, consumer surplus in country B decreases and consumer surplus in country A remains unchanged.

Such a view appears to be unrealistic. First, it builds on the assumption that it would be no longer attractive for the manufacturer to offer the good in country B, which appears to be extreme. As, for instance, Armstrong (2006) has put it: "*in practice markets are rarely completely shut down when price discrimination is banned.*" (Armstrong, 2006, p. 10). Furthermore, as suppliers are notoriously eager to sell more, they should be willing to serve additional markets if not negligibly small or excessively distant. In sum, **it is highly unlikely that a market remains unserved under uniform pricing**.

Moreover, competition between brand manufacturers provides a feedback mechanism, which tends to bring prices down in the high-price market as well after a TSC-ban. If a brand manufacturer reduces its price in country A because of the reasons outlined in Figure 6, then other brand manufacturers producing substitutable brands will optimally respond with a price reduction. That means, even if a brand manufacturer initially plans to withdraw its brand from a low-price market after a ban on TSCs, the TSC-backed high price in the strong market is not optimal anymore because the demand for the brand is reduced (shifted inward in the left panel of Figure 6), when other brand manufacturers decide to reduce their prices. Typically, a brand manufacturer faces some form of oligopolistic competition so that this

[19] There is some empirical evidence that cross-country arbitrage lowers prices: For instance, Duso, Herr, and Suppliet (2014) show for patented drugs that parallel imports induce a reduction in prices by about 11%.

argument is always valid. Taking competition into account is reassuring for the prediction that the brand manufacturer substantially reduces the price in the high-price market after a TSC-ban.

Even if a manufacturer is seriously determined to withdraw from a low-price country to keep the price in the high-price market at its high level, this is not a significant economic problem as there are simple ways to overcome the problem. A withdrawal from the low-price country is not a problem if demand is such that consumers do not value the product much when compared with their best alternative goods. As in the right panel of Figure 6, demand is then approximately perfectly elastic, so that a withdrawal induces consumers in country B to revert to their best alternative, which leaves them at the same net utility level (i.e. consumer surplus would not change in this case). This argument is quite general: **If a withdrawal after a TSC-ban occurs, then the product was not very valuable to consumers in that country, so that consumers are largely unaffected**.

If, however, consumers have a more inelastic demand in the low-price country, then a withdrawal would hurt consumers. In this case, the argument we have put forward regarding new product introduction becomes relevant. In those instances, **both the manufacturer and the retailer have a joint incentive to conclude a "promotional" contract for the low price country.** We note that a ban on TSCs is not equivalent to eliminating any price discrimination. It can still occur when profitable for both the manufacturer and the retailer.

3.6 THE RENT-SEEKING COSTS OF TERRITORIAL SUPPLY CONSTRAINTS

From a buyer perspective, a TSC is simply a barrier of trade. It deters a buyer from buying a certain good at the lowest possible price. From the manufacturers' perspective, a **TSC is an essential element of the strategic decision to organise the selling and contracting of its products in a way that price discrimination between different countries is possible**. A manufacturer engaging in cross-country price discrimination must ensure two things: *First*, separate price setting at the country-level, and *second*, an **enforcement system to punish "deviating" buyers who try to source at the best price in Europe**. The first element is reflected by an organisational commitment against EU-wide or centralised price setting; typically, it involves the establishment of separate selling offices in the countries between which the brand manufacturer discriminates. Alternatively, the manufacturer may set-up a controlling wholesaler-relation in which case the wholesaler acts as the manufacturer's agent.

Separate offices and a general refusal to deal with buyers from other countries ensure that price setting occurs at the national level. The second aspect, the protection of price differentials against cross-country trade, occurs by "convincing" the buyer that he should agree with the TSC. To enforce the TSC, **the manufacturer must monitor the retailer's buying and selling behaviour whether he complies with the TSC rule or not**. **If the manufacturer observes deviating behaviour (i.e. the retailer ships products from one country to another or sells them cross-border to other retailers), the manufacturer must punish the retailer to incentivise him to comply again with the TSC rule**. As we have shown in Section 2.2, such punishment may take the form of a rationing of the retailer's demand in the low-price-country (selling less than initially agreed upon) and/or by raising the price for the deviating retailer. Another practice is to design national products variants to make cross-border trade artificially costly.

Taking notice of the organisation and arrangements associated with a TSC-backed price discrimination regime, we see why the *misallocation effect* is so important. Price differences for the same good create *strong incentives for Pareto-improving trades*. Only if market participants can exploit the gains from trade without artificial restrictions, economists' assertion of the superiority of a free market economy can be justified. A Pareto-improvement means a change in the allocation of goods that makes the trading parties better off without making any other party worse off. If an allocation is not Pareto-efficient, two agents will always find it profitable to trade. This is the fundamental force, which drives a market into an efficient outcome.

Price differences for the same good enforced through TSCs violate Pareto-efficiency under normal circumstances. For any TSC-backed discrimination outcome, there is scope for Pareto-improving arbitrage/trade: First, a retailer can buy the good in the low-price country and trade with a retailer in the high-price country who is willing to pay more than the price of the low-price country. Increasing sourcing and trading possibilities this way would not make the manufacturer worse off if it occurs at a "small" scale. Such a small trade leaves the profit level of the monopolist unchanged because the monopolist's marginal profits are zero in every segmented market under discriminatory pricing. Second, an international retailer can do a similar arbitrage by buying in the low-price country and shipping it into the high-price country to sell it there to consumers who are excluded from consuming the good. Again, if this is a small-scale activity, then the monopolist's profit does not change.

It is intuitive, that such arbitrage activity is extremely attractive because it allows for a profit without uncertainty. Thus, the monopolist must take measures to prevent retailers from engaging in parallel activities, which would make price discrimination impossible if fully exploited. Given the fundamental incentive to exploit gains from trade (in particular, when they are risk-free), we arrive at an additional argument why TSCs are not desirable: **The brand manufacturer must take measures (i.e. must spend resources, which would create more social welfare when used differently) to ensure that the markets remain permanently segmented**.

Thus, **the manufacturer must incur specific costs to be able to engage in TSC-induced price discrimination**. Such a misuse of resources is often termed *rent-seeking* or it is subsumed under the topic *social costs of monopoly*, as those resources could be put into more productive use elsewhere in the economy (Posner, 1975; for the general concept and Leeson and Sobel, 2008, who apply it to the issue of price discrimination). We can identify the following rent-seeking costs:

- To be able to discriminate across countries and to punish deviating retailers engaging in cross-border trade, **the manufacturer must set-up national sales offices and the corresponding facilities and organisation to enforce different prices in different countries**. The headquarters must orchestrate the activities of the national sales offices. The manufacturer must also supervise the retailers to be able to "pull the trigger" of punishment if a retailer deviates and engages in cross-country shipping and reselling. This type of governance structure and the monitoring system are additional costs, which add to the social costs of distorted prices.

- The fragmented organisation of the supply-side, with national offices, affects the retailers' buying structure. **Retailers can only source at a national scale, which leads to fragmentation of retailers' buying organisation and logistics, warehousing and distribution**. It is likely to deprive retailers from economies of scale and size-based purchasing power effects. Thus, the specific organisation and the

disintegration of trade relations is likely to lead to higher prices for final consumers, because of the inefficient organisation of the value chain.

- The manufacturer introduces **national designs (e.g. packaging) and variants to hinder parallel imports**. As long as this product differentiation is not justified by consumer preferences,[20] it is a type of "spurious" product differentiation causing a significant waste of resources because of additional production and promotion costs. An example is the artificial differentiation of a product for sale in different countries ("dual quality"). The low quality variant which is supposed to be sold in the low-price market is often more costly to produce than the original product (Deneckere and McAfee (1996).

- The **brand manufacturer must rely on threats and "trigger" strategies to enforce TSCs**. As described in Section 2.2, there is evidence that brand manufacturers indeed carry out such punishment strategies. For instance, the manufacturer **rations quantities in the low price country** for the deviating retailers or **charges a higher wholesale price** for the good in the low-price country and possibly also in the high-price country. Carrying out punishments constitute additional social costs associated with brand manufacturer market power facilitated by TSCs.

Posner (1975) has argued that the **abnormal profits a monopolist can pocket create proportional incentives to engage in rent-seeking activities to protect the flow of monopoly profits**. TSC-induced price discrimination allows the monopolist to realise even higher monopoly profits, so that it also increases rent-seeking costs. A substantial part of the monopolists' profits (and the additional profits from price discrimination) are therefore likely to be dissipated through rent-seeking activities to stabilise market segmentation and price discrimination against deviating incentives of buyers. In the attempt to maintain rents, the manufacturer uses resources that may as well be used more productively elsewhere. As long as market segmentation is so profitable as it currently is, the rent-seeking business is very "productive" and makes it likely that brand manufacturers allocate their internal resources rather into this direction than into socially valuable directions, e.g. process and product innovations.

3.7 TERRITORIAL SUPPLY CONSTRAINTS AND INNOVATION

The assessment of the long-term effects of TSCs and innovations and investments is difficult and depends on many factors as, for instance, the type and nature of innovation and competitive intensity. If we think of product innovations, then Spence (1975) has shown that the incentives of a firm, holding monopoly power, may invest too little or too much from a social welfare point of view. For the monopolist the "marginal consumer's" quality valuation determines innovations incentives.[21] If the marginal consumer values a quality increase more than "inframarginal" consumers, then incentives to raise quality are excessive.[22] If the opposite holds, then incentives tend to be too low. Given these results, one cannot argue that one should ensure a higher margin of brand manufacturers by allowing TSCs because it is

[20] If product differentiation is a result of different consumers' preferences, it would be automatically immune to retailer arbitrage, so that TSCs would not be necessary.

[21] The marginal consumer is a consumer who is just indifferent between buying or not buying a product, given the market price. Hence, in response to a small change in price, a marginal consumer may change his quantity bought of the product in question.

[22] An inframarginal consumer is a consumer who considers the value of a product to be higher than its original price and whose purchases are not affected by a small change in price. In this sense, an inframarginal consumer can be described as a "loyal" costumer.

doubtful that the margin-increase induces higher incentives, and even if this is the case, the incentives can be inefficient from a social welfare point of view.

Quite generally, the incentive to innovate depends on the *change* in profits of the innovating firm; i.e. one must compare the profit level after a successful innovation with the profit level before innovation (for simplicity, we take everything else equal). On the one hand, TSCs allow for higher margins and higher profits, which could theoretically induce higher innovation incentives "at the margin." However, as an innovator makes already "monopoly profits" under a uniform price (i.e. in the absence of TSCs), it is quite doubtful that a "margin-increase" under discrimination will have a measurable impact on innovation. Rather the opposite can also happen such that investment incentives are reduced under TSCs and discrimination. In fact, the so-called *replacement effect* of Arrow (1962) is quite robust: The higher the profit level before the innovation is, the lower is the incentive to invest into a quality-increase. Price discrimination enforced through TSCs unambiguously increase profits relative to a uniform price level, so that TSC must unfold a negative effect on innovation incentives according to the replacement effect.

The replacement effect is particularly relevant when goods are sold to consumers via brick and mortar retail shops. Shelf space is limited and completely in use, so that any new product must replace an existing one.

Overall, the economic literature about dynamic incentives (i.e. innovation incentives) and price discrimination has many theories to offer but as it stands, there is little one can take away from it for policy recommendations in case of TSCs.[23] There is no strong and robust argument against banning TSC, rather one can argue for the opposite with reference to the replacement effect, which appears to be particularly relevant because shelf space in outlet-based is scarce and fully in use.

Finally, one has to consider that different uses of a manufacturer's financial resources compete against each other within the firm. That means the "innovation" department competes with the "sales department" for financial resources. When the sales department can argue that spending money into the organisation and management of the price discrimination regime is more financially attractive, the question comes up, why the manufacturer should invest into (risky and uncertain) innovations. In fact, this kind of opportunity cost thinking is behind Posner's (1975) gloomy view on monopoly power.

3.8 BUNDLING AND TYING

Powerful brand manufacturers often engage in bundling and tying practices, because they offer a whole range of products in a product category. This practice is most effective at the national level, because national demands for the entire product range of a branded goods supplier are likely to differ between countries. If tying and bundling is possible, then the discriminatory effects of TSCs expands from the single product level to the entire assortment, which the manufacturer offers to a retailer in each national market.

[23] Valletti (2006) is one of the few works dealing with the issue of innovation incentives and monopolistic third-degree price discrimination. Quite generally, there is a trade-off between short-run (static) and long-run (dynamic) efficiency. Price discrimination can increase or decrease incentives to invest into quality.

Under a TSC-ban, such discriminatory bundling and tying arrangements would no longer be feasible because of the retailer's ability to pick-and-choose among the offered contracts.

3.9 RETAIL ALLIANCES

Retail alliances allow retailers to combine their buying volumes across different national markets. This has a positive impact on retail markets by creating economies of scale and transaction cost savings. Strong competition between retailers means that cost savings are passed-through to final consumers, resulting in lower prices. The latter relationship was established in ECB (2014, p. 3), which states that "*a higher degree of concentration at the buying group level tends to be associated with lower prices. Thus, our estimates suggest a welfare-enhancing role for buying groups, which could be explained in a countervailing-power framework, as a balancing mechanism between retailers' and producers' bargaining power, particularly in markets where the ex-ante contractual strength is widely asymmetric to the benefit of the latter*."

European retail alliances take different forms and play different roles. They allow their members to combine volumes essentially when dealing with large volume suppliers of branded and own-brand products and provide services (multi-country promotion campaigns, joint product launches, etc.). Supplier agreements including prices remain largely negotiated at national level. Large brand manufacturers provide products that consumers expect to find in stores ("must-have"); therefore, retailers have no choice but to negotiate on the basis of conditions, including prices, set at national level by the supplier. Retail alliances can thus not completely offset the negative effects of market fragmentation imposed through TSCs.

3.10 SECTION SUMMARY

The economic analysis shows that TSCs go along with substantial inefficiencies and consumer harm. Taking information on the pattern of price differences in Europe into account, we conclude that TSCs cannot be justified on economic grounds. Policy makers are well-advised to ban TSCs in B2B relations to strengthen market integration for the purpose of the effective functioning of European markets in the grocery and related non-food markets. We summarise our economic analysis of TSCs as follows:

TSCs allow a monopolist to price discriminate across countries, because retailers represent consumer demands at the national level under TSC-based market segmentation. Thereby, TSCs enable a brand manufacturer to price discriminate between countries based on consumer demands and competitive market structures at the country-level.

The discriminating monopolist sets national prices such that they are inversely proportional to national demand elasticities. When price sensitivity is high (low), then the price is relatively low (high). A salient feature of TSC-backed price discrimination is that a single international retailer then pays different prices for the same good.

The economics of TSCs is, first of all, an exercise of the economics of third-degree price discrimination under monopolistic or oligopolistic supply structures. To analyse the effects of TSCs on consumers, we compare the current situation with TSCs with the counterfactual situation in absence of TSCs. We consider the archetypical two-country case with a "strong" market (with a relatively inelastic market demand and a high price under price discrimination) and a "weak" market (with a relatively elastic market demand and a low price under price discrimination).

Third-degree price discrimination has to be distinguished from other discriminatory strategies like first- or second-degree price discrimination, which can be socially desirable (if not being anticompetitive), as opposed to TSC-induced third-degree price discrimination. Notably, many forms of price discrimination remain feasible even under a TSC-ban as, such as intertemporal price discrimination, forms of second-degree price discrimination (e.g. rebates) or bilaterally negotiated contracts.

Changes in wholesale prices are passed on to final consumers. Price discrimination exercised by brand manufacturers on retail buyers affects, therefore, proportionally final consumers. As retailers often operate under intense competition, wholesale cost changes are likely to be automatically passed through.

Price discrimination leads to a robust misallocation effect. The misallocation effect reveals the most important inefficiency that TSCs necessarily induce: an allocative inefficiency, a loss in consumer welfare, a reduction of total welfare; in addition, it creates strong counter incentives (arbitrage) which must be re-countered by discriminating suppliers. Consumers who value the good relatively more and thus exhibit a higher willingness to pay are excluded from consumption in exchange for consumption of consumers who value the good relatively less and thus exhibit a lower willingness to pay.

If total output does not increase significantly in the discriminated low-price market (output effect), then price discrimination is never social welfare enhancing and always to the harm of consumers.

With TSCs, output decreases in the high-price market, whereas output can increase in the low-price market. The empirical findings about patterns of national price differences of branded goods presented in ECB (2015) are important for the appraisal of the likely price effects of a TSC-ban. The fact that the majority of branded goods prices in large countries, like Germany and Spain, are below average brand prices in Europe, while the majority of branded good prices in small countries, like Ireland, Greece, and to some extent Belgium, belong to the highest in Europe is reassuring that the misallocation effect of price discrimination dominates the possible output effect.

A price increase in a discriminated low-price country like Germany is not profitable under a TSC-ban because of its size and the strong competitive intensity (high demand elasticity). It then follows that a TSC-ban will mainly drive down the price in high-price markets, which are relatively small, to the level of the currently lowest price-levels observable in large EU countries.

Under a non-discriminatory price, the misallocation effect is no longer present and retailers will pass on the price changes to final consumers. Consumers in currently discriminated high-price markets will benefit from reduced prices and consumers in currently low-price countries should not be affected much. The latter observation follows from the fact that a price increase in a large country with intense competition is not attractive for the brand manufacturers. In the unlikely event of a small price increase, the high-

demand elasticity implies, that consumers reverting to their best alternatives will not realise a significant decrease of their welfare levels.

The main exception when price discrimination is beneficial for consumers and society as a whole is in case of the opening up of a new market, which would not be served under a non-discriminatory pricing regime. However, as manufacturers are already active in all EU countries and quite generally strive for selling more than less, this exception is not relevant for the TSC-question. Put simply, brand manufacturer will not withdraw a single brand from any low-price country in order to sustain a high price level somewhere else. But even if market withdrawal would be a problem, bilateral contracts between the manufacturer and the retailers can take care of such a possible Pareto-improving trade opportunity. This is highly likely, because both the retailers and the supplier have strong incentives to reach such a value-creating deals.

Relatedly, manufacturers often claim that new products would not be introduced in small low-price markets, if price discrimination is no longer possible under a TSC-ban. Again, in those instances, serving a new market with a discounted price would be a Pareto-improvement, which is why the manufacturer can always negotiate a promotional deal with a retailer even under a TSC-ban.

Considering the theory of oligopolistic third-degree price discrimination, a TSC-ban improves social welfare and, in particular, consumer surplus. The reason is that cross-price elasticities (competitive intensity) between brands is higher in low-price markets than in high-price markets, making a total output increase due to discrimination even less likely under oligopoly. Quite the opposite is now more realistic, that total consumption increases with a TSC-ban.

The enforcement of TSCs involves considerable rent-seeking costs (the social costs of monopoly power according to Posner, 1975) as those resources could be put into more productive use elsewhere in the economy. We identify the following rent-seeking costs: (1) retaliatory measures in the form of punishment strategies for retailers that try to circumvent TSCs; (2) significant organisational costs on the manufacturer's side with national sales offices to enforce the TSC-requirement and discriminatory prices; and (3) spurious product differentiation to hinder retailers' arbitrage incentives. Retailers must mirror the fragmented supply-structure, which induces an inefficient organisation of the entire value chain.

Under a TSC-ban, the above-mentioned rent-seeking costs of enforcing TSCs are avoided as there will be no longer a need for stabilising the TSC-backed price discriminating regime.

Arrow's replacement effect (Arrow, 1962) points in favour of a TSC-ban for the purpose of enhancing product innovation incentives on the brand manufacturer's side: (i) The higher the profit level before the innovation, the lower is the incentive to invest into a quality-increase; and furthermore (ii) as shelf-space is limited, a manufacturer always competes with itself and has to replace its own products in case of product innovation.

Furthermore, retail alliances should have a positive impact on retail markets as they foster economies of scale and transaction cost savings which result in lower prices for consumers. However, due to TSCs, retail alliances are constrained to negotiate about on-top agreements. Retail alliances cannot offset the market segmentation which arises due to TSCs.

With TSCs, price discrimination can expand from a single (must-have) product to the entire product range a brand manufacturer offers to retailers when bundling and tying arrangements are enforced on retailers. TSC-induced discriminatory pricing then does not only affect directly must-have goods but extends this way to all goods the brand manufacturer offers to a retailer. Under a TSC-ban, such discriminatory bundling and tying arrangements would no longer be feasible because of the retailer's ability to pick-and-choose among the offered contracts.

The economic advantages of banning TSCs are perfectly clear:

- A TSC-ban allows retailers to optimally structure the buying side of their businesses; in particular, to buy branded goods at best prices everywhere for delivery anywhere. It follows that retailers' demands in their B2B trade relations with brand manufacturers are not artificially fragmented anymore at the national level. Retailers can now aggregate the consumer demands of all their consumers, which implies that TSC-induced price discrimination is not possible anymore at the wholesale level.
- It then follows that the misallocation inefficiency of TSC-induced price discrimination also disappears, because of market integration.
- Retailers will pass on price changes to final consumers. The largest benefit then follows for small countries (Greece, Belgium, or Ireland) which are currently discriminated with high-prices for branded goods. Prices in these countries can be expected to fall to the levels of currently low prices in large countries (Germany or Spain).
- At the same time, prices in currently low-price countries can be expected to stay close to their current levels. It then follows that consumers as a whole are strictly better off. The same conclusion holds for social welfare.
- With the disappearance of the TSC-induced misallocation problem, all rent-seeking costs associated with the enforcement of the TSC-requirement will be avoided. One can then also expect that efficiency of the value chain benefits as retailers can organise their buying business optimally, which also forces brand suppliers to structure their organisation optimally in accordance with a European integrated market.
- A ban of TSCs still allows for many sorts of price discrimination. For instance, discounts for the purpose of new product promotions remain perfectly possible under a TSC-ban.

4. CRITICAL ASSESSMENT OF THE RBB STUDY

Key messages

- The RBB study fails to deliver convincing economic arguments in favour of TSCs. The study is neither precise about the TSC-requirement itself nor does it distinguish TSC-induced price discrimination from other types of price discrimination.
- The RBB fails to acknowledge that TSC are a vertical restraint imposed by powerful manufacturers on retailers.
- The RBB study fails to acknowledge the misallocation inefficiency of TSC-induced price discrimination.
- RBB interprets a TSC-ban as a *"blanket rule"* making all kinds of price discrimination not possible anymore. Even under a TSC-ban, many forms of price discrimination can still occur; for instance, because a manufacturer and retailer agree on a promotional discount to introduce a (new) product in a (new) market.
- The RBB study presents arguments in favour of TSC-induced price discrimination based on the assumption that higher profits of the manufacturer are socially desirable. We show that these arguments are either not applicable (for instance, in case of the "natural monopoly" argument) or not convincing (for instance in case of innovation incentives).

4.1 INTRODUCTORY REMARKS

RBB claimed to analyse the economics of TSCs in its 2013-study (RBB, 2013). The study was prepared at the request of the European Brands Association (AIM). The RBB study contradicts the view of the European Commission and states that TSCs are not to the detriment of retailers and consumers. To the opposite, the study tries to argue that cross-border price differentials reflect the efficient functioning of markets. A TSC-ban is interpreted as a "blanket measure" to erase cross-country price differences altogether which is expected to yield a number of adverse effects, in particular, long-term consequences, that are likely to harm consumers.

Admittedly, price differences for the same good can occur in a perfectly competitive market; e.g. because of transport costs or differences in taxes and non-tradable local input costs. However, **the significant and persistent differences in grocery prices in Europe cannot be explained with reference to an efficient market framework**; in particular, when one takes the observed border effects within the EU into account (ECB, 2015). Arguing that TSC-backed price discrimination mirrors the "effective functioning of markets" is preposterous.

To follow the RBB study, it is necessary to assume market power at the manufacturer level, which (as we have shown above when discussing the issue of price discrimination) is the starting point of any analysis trying to derive arguments in support of price discrimination. However, the fact that brand manufacturers hold considerable market power is already mirroring a substantial inefficiency in the value chain for grocery and other non-food products.

RBB states that without TSCs, there are adverse short- and long-term consequences, which are likely to harm consumers (RBB, 2013, p. 30 f.). In particular, increased sourcing possibilities of buyers would likely

- give rise to free-riding opportunities for retailers,
- adversely affect suppliers' incentives to offer lower prices,
- risk giving rise to market fragmentation,
- risk negatively affecting suppliers' investment incentives, and
- risk negatively impacting on entry of new markets.

In what follows, we reiterate the assertions of the RBB study and show that these arguments brought forward cannot withstand a proper economic analysis. Before we analyse RBB's results on the short- and long-term effects of banning TSCs, we challenge three general statements of the RBB study concerning i) efficient price levels vary between countries, ii) price discrimination as an ubiquitous phenomenon, and iii) efficient recovery of fixed costs.

4.2 BASIC ASSERTIONS OF THE RBB STUDY

4.2.1 EFFICIENT PRICE LEVELS VARY BETWEEN COUNTRIES

The RBB study states that efficient price levels vary between countries:

> "*Ultimately, price levels in a market are determined by the intersection of demand and supply. As we have seen, demand and supply conditions may considerably differ between Member States. In such cases, efficient price levels will vary between countries.*" (RBB, 2013, p. 17)

RBB states that different costs and demands in national markets imply that price differences mirror efficient outcomes. RBB is correct in outlining that prices are determined by the intersection of demand and supply. A market price of a good is a result of *aggregate* buyer demands and *aggregate* seller supply. However, **the demand-side which manufacturers are facing is not given by final consumers but by retailers. By ignoring the retailing tier, the RBB study fails to acknowledge the vertical business relation between brand manufacturers and retailers**. Ignoring the retailer tier, the study starts with the observation that national consumer markets are segmented. It thus appears that the brand manufacturers face segmented national markets. If this were so, there would be no use of TSCs, which alone shows the inherent contradiction.

Brand manufacturers sell their products through retailers to final consumers. Retailers are often active in many European countries and they are professional buyers at an international scale. Retailers aggregate the demands of all their consumers in their outreach, so that their demands for branded goods are not naturally segmented but rather represent an aggregate of many local consumer demands. Thus, to the contrary, from a retailer's view, buying from almost any location in Europe is an economical option.[24] This

[24] If we apply the usual test of defining of market, the so-called SSNIP-test ("small but significant non-transitory increase in price") or HMT ("hypothetical monopolist test"), then the question is whether a buyer regards different offers as close substitutes or not. In particular, if

implies that a retailer's demand for a brand at a certain location in Europe *represents the aggregate demand* of all the consumers the retailer is ready to serve (i.e. *at any other location in Europe*). Obviously, TSCs are artificially segmenting retailers' demands for goods at the input market level. If a TSC-constraint is effective, then a retailer's demand in a certain country can only represent the consumer demand of this country.

Quite obviously, the RBB study tries to play down the fact that TSCs are part of powerful brand manufacturers' contracting and business practice vis-à-vis retailers, which aims at creating and strengthening their market power through market segmentation. **The price differences documented for instance in ECB (2015) are, therefore, not a "natural" mirror image of buyers' different preferences, but mirror trade barriers at the retailer level created by TSC-backed price discrimination**.

If national markets were perfectly separated from *retailers' perspectives*, then the observed discriminatory pricing outcomes would be socially efficient. As this is, however, obviously not the case, the market demand of retailers is an aggregate of all their local consumer demands, so that the law of one price should hold in a competitive market outcome (possibly adjusted by tax- and cost-based differences). Such an outcome would give rise to an efficient product allocation and maximal consumer surplus.

4.2.2 PRICE DISCRIMINATION IS A UBIQUITOUS PHENOMENON

The RBB study tries to lump all kinds of price discrimination together to play down the particular issue of TSC-induced (third-degree) price discrimination:

> "*Price discrimination is a ubiquitous phenomenon occurring in countless markets*" (RBB, 2013, p. 3)

The RBB study highlights several examples of price discrimination. Notably, almost all examples refer to second-degree price discrimination (for instance, quantity or related rebates), differential pricing depending on product differentiation or even personalised pricing. Second-degree price discrimination (e.g. in the form of rebates or a menu of prices) and personalised pricing often increase consumed quantities (relative to a simple linear monopoly price). If these rebate schemes are not anticompetitive, then they can enhance social welfare (while they often reduce consumer surplus because of rent shifting). For instance, on page 19 the following example is given:

> *"Public utilities price discriminate between their customers by charging a 'two-part tariff', consisting of a fixed component as well as a per-unit charge. The impact of such schemes is that the average price per unit falls as consumption increases. Mobile telecommunications use highly refined schemes by offering customers a choice between numerous tariffs featuring different combinations of fixed as well as usage-based charges."*

a product is offered in two countries and if the buyer is willing to buy at the lowest price (even if price differences are small), then both product offers belong to the same market.

This statement in itself is correct; two-part tariffs, quite generally, allow for a better allocation than a simple monopoly price, and the menu of contracts offered by mobile operators clearly increases choice options for consumers. Unfortunately, **these types of second-degree price discrimination have nothing in common with TSC-induced third-degree price discrimination, which forces a single buyer to pay different prices for the same good**.

Two other examples refer to intertemporal price discrimination (RBB, 2013, p. 19):[25]

> *"Producers of electronics equipment may price discriminate between different customers by initially charging a high price for the product, aimed at so-called 'early adopters', and subsequently lowering this price in order to target other potential purchasers.*
>
> *Book publishers can achieve a similar outcome by first publishing a hardback edition, at a high price, and only purchasing a cheaper paperback option at a later stage."*

As we have made clear above, intertemporal price discrimination is not the issue we are concerned with, because TSC-induced third-degree price discrimination leads to different prices at the *same* time. In other words, **banning TSCs will not affect manufacturers' ability to engage in the sort of intertemporal price discrimination described by the two examples above**.

In addition, almost all of the examples given refer to price discrimination vis-à-vis final consumers. However, arbitrage opportunities between final consumers are limited. It is often not possible for consumers to achieve price transparency and to re-sell goods without further ado. Flight or bus tickets are personalised such that they cannot be re-sold to another customer without inducing further costs on renaming, etc.

With regard to B2B-relations, the following examples are provided (RBB, 2013, p. 19):

> *"Software producers often charge very different prices to different customers, particularly when prices are subject to individual negotiation."*
>
> *"More generally, price discrimination invariably occurs whenever prices are individually negotiated. This occurs in many B2B transactions, e.g. those between firms at different stages of the supply chain, but also when e.g. cars or kitchens are sold to consumers."*
>
> *"Suppliers can price discriminate between wholesalers or distributors by offering conditional rebate schemes. For example, distributors could be offered a lower price on purchases exceeding a certain threshold."*

All three examples are relevant for the issue of price discrimination *between different* buyers, but not for TSC-induced price discrimination between different countries. When these buyers compete against each other, the described types of price discrimination can be highly anticompetitive because – under normal

[25] The first example on page 18 of the RBB study refers to transport companies' (airlines) pricing strategy depending on the date of booking, which is also a form of intertemporal price discrimination. The example also refers to different prices depending on add-ons, which is a sort of differential pricing depending on product differentiation.

circumstances – they favour large retailers at the expense of small retailers. They can reinforce concentration on the retailer side, so that consumers are hurt because of lower competitive intensity (higher consumer prices) in the retail market. Not surprisingly, interfirm discrimination is commonly often regarded as anticompetitive (e.g. because of the so-called waterbed effect; see Inderst and Valletti, 2011), whenever the supplier has substantial market power. It is, therefore, highly doubtful whether this type of price discrimination is a "*ubiquitous phenomenon occurring in countless markets*." However, (referring to the third example) we concur that quantity rebates are indeed widely used, which is largely unproblematic if the rebates are related to cost efficiencies and if they are not designed in a way to discriminate buyers for anticompetitive purposes or to foreclose small rival suppliers. Moreover, rebates have to be non-discriminatory, so that they are realisable by any buyer (and do not rely on market segmentation).

Finally, while it might be correct that negotiations between a manufacturer and different retailers give rise to different contracts and possibly different prices, this type of discrimination is not restricted by a ban of TSCs. **The maintained assumption of the RBB study, that price discrimination would no longer be possible under a ban of TSCs, is false. Many forms of price discrimination are completely unaffected under a ban of TSCs**, for instance, intertemporal price discrimination or second degree-price discrimination (rebates). Moreover, **a manufacturer can also negotiate promotions (e.g. for new products) or quantity discount with retailers**. Even when TSCs are banned, there are still many possibilities for "*discriminatory price negotiations if **both**, the manufacturer and the retailer find it profitable to agree to such a scheme*". These contracts are then the result of negotiations and not the result of artificial market segmentation. In fact, the RBB study states on page 19: "*More generally, price discrimination invariably occurs whenever prices are individually negotiated. This occurs in many B2B transactions* (…)."

Overall, **the list of examples of the RBB study is not instructive to better understand TSC-induced price discrimination and it plays down the anticompetitive nature of TSCs and price discrimination** more generally. As we have shown in the main part of our study, they are an instrument to artificially segment retailers' demands for the purpose of enforcing price discrimination.

The examples, which relate to B2B-markets, deal with interfirm price discrimination, which is a completely different problem than TSC-induced price discrimination. Again, most of examples would not be constrained under a TSC-ban. Moreover, some of the examples refer to highly problematic types of price discrimination (for instance, discrimination between retailers which could lead to foreclosure and waterbed effects harming small retailers and raising consumer prices), which are dealt with under competition law. We finally repeat: TSC-induced (third-degree) price discrimination is very different from other types of price discrimination and one must clearly distinguish between them to derive sincere policy conclusion about TSC-induced price discrimination. RBB's statements concerning the alleged ubiquity of price discrimination and the unqualified pooling of all kinds of discriminatory conduct is not helpful for better understanding TSCs.

4.2.3 EFFICIENT RECOVERY OF FIXED COSTS

RBB argues in the course of its study that

> "*Price discrimination may facilitate efficient recovery of fixed costs.*" (RBB, 2013, p. 21)

RBB explains that firms have to set prices in such a way that they can run their businesses profitably. To do so, a price above marginal cost ensures that fixed costs are recovered. Firms, of course, face fixed costs. However the question is whether markets have to be segmented by enforcing TSCs in order to recoup those costs. This is highly unlikely because this would imply that (total) average costs are decreasing over the range of outputs produced. Such a cost structure would give rise to a "natural monopoly" problem; i.e. a single firm is the most efficient supplier, which cannot be contested by any other firm with the same or a similar cost structure. While we observe a lot of market power of brand manufacturers, this power is mainly due to consumers preferences for the brands and not due to excessively large fixed costs (as they exist in infrastructure based industries as cable TV or telephony) or scale economies on the product side.

In the context of fixed cost recovery, the RBB study refers to Ramsey-pricing (so-called second-best prices that just guarantee that fixed costs are recovered and a firm makes zero profits), which requires to price different products inversely proportional their demand elasticities. It is well-known that a monopolist is doing exactly this (but to a larger extend). So, **the RBB study states that discriminatory prices are also socially preferable because of the need to recover fixed costs**. As we already mentioned, Ramsey-pricing can be used to regulate natural monopolies, as in the sectors of telecommunications, cable TV, gas and electricity or railway infrastructures. However, **this is hardly applicable in the grocery industry where the natural monopoly problem is not an issue**.

But even if we follow the line of argumentation in the RBB study that brand manufacturing is a natural monopoly, then the Ramsey-price theory does not apply because the demands for the products (brand X sold in country A and brand X sold in country B) are not exogenously segmented as it is assumed in the Ramsey-theory. Again, from the retail buyer's view all the demands are full integrated. In particular, the Ramsey-pricing theory is not a theory of market segmentation, so **one cannot conclude from this theory that national demands should be segmented to recover fixed costs**.

We have two more remarks to make. *First*, **in absence of TSCs, a brand manufacturer will save considerable fixed costs if it no longer has to invest into sustaining a governance structure to stabilise the TSC-induced price discrimination** against the strong incentives of retailers, wholesalers and consumers to arbitrage against artificially high prices. Thus, banning TSCs and assuming the manufacturers comply with this new regime, would allow manufacturers to save substantial fixed costs making "fixed cost recovery" much less necessary.

Second, it is easy to show that a decreasing (total) average cost function (which follows from assuming "large" fixed costs) gives rise to an additional argument against price discrimination from a social welfare point of view. In this case, price discrimination can induce a monopolist to serve a foreign country (a weak market with a low price level) even though the price obtained in this country is smaller than the firm's total average costs (this is why this practice is called "dumping" in the international trade literature). Serving a foreign market at a lower price than at home is in itself unprofitable (it leads to losses for the discriminating monopolist), but becomes profitable because it reduces the average costs of serving consumers in the home market (which is the high-price market with a relatively inelastic demand).[26] It follows that a TSC-ban can then be advisable under natural monopoly-type conditions *even if a new market* becomes served under discrimination, which is not served under a non-discriminatory pricing regime. A TSC-ban has then the additional advantage to counter "dumping incentives" and it would then

[26] See Park (2000) for an exposition for this argument.

lead to higher consumer surplus and higher social welfare even if discrimination induces that more markets are being served.

In sum, **the cost-recovery argument and the reference to Ramsey pricing is neither relevant for the issue of TSCs in grocery and related non-food retailing markets nor does is give rise to new arguments in favour of TSC-induced price discrimination**. Rather the opposite is true, when one considers the dumping aspect associated under a natural monopoly-type cost-structure.

4.3 SHORT-TERM CONSEQUENCE: THE FREE-RIDING ARGUMENT

According to the RBB study, arbitrage possibilities give rise to free-riding opportunities for retailers:

> "*As such, the arbitrage strategy by the retailer gives rise to a free-riding concern. Retailers would continue to benefit from country-specific differences in brand strength and, in particular, from instances where suppliers have succeeded in building particularly strong brands. However, by engaging in arbitrage in the way described above, retailers will be able to avoid the associated costs*." (RBB, 2013, p. 31)

This statement is closely related to the cost recovery argument, which we have already rejected as not valid in Section 4.2.3. The fixed costs are now interpreted as investments into brand-strength (advertising we suppose). There are many reasons to undertake advertising investments; an economically prominent one is to inform consumers about the product. Informative advertising is mainly driven by the associated output expansion effect and not by a price effect (for instance, Bester, 1998). The output effect remains internalised by the investing manufacturer also under a non-discriminatory price regime, so that retailer arbitrage should not affect the incentives to inform consumers about a "strong brand".

The statement presumes that the retailer who buys at a lower price abroad will pocket the gain without allowing consumers to benefit from it. This is obviously wrong, because intense competition between retailers will drive down arbitrage gains for retailers rapidly. Even RBB itself admits that arbitraging possibilities lead to lower prices in a high-price country because retailer can resort to source from the lowest price country (RBB, 2013, p. 27). A lower wholesale price is always at least partially passed on to consumer prices, so that consumers will benefit from lower wholesale prices. In general, the more competitive the retailer market, the higher the pass on. Given that many retailers obtain access to a cheaper wholesale price, this gain is passed on to consumers. Thus, **retailers cannot benefit from "country-specific" brand strength. Consequently, no free-riding occurs**.

Moreover, RBB's free riding argument neglects competition between brand manufacturers. The argument is put in a way such that only *one* brand manufacturer would be subject to the TSC ban, and all other prices remain as before the TSC-ban. A ban on TSC is imposed, however, on *all* manufacturers. Competitive intensity is increased in the former high-cost country, which reinforces the pass on of lower wholesale prices to final consumers. In sum, **a ban on TSCs admittedly allows retailers to buy at the best price, but there is no free-riding by retailers because those gains are rapidly passed on to final consumers, which is exactly why the TSC-ban is desirable**.

4.4 LONG-TERM CONSEQUENCES

4.4.1 SUPPLIERS' INCENTIVES TO OFFER LOWER PRICES AND MARKET FRAGMENTATION

RBB states that a manufacturer would no longer offer lower prices to its customers if TSCs are not feasible; specifically:

> "(…) *[I] f suppliers are no longer able to offer low prices without affecting margins earned in other countries, their incentives to offer low prices to begin with are reduced."* (RBB, 2013, p. 4)

> *"It may also become less attractive to run sales promotions*." (RBB, 2013, p. 32)

As we have explained in the main part of our study, the first statement can only be valid if the low price is offered in a relatively small country. If the low-price market is a country like Germany or Spain, then there is virtually no other option for the international brand supplier to adapt to the competitive situation in this market. This will be independent on whether or not a TSC-ban is in place. One should therefore rather focus on the price and quantity effects in the strong market, because the ability to charge a high price in countries like Greece and Ireland will largely disappear under a TSC-ban.

Another false implicit assumption behind the two quotes is that a manufacturer can only offer a lower price to certain consumer groups when TSCs are possible. This is obviously wrong. As we have explained above, in particular, Pareto-improving discriminatory promotions are still feasible and can be expected in absence of TSCs, because both retailers and manufacturers have joint interests in negotiating such promotional arrangements.

The RBB arguments build on another wrong assumption, namely, that the high price in the high-price country remains optimal after a ban of TSCs. Otherwise, it would not make sense to state that "margins earned in other countries" are negatively affected. If however, the TSC-backed high price in the high-price country is no longer optimal because more intense competition, the argument collapses. The RBB study, therefore, misses the point that when arbitrage possibilities increase, the high price in the high-price country is no longer profit maximising for the manufacturer even if it withdraws its brand from all low-price markets. If retailers have the option to reduce their wholesale prices because of sourcing goods cross-border at a lower price, then the manufacturer is forced to reduce its price in the high-price country to meet the increased competitive intensity in this market.

For the sake of RBB's argument, let us stick for a moment to the assumption that the high price remains optimal in the high-price country when cross-border sourcing is possible for retailers. Then, RBB explains that a manufacturer does not offer lower prices in low-price country anymore but instead may want to increase the price in the low-price country, which leads to an increase in margins earned. As argued above, RBB's line of argumentation highly depends on the elasticity of demand in the low-price country and its size. Such a price setting can only be profitable if the demand does not respond much. If, however, the demand is price sensitive (which should hold because the price level is low) and the market is large

(Germany, Spain), then an increase in price leads to a large reduction in quantity sold. In such a case, a price increase in the low-price country can thus hardly be profitable.

We can therefore also dismiss the argument that a ban on TSCs induces market fragmentation:

> *"(…) [S]uppliers will find it less attractive to sell identical products in multiple countries. Once retailers are able to source at the price charged in the lowest price country, selling a given product in multiple countries will come at the cost of effectively reducing pricing freedom in any given country. Consequently, rather than selling identical products in various countries, suppliers could consider (re-)introducing national product varieties, national sub-brands etc. And rather than being active in multiple countries to begin with, some suppliers may ask the question whether they would not be better off divesting brands in current low-price countries, or even withdrawing from such markets altogether. Paradoxically, all of the above options are likely to lead to market fragmentation (…)."* (RBB, 2013, p. 5)

This line of reasoning is not convincing. As already pointed out before, an increase in the low-price country will only be profitable when the demand is correspondingly price-sensitive. A complete withdrawal is also not a viable option if the market is of significant size. Taking the empirical findings of ECB (2015) seriously, a substantial increase in price will not occur in the low price market. It is more likely that when additional competitors enter the market through the possibility of parallel imports that the high price in the high-price market is no longer optimal due to the additional competitive pressure that arises.

Even if the high price remains optimal, it is very unlikely that international brand manufacturers will withdraw from an entire market with their brand or introduce new national brands in low-price markets. A manufacturer has an incentive to keep the product in the market if consumers value it, which may eventually induce the manufacturer to negotiate terms, which ensure the supply of the country. As explained above, negotiating specific contracts is still possible even when TCSs are no longer feasible. The realistic assumption is that *all* markets will be supplied at equal terms approximately at the lowest price level. If this is the case, then price discrimination is never socially preferable. Furthermore, it is unlikely that brand manufacturer will (re)introduce national brands to substitute their well-known brands, which would be very costly.

Finally, spurious product differentiation (different national designs and packaging) for the purpose of restricting retailer arbitrage (parallel trade) is already a problem even though TSCs are not banned. If a retailer can freely source everywhere in Europe to serve any market, then such type of strategic product differentiation is likely to fail, because retailers can choose which one to buy. Furthermore, RBB states that a manufacturer would consider to re-introduce national brands. However, a national brand can only be re-introduced with a significant amount of investment cost. However, if the manufacturer's investment incentives were to decrease significantly in the absence of TSCs, it would not be possible to re-introduce national brand, so that RBB apparently contradicts itself.

4.4.2 SUPPLIERS' INVESTMENT INCENTIVES

The RBB study concludes that without TSCs suppliers' investment incentives are negatively affected. Specifically, RBB states the following:

> *"(…) as in any free-riding scenario, negative effects can also be expected on suppliers' investment incentives. If suppliers are no longer able to reap the rewards of any efforts to increase the value of their brand to consumers, suppliers' incentives to engage in such efforts are likely to weaken. The resulting reduction in investment is, in the long run, highly likely to be detrimental to consumers*." (RBB, 2013, p. 5)

According to RBB, a manufacturer heavily invests in brand advertising and must have the chance to recoup his advertising investment costs by charging higher prices. When TSCs are not possible, suppliers are no longer able to benefit from their own advertising efforts resulting in lower investment incentives. In the long run, this will be to the detriment of consumers.

RBB's argument on investment incentives builds on the assumption that a higher profit level induces more investments. Rather the opposite might occur as we have explained above with reference to Arrow's replacement argument, which is of particular importance in retailing where any product innovation must replace an existing product in the limited shelf space of brick and mortar outlets. According to the replacement effect, the higher profit level a powerful manufacturer realises under TSC-backed price discrimination will *reduce* investment incentives when compared with a non-discriminatory pricing regime. Accordingly, investment incentives can be expected to increase under a more competitive scenario, which would result under a ban of TSCs.

Moreover, we have also explained that investment incentives might be too high or too low (from a social welfare point of view) as those incentives are driven by the "marginal consumer's valuation." Given those ambiguous results, one cannot conclude, that brand manufacturers profit levels should be protected by allowing TSC-backed price discrimination to ensure higher investments. Even if investments increase, this can still be inefficient from a social welfare point of view.

4.4.3 MARKET ENTRY DECISIONS

As RBB points out, the manufacturer incentive to enter new markets would decrease in case cross-border sourcing would be permitted. RBB state that

> *"(…) any measures risk negatively impacting on suppliers' ability and incentive to successfully enter new markets*." (RBB, 2013, p. 34)

As explained above, the strongest argument for price discrimination is the entering of new markets, which would not be served under a non-discriminatory price. However, in absence of TSCs, it is still possible for a manufacturer to enter new markets at lower "promotional" price. Although, it has to be mentioned that large brand manufacturers are already active in most of the European countries with their main brands, so that are barely any countries left to enter in. But, even if this is the case and a brand manufacturer would like to introduce a product with a lower price in a country, the manufacturer and the retailer would

both realise a Pareto-improvement when they agree on a contract which ensures that the new market is served.

4.5 SECTION SUMMARY

The RBB study fails to deliver convincing economic arguments in favour of TSCs. The study is neither precise about the TSC-requirement itself nor does it distinguish TSC-induced price discrimination from other types of price discrimination. With this approach, the study aims at making the reader believe that price discrimination is a "ubiquitous phenomenon" and that efficient price levels must vary between countries. While the first statement does not help to understand TSC-induced price discrimination, the latter statement is not understandable by any reasonable standard of economic analysis.

The flawed analysis of the RBB study starts with a complete failure to acknowledge the vertical business relation between brand manufacturers and retailers. Ignoring the retailer tier, the study starts with the observation that national consumer markets are segmented. It thus appears that the brand manufacturers face segmented national markets and can "naturally" charge different prices. If this were so, there would be no use of TSCs, which alone shows the inherent contradiction.

However, brand manufacturers sell their products through retailers to final consumers. From a retailer's view, buying from almost any location in Europe is an economical option. This implies that a retailer's demand for a brand at a certain location in Europe represents the aggregate demand of all the consumers the retailer is ready to serve (i.e. at any other location in Europe). Thus, TSCs artificially segment retailers' demands for branded goods at national level. RBB's statement that efficient price levels must vary between countries is therefore simply wrong, because the demand side is "naturally" fully integrated in the B2B market for branded goods.

The RBB study claims that "*price discrimination is a ubiquitous phenomenon occurring in countless markets*." However, none of the many examples given relates to TSC-induced price discrimination. It is also highly doubtful, whether all the mentioned price discrimination strategies are common practice (many of them like inter-firm price discrimination in B2B markets can be highly anticompetitive). The reason why RBB presents all these examples is to play down the misallocation problem of TSC-induced price discrimination (RBB, 2013, p.25): *"(…) such inefficiencies occur everywhere in the economy and do not in themselves justify taking a hostile chance (sic!) towards price discrimination."* This statement is misleading, not only because it ignores the fact that retailers have to be forced to comply with the TSC-requirement, but also because the misallocation inefficiency is the only robust effect of this type of price discrimination, while other forms of discrimination can have considerable positive effects.

Another incorrect assumption of the RBB study is that a TSC-ban is interpreted as a "*blanket rule"* making all kinds of price discrimination (related to countries) not possible anymore. This is obviously wrong. Price differences across countries can still occur; for instance, because a manufacturer and retailer agree on a promotional discount to introduce a (new) product in a (new) market. If such an agreement is socially valuable, then we expect them to occur also under a TSC-ban.

Clearly, TSC-induced price discrimination allows brand manufacturers to increase their profits. RBB offers to two arguments in favour of higher manufacturer profits: first, it refers to a natural monopoly problem and second, to manufacturers' innovation incentives.

RBB, thus, reverts to the theory of natural monopolies by claiming that market segmentation through TSCs is necessary to recoup fixed costs and is even (second best) optimal in accordance with the Ramsey price theory (i.e. prices proportional to demand elasticity). Our response, firstly, is that the grocery industry and related non-food industries do not exhibit natural monopoly features like infrastructure-based industries. Secondly, Ramsey price theory is not a theory of how to segment markets; given that demands are integrated, Ramsey price theory does prescribe price discrimination. Thirdly, if we assume large fixed costs (i.e. decreasing total average costs over the range of outputs produced), then a discriminating manufacturer may want to engage in socially inefficient dumping, so that a TSC-ban can then be socially optimal *even if discrimination would open up a new market*. Finally, a manufacturer can save considerable fixed costs if he or she no longer invests into costly rent-seeking activities, which would be eliminated under a TSC-ban.

RBB suggests that increased cross-border activities would provide retailers with a free-riding opportunity in the sense that consumers do not gain from lower wholesale prices but only retailers increase their profit. However, retailers cannot free-ride on low prices because of intense composition in most retailing markets. Thus, consumers will gain from lower wholesale prices as a price reduction is passed on to consumer prices.

RBB claims that manufacturers will no longer have an incentive to offer lower prices when their margins earned are affected in other countries. This argument makes the implicit assumption that low-price countries are small, while high-price countries are large. The empirical evidence concerning price differentials in Europe show however the opposite pattern. It is then not convincing that a brand manufacturer will increase the price in low-price countries because it would then lose a large market like Germany. As we have shown, the opposite argument is therefore reasonable: The monopolist will keep the price in the currently discriminated low price countries to ensure the highest possible profits in these large markets.

RBB comes up with the argument that TSCs will lead to more market fragmentation in the EU, because manufacturers will then re-introduce national brands. First, brand manufacturers already do so even though TSC are not banned. Second, it is not convincing that brand manufacturers withdraw with their well-known international brands and re-introduce new national brands, which would be very costly. Third, if the retailer can freely choose where to source in the EU (TSC-ban), then the retailer would simply buy the international brand abroad and not the re-introduced national brand.

RBB's argument on investment incentives builds on the assumption that a higher profit level induces more investments. This argument is not convincing, because innovation incentives depend always on the change in profits due to an investment/innovation. Taking the (uncertain) gain of an innovation as given, the gain from an innovation (i.e. the incentives to undertake the corresponding investment) decreases when then profit level before the innovation becomes larger. Because of the limited shelf space in brick-and mortar retailing, Arrow's replacement effect appears to be relevant for the assessment of the impact of a TSB-ban on manufacturers' innovation incentives. The replacement effect unambiguously predicts

that a higher profit level then reduces the profit gain from an investment, so that a TSC-ban should increase innovation incentives.

5. CONCLUSION

The purpose of the study was to analyse the effects of TSCs on consumer welfare. In line with the Commission's findings in its 2013-Green Paper, we show that TSCs segment markets to enable brand manufacturers to price discriminate between different countries. TSCs constitute a cross-border trade barrier for retailers resulting in different prices for the same products within the European Union.

TSCs segment markets to enable brand manufacturers to price discriminate between different countries. Price discrimination is necessarily associated with a substantial misallocation problem such that consumers in high-price countries are excluded from consumption in exchange for consumption by consumers in low-price countries. As the former have a higher willingness to pay than the latter, the misallocation effect always reduces consumer surplus. Such a misallocation is in opposition with the fundamental economic motive of a free market participant; namely, to strive for trade opportunities, which make both trading partners better off (i.e. so-called Pareto-improving trade). As TSCs must counter this fundamental motive, it is fair to assume that the enforcement of a TSC also involves considerable cost (*rent-seeking costs* or *social costs of monopoly*, Posner, 1975), which have to be taken into account in order to obtain a full and realistic picture of their adverse economic effects.

The economic analysis of the price effects of TSCs is an exercise of the economics of third-degree price discrimination under monopolistic or oligopolistic supply structures. To analyse the effects of TSCs on consumers, we compare the current situation with TSCs with the counterfactual situation in absence of TSCs. We consider the two-country case with a high-price market (with a relatively inelastic market demand and a high price under price discrimination) and a low-price market (with a relatively elastic market demand and a low price under price discrimination).

Taking empirical patterns of the distribution of branded goods prices in Europe into account (ECB, 2015) we can assess the likely effects of a TSC-ban. Most importantly, large countries like Germany and Spain consistently qualify as low-price market and small countries like Ireland and Greece consistently qualify as high-price markets, where the former exhibit low and the latter high prices.

Third-degree price discrimination theory shows a robust misallocation effect which can be theoretically offset by an output effect. Our analysis has shown that the misallocation effect dominates while the output effect cannot be reasonably expected to be significant. Due to the misallocation effect, goods are not efficiently allocated among consumers. Consumer with a high valuation of a product are excluded from consumption in exchange for a smaller amount of consumers who are willing to pay less. As total output does not increase significantly, consumer welfare necessarily decreases which brings along the allocative inefficiency associated with TSCs.

In absence of TSCs, prices will go down in the high-price market to the level of the currently lowest price-levels observable in large EU countries. Due to a highly competitive retailing market, retailers will pass on the price changes to final consumers. Consumers in currently discriminated high-price market will benefit from price decrease and consumers in currently low-price countries can be expected not to be affected by measurable extent. Allowing retailers for arbitrage opportunities, i.e. imposing a ban on TSCs, eliminates the misallocation effect, thereby allowing allocative efficiency. Rent-seeking costs will be avoided as there will no longer be a need for stabilising the TSC-induced price discriminating regime.

Furthermore, Arrow's replacement effect (Arrow, 1962) points in favour of a TSC-ban for the purpose of enhancing product innovation incentives on the brand manufacturers' side. With regard to the two cases where price discrimination can be welfare enhancing, namely, in the case of market withdrawal and reduced new product introductions under a non-discriminatory pricing regime, bilateral contracts between manufacturers and retailers can ensure Pareto-improving trade opportunities such that welfare will not be adversely effected by a TSC-ban.

We have also critically analysed the RBB (2013) study, which basically argues that price discrimination is ubiquitous, mirrors market efficiency and raises brand manufacturers' profits which is economically necessary because of fixed costs, investment incentives, to avoid product withdrawals and further market fragmentation (re-introduction of national brands). We have shown that none of the arguments put forward are sustainable against any sound economic analysis.

We, therefore, conclude that policy-makers are well-advised to ban TSCs, which will enhance both social welfare and in particular consumer welfare. Thus, the European Commission is correct with its negative stance against TSCs as they are an artificial cross-border trade barrier depriving retailers and ultimately consumers to benefit from the European Single Market.

GLOSSARY

Inframarginal consumer	An inframarginal consumer is a consumer who considers the value of a product to be higher than its original price and whose purchases are not affected by a small change in price. In this sense, an inframarginal consumer can be described as a "loyal" costumer.
Marginal consumer	The marginal consumer is a consumer who is just indifferent between buying or not buying a product, given the market price. Hence, in response to a small change in price, a marginal consumer may change his quantity bought of the product in question.
Must-have product	In case of a must-have product, consumers are more loyal to the brand than to the retailer; this implies that consumers switch the store when a retailer does not list a must-have product.
Price discrimination (first-, second-, third-degree)	According to Varian (1989, p. 598), price discrimination occurs when the same good is sold at different prices, where price differences cannot be attributed to differences in costs. • *First-degree price discrimination* refers to perfect "*personalised pricing*" which means that a firm can extract all gains from trade from any single buyer. • *Second-degree price discrimination* stands for the case that a firm offers a menu of contracts among buyers can choose (for instance, quantity discounts based on order volumes), • *Third-degree price discrimination* refers to the case that different buyer groups (as retailers or consumers in country A and country B) pay different prices (which is the relevant type for analysing TSCs).
Pareto-efficient	An allocation (of goods) is described as Pareto-efficient if it is impossible to reallocate so as to make one party better off without making at least someone else worse off. Goods are then allocated in the most efficient way. The concept of Pareto-efficiency is based on the work of economist Vilfredo Pareto (1848-1923).
Pareto-improving trade opportunity	Pareto-improvement means a change in the allocation of goods that makes at least one trading parties better off without making any other party worse off. If an allocation is not Pareto-efficient, two parties will always find it profitable to trade as long as there exists a trade opportunity that will at least make one trading partner better off without making the other worse-off.
Replacement effect	Arrow's replacement effect states that the higher the profit of a firm before an innovation is, the smaller is its incentive to undertake an

innovation. It follows that a monopolist has the lowest incentives to innovate and that an increase in competition increases innovation incentives. Tirole (1989, p. 392) explains it as follows: *"[…] the monopolist gains less from innovating than does a competitive firm, because the monopolist 'replaces himself' when he innovates whereas the competitive firm becomes a monopoly. […} a monopolist tends to 'rest on his laurels*."

Strong market / weak market

A strong market is defined as a market with a relatively inelastic market demand, i.e. consumers are less sensitive to a change in prices ("high-price country"). Accordingly, a weak market is defined as a market where consumers are highly price-sensitive ("low-price country"). This implies that, *ceteris paribus*, prices for branded goods under price discrimination tend to be higher in a strong market compared to those in a weak market.

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