Economic analyses of differences in composition of seemingly identical branded food products in the Single Market

This publication is a report by the Joint Research Centre (JRC), the European Commission’s science and knowledge service. It aims to provide evidence-based scientific support to the European policymaking process. The scientific output expressed does not imply a policy position of the European Commission. Neither the European Commission nor any person acting on behalf of the Commission is responsible for the use that might be made of this publication. For information on the methodology and quality underlying the data used in this publication for which the source is neither Eurostat nor other Commission services, users should contact the referenced source. The designations employed and the presentation of material on the maps do not imply the expression of any opinion whatsoever on the part of the European Union concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

Contact information
Name: Pavel Ciaian
Address: European Commission JRC, Edificio EXPO, Calle Inca Garcilaso 3, E-41092, SPAIN
Email: Pavel.Ciaian@ec.europa.eu

EU ScienceHub
https://ec.europa.eu/jrc

JRC120297
EUR 30178 EN


© European Union, 2020

The reuse policy of the European Commission is implemented by the Commission Decision 2011/833/EU of 12 December 2011 on the reuse of Commission documents (OJ L 330, 14.12.2011, p. 39). Except otherwise noted, the reuse of this document is authorised under the Creative Commons Attribution 4.0 International (CC BY 4.0) licence (https://creativecommons.org/licenses/by/4.0/). This means that reuse is allowed provided appropriate credit is given and any changes are indicated. For any use or reproduction of photos or other material that is not owned by the EU, permission must be sought directly from the copyright holders.

All content © European Union, 2020, except: except: bottom cover: Abstract blur supermarket and retail store, © Designed by lifeforstock / Freepik

Contents

EXECUTIVE SUMMARY ..........................................................................................................................1

1 CONTEXT .............................................................................................................................................6

2 OBJECTIVES ......................................................................................................................................7

3 METHODOLOGICAL APPROACH ......................................................................................................8

4 INCENTIVES OF BRAND OWNERS FOR USING DC-SIP PRACTICES ................................................12

  4.1 Market separation and discrimination as possible sources of DC-SIP ........................................... 13
  4.2 Marketing mix strategies to place products in different markets as possible sources of DC-SIP .......... 15
  4.3 What are the possible reactions of brand owners to, and the market effects of, different DC-SIP regulation options? ........ 16

5 IMPACT OF DC-SIP ON CONSUMERS .............................................................................................18

  5.1 What does the literature suggest about the potential impact of DC-SIP on consumers? .................... 18
  5.2 Empirical evidence of the potential impact of DC-SIP on consumers .............................................. 23

6 DETERMINANTS OF THE OCCURRENCE OF DC-SIP BETWEEN MEMBER STATES .............................26

7 CONCLUSIONS ...................................................................................................................................28

REFERENCES .........................................................................................................................................30

ACKNOWLEDGEMENTS ..........................................................................................................................34

LIST OF ABBREVIATIONS ......................................................................................................................35

LIST OF TABLES ....................................................................................................................................36

LIST OF FIGURES ...................................................................................................................................37
EXECUTIVE SUMMARY

Differences in composition of seemingly identical, branded food products (DC-SIP) occur when a good is marketed in one country as being identical (labelling, and appearance on packaging) to goods marketed in other countries, while that good has significantly different composition. The DC-SIP issue was brought to policymakers’ attention in 2017 by tests conducted in several Eastern EU Member States, which showed that some brand owners sell products across the EU Single Market, which are of different composition, despite having the same or similar packaging. The European Parliament and the European Council stressed the importance of tackling the issue of dual quality products, and requested that the European Commission investigate these practices, and find a solution at the European level.

As a response to this request, the European Commission’s Joint Research Centre (JRC), in collaboration with experts from Member States’ competent authorities and stakeholders in the food chain, developed and applied a harmonised methodology in 2018/2019, with the objective of bringing further evidence on whether the composition of various branded food products differed across Member States. A large EU-wide testing campaign confirmed that of the food products which were evaluated, 9% were found to have differences in composition but had identical front packaging, and 22% had differences in composition and had similar front packaging (European Commission, 2019). Further initiatives regarding the relevant regulatory framework were taken by the European Commission to address DC-SIP.


Furthermore, at the request of the European Parliament, the JRC carried out an economic analysis of DC-SIP in collaboration with DG GROW, to develop a better understanding of the drivers, and of the impact of this phenomenon. This report summarises the main finding of this pilot project. The specific objectives of this project were to:

1. Explain the rationale for brand owners to offer different versions of identically or similarly branded food products in different markets
2. Analyse the impact of DC-SIP on consumers’ choices and welfare
3. Identify the main determinants of the occurrence of DC-SIP across Member States

The first objective focuses on the DC-SIP issue from the producer side. It attempts to explain the factors which motivate brand owners to market different versions of the same product in different Member States, as well as how they might react to different regulatory options. The second objective focuses on analysing the DC-SIP issue from the consumer side, and investigates its impact on consumers’ purchasing decisions and welfare. The third objective builds on the findings of the first two, and empirically estimates the economic determinants (both from a producer and a consumer perspective) of the incidence of DC-SIP across Member States.

The report uses conceptual analyses based on the theoretical and empirical knowledge developed in economics and related literature, as well as empirical analyses, to approach the objectives mentioned above. The type of analysis, which products were analysed, and in which Member States it was applied, are summarised in Table 0. The main findings are described below.
Table 0. Summary of the methods used, the products, and markets analysed in the report

<table>
<thead>
<tr>
<th>Aim</th>
<th>Objective 1 (Producer side)</th>
<th>Objective 2 (Consumer side)</th>
<th>Objective 3 (Horizontal analyses)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Incentives of brand owners to use DC-SIP practices</td>
<td>Impact of DC-SIP on consumers’ purchasing decisions and welfare</td>
<td>Consumers’ preferences for different versions of seemingly identical branded food products</td>
</tr>
<tr>
<td>Method</td>
<td>Application of theoretical and empirical knowledge developed in the fields of industrial organisation, international marketing, international business, and management</td>
<td>Application of theoretical and empirical knowledge developed in the fields of demand theory, behavioural economics, marketing, and consumer psychology</td>
<td>Behavioural experiments: (1) discrete choice experiment (DCE) (online experiment), and (2) sensory testing experiment (lab experiment)</td>
</tr>
<tr>
<td>Type of analyses</td>
<td>Conceptual</td>
<td>Conceptual</td>
<td>Empirical</td>
</tr>
<tr>
<td>Product coverage</td>
<td>No specific products</td>
<td>No specific products</td>
<td>Six branded food products: flavoured yogurt, pre-cooked pasta dish, chocolate cookies, orange soft drink, crisps, fish fingers</td>
</tr>
<tr>
<td>Member State coverage</td>
<td>No specific Member States</td>
<td>No specific Member States</td>
<td>Germany, Hungary, Lithuania, Spain, Romania, Sweden</td>
</tr>
</tbody>
</table>

Incentives of brand owners to use DC-SIP practices (Objective 1):

- In theory, firms can find it optimal to offer products with different composition in different markets, due to spatial heterogeneity in demand factors, production factors, competition, and regulations and institutions. However, these factors might not necessarily lead to DC-SIP. Firms which offer more than one version of a product in any given market do not necessarily need to market them identically. However, if they do so, and there is a difference in composition, this can result in DC-SIP.

- The DC-SIP practice is more likely to occur when national markets are separated (e.g., due to territorial supply constraints). In this case, the rationale of firms for using DC-SIP practices is expected to be a result of their optimal strategy to maximise profits. A firm will adapt (or not adapt) the composition of the product, and offer (or not offer) country-specific versions depending on market conditions (supply and demand), and on the ability of a firm to exploit differences, and the separation in national markets. The greater the difference in market conditions between Member States, the greater the gain that companies can make from DC-SIP, and therefore the likelihood increases that versions differ between the Member States.

- DC-SIP could be a result of a mix of marketing strategies which international firms pursue to place products in different markets. These strategies could include adaption of products to local conditions (‘go international’), or standardisation of products across markets (‘go global’). Using the first strategy, firms will benefit by better adapting products to local preferences. The second strategy will generate benefits by making use of the global brand image when marketing a product. DC-SIP may emerge when firms engage in a hybrid strategy encompassing both adaptation and standardisation, as both have positive relationships with performance. This hybrid strategy might lead to DC-SIP because companies offer global brand images, while product compositions are tailored to local conditions. The DC-SIP practice is more likely to occur when heterogeneity of demand across Member States is high, potential for economies of scale from providing the same product version across Member States are limited, the costs of changing the composition of the product are low, and the elasticity of demand in one of the national markets is low.
Results from numerical simulations using a stylised market equilibrium model suggest that the DC-SIP practice reduces social welfare, and may have unexpected redistribution effects across firms and across consumers. Among the different regulatory options available to prevent DC-SIP these simulations show the following:

- Regulations ensuring that consumers have enough information to assess products properly (information disclosure) are the best policy option as they unambiguously increase social surplus, providing that the cost of information is not too high.
- Mandatory regulations which impose the same product composition in all Member States ('product-of-reference', and 'one-market, one-quality' policies) may have unintended consequences, as they may lead to overprovision of quality, as perceived by consumers in countries with lower preference for quality, and under-provision in countries with higher preference for quality.
- The mandatory ‘identical composition’ regulations could be socially beneficial only if the differences in consumers’ preferences between the two markets are sufficiently small, and if the information bias about DC-SIP is sufficiently large.

Impact of DC-SIP on consumers (Objective 2):

- Theory shows that the perceived quality and preferences determine how a consumer values a product. The formation of consumers’ perception of quality is a complex process, as consumers take into consideration different intrinsic (e.g., composition) and extrinsic signals (e.g., brand, geographical origin, and packaging). Often, the role of extrinsic quality signals predominates. When analysing DC-SIP under the assumptions of these theories we can draw the following conclusions:
  - DC-SIP might go unnoticed, or not be taken in consideration when making purchasing decisions, because consumers often use extrinsic signals to infer quality of products, rather than intrinsic signals (i.e., composition).
  - Consumers are likely to be affected by DC-SIP only when differences in composition are perceived as significant between different versions.
  - Price differences between different versions may offset consumers’ valuation differences between the versions. For example, even if the composition is significantly different between versions, and the versions are valued differently by consumers, consumers may still prefer the perceived lower quality version if it is significantly cheaper than the perceived higher quality version.
  - Furthermore, the mere existence of DC-SIP may generate consumers’ response, as it may lead to consumers’ perceiving both deception and unfairness.

As a result, the impact of DC-SIP on consumer choices could be nil, positive, or negative, and could vary across consumers and products, both across and within Member States.

- JRC behavioural experiments tested consumers’ preferences in six Member States for the actual versions of six branded food products, for which DC-SIP were detected in the JRC 2018/2019 EU-wide testing campaign. These behavioural experiments show that if consumers were not informed about which country each version of the product is "made for", in the majority of cases they were indifferent between the different versions of the tested products. For the minority of cases, where some preference for one version became apparent, there were no evident geographical patterns for the difference in preferences for DC-SIP products. These results indicate that the DC-SIP practice does not impact consumer choices when they are not expressly informed about the differences.

- On the other hand, when the existence of DC-SIP was made salient, by informing consumers that the product is "made for" a specific country, in the majority of cases, they preferred one of the versions. There was no clear preference for domestic or non-domestic versions in the online experiment, whereas there was more preference for domestic versions in the lab experiment. These results suggest that it is the provision of explicit information, regarding which country the product version is "made for", which generates the preference for one of the versions, although there is no clear pattern of preference for either the domestic or non-domestic version.

Determinants of the occurrence of DC-SIP between Member States (Objective 3):

The econometric estimations—using data from the JRC 2018/2019 EU-wide testing campaign, in combination with economic determinants collected from different statistical sources (e.g., Eurostat, Eurobarometer, World Bank, Global
Dietary Database)—show that the presence of DC-SIP in the EU is driven by the following different demand and production-related factors:

- The difference in income levels between two Member States has a statistically significant positive effect on the probability of the two Member States being offered different versions of seemingly identical branded food products.
- Other factors—such as heterogeneous consumer preferences across Member States, distance, company size, price level, and product complexity—also contribute to a firm’s incentive to offer different versions of seemingly identical branded food products in different Member States.
- Specific characteristics of different product categories and country-specific factors also impact the presence of DC-SIP between Member States.

Conclusions:

- In theory, three key factors may determine the occurrence of DC-SIP: (i) national markets’ separation, (ii) differences in market conditions (be it in supply, demand, or degree of competition), and (iii) differences in regulations or institutions across countries. In such a situation, firms’ profit maximisation behaviour is to offer products tailored to local conditions under global brands.
- Numerical simulations using a stylised market equilibrium model suggest that a policy promoting information disclosure (i.e., letting consumers know that product versions are different across Member States) is the best option to tackle DC-SIP, while regulations which impose the same product composition across Member States appear to be inferior policy options, as they may have unintended market consequences.
- From a theoretical perspective, the formation of consumers’ perceptions of DC-SIP is a complex process. Consumers take different information and signals into consideration to infer the quality of the food that they consume. As a result, the impact of DC-SIP on consumers’ purchasing choices and welfare could be nil, negligible, positive, negative, or heterogeneous across consumers. Moreover, if consumers relate the presence of DC-SIP to deception or unfairness, the mere presence of DC-SIP may affect consumer choices and welfare.
- JRC behavioural experiments show that without any additional explicit information on the occurrence of DC-SIP beside the provision of differences in the lists of ingredients and nutritional facts, consumers do not notice the differences between product versions and the DC-SIP practice does not impact their choices. If the occurrence of DC-SIP is made salient, for example by using a “made for” claim, consumers show preference for one of the product versions.
- The econometric estimations show that the occurrence of DC-SIP across Member States is driven by different demand and production-related factors.
1 Context

Differences in composition of seemingly identical, branded food products (DC-SIP) occur when a good is marketed in one country as being identical (labelling, and appearance on packaging) to goods marketed in other countries, while that good has significantly different composition (European Commission, 2019b). The DC-SIP issue—also known as dual quality products—was brought to attention in 2017, in particular by tests conducted in several Central and Easter European Member States, which showed that some brand owners sell products across the Single Market, which have different compositions but still have the same or similar packaging (Borzan, 2017; Council of the European Union, 2017; Croatian Food Agency, 2017; European Commission, 2019; European Parliament, 2017; Jancarikova, 2017; MPSR, 2017; Néhib, 2017; SZPI, 2015). Interventions from the European Parliament (European Parliament, 2013, 2017, 2018) and the European Council (Council of the European Union, 2016) stressed the importance of tackling the DC-SIP issue, and requested that the European Commission investigate these practices, and find a solution at the European level. Similarly, the Commission President Jean-Claude Juncker stressed, in his State of the Union speech in 2017, the need to take action to address DC-SIP practices (European Commission, 2017b).

As a result of these developments, the European Commission's Joint Research Centre (JRC)—in close collaboration with experts from Member States, competent authorities, and stakeholders in the food supply chain—has developed a common methodology, with the objective to improve food product comparative testing and to obtain results that are comparable across Member States (European Commission, 2018b). Under the coordination of the JRC, this methodology was subsequently applied in an EU-wide testing campaign in 2018/2019, to bring further evidence on whether the composition of various branded food products differ across Member States. The results of this EU-wide testing campaign were published in June 2019. Overall, 19 Member States participated and 128 branded food products were included in this campaign. According to the results, 9% of the evaluated food products had differences in composition but identical front packaging, and 22% had different composition but similar front packaging (European Commission, 2019).

Moreover, further initiatives regarding the relevant regulatory framework were undertaken by the European Commission, to address DC-SIP. In 2017, the European Commission issued a set of guidelines on the application of EU food, and consumer protection law, to the issue of DC-SIP (European Commission, 2017). The guidance explains how the relevant legal requirements—in particular the Unfair Commercial Practices Directive 2005/29/EC (UCPD)—should be applied by the national authorities when analysing potential DC-SIP issues. In April 2018, the European Commission tabled a proposal for a directive on the modernisation of EU consumer protection rules, within the framework of the ‘New Deal for Consumers’ (European Commission, 2018). Among other issues, it also aimed at introducing more specific rules on the DC-SIP issue, through amendment of the UCPD. The European Parliament and the Council adopted the Amending Directive on 27 November 2019. The Amending Directive needs to be transposed into national law by the Member States by 28 November 2021 and it should be applied from 28 May 2022 (European Commission, 2019b). The new provision in the UCPD provides that competent authorities need to assess, on a case-by-case basis whether DC-SIP practices are misleading, while taking into account the impact of the practice on consumers’ transactional (purchase) decisions. Furthermore, by request of the European Parliament, the JRC, in collaboration with DG GROW, carried out an economic analysis of DC-SIP, to develop a better understanding of both the drivers and the impact, which is explained in this report.
2 Objectives

The specific objectives of this project are to:

1. Explain the rationale for brand owners to offer different versions of identically or similarly branded food products in different markets;
2. Analyse the impact of DC-SIP on consumers’ choices and welfare;
3. Identify the main determinants of the occurrence of DC-SIP between Member States.

The first objective focuses on the issue of DC-SIP from the producer side. It attempts to explain the factors which incentivise brand owners to market different versions of the same product in different Member States, as well as what their potential reactions to different regulatory options would be. The second objective focuses on the analysis of the DC-SIP issue from the consumers’ perspective, and investigates its impact on consumers’ purchasing decisions and welfare. The third objective builds on the findings of the first two, and empirically estimates the economic determinants (both from a producer, and a consumer perspective) of the incidence of DC-SIP across Member States (Table 1).

This report complements previous JRC studies on the common methodology, and application of the common methodology for the EU-wide testing of DC-SIP, which were published in 2018 and 2019, respectively (European Commission 2018b, 2019). The report complements the aforementioned studies as it provides an economic perspective on the phenomenon, particularly focusing on better understanding the motivation for such practices, determining whether the DC-SIP practice influences consumers’ purchasing decisions, and what the determinants are for the occurrence of DC-SIP.

Table 1. The structure of the analyses

<table>
<thead>
<tr>
<th>Aim</th>
<th>Objective 1 (Producer side)</th>
<th>Objective 2 (Consumer side)</th>
<th>Objective 3 (Horizontal analyses)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Incentives for brand owners to use DC-SIP practices</td>
<td>Impact of DC-SIP on consumers’ purchasing decisions and welfare</td>
<td>Determinants of the occurrence of DC-SIP across Member States</td>
</tr>
<tr>
<td>Approach</td>
<td>Conceptual analyses based on the theoretical and empirical knowledge developed in the economics and related literature</td>
<td>Conceptual analyses based on the theoretical and empirical knowledge developed in the economics and related literature</td>
<td>Econometric estimations</td>
</tr>
<tr>
<td></td>
<td>Market equilibrium model</td>
<td>Behavioural experiments</td>
<td></td>
</tr>
</tbody>
</table>
3 METHODOLOGICAL APPROACH

The report used conceptual analyses based on the theoretical and empirical knowledge developed in economics and related literature, as well as empirical analyses to provide an economic assessment of DC-SIP (Table 2).

For **Objective 1 (producer side)**, theoretical and empirical knowledge available in the fields of industrial organisation, international marketing, international business, and management, was applied to derive a conceptual understanding of the market conditions, and the main motivations of firms (brand owners) to offer different versions of seemingly identical branded food products in different Member States. Further, numerical simulations using a stylised market equilibrium model were conducted, to investigate the possible reactions of brand owners to, and the possible market impacts of, three hypothetical regulation options: (i) information disclosure, (ii) ‘product-of-reference’, and (iii) ‘one-market, one-quality’.1,2

For **Objective 2 (consumer side)**, both conceptual and empirical approaches were applied. The objective of the first approach was to provide a conceptual understanding of whether, and how, consumers’ purchasing decisions and welfare can be expected to be affected by the fact that the same brand owner offers seemingly identical branded food products with different composition to different country-markets. This approach used theoretical and empirical knowledge available in the fields of demand theory, behavioural economics, marketing, and consumer psychology.3

Additionally, for Objective 2, empirical analysis on the impact of DC-SIP on consumers’ choices was conducted.4 For this purpose, two types of behavioural experiments were conducted: a discrete choice experiment (DCE) (referred to as ‘online experiment’), and a sensory testing experiment (referred to as ‘lab experiment’). Discrete choice experiments are a standard tool applied in economics to value products (Carson et al., 1994; Batsell and Louviere, 1991). These experiments allowed for an investigation of consumers’ preferences for different products, splitting the total value among different attributes of a given product, which allowed for valuing different versions of the same branded product. This methodology allowed to study how consumers valued the selected sets of product attributes, by asking them to state which product version they would choose among different alternatives. The main advantage of the online experiment was that it could include multiple product attributes and treatments, and could be tested on a larger number of respondents. The lab experiment aimed to obtain consumers’ valuation of the tested products through face-to-face experiments, where participants directly tasted the different versions of the products. The main advantage of the lab experiment was that it could account for consumers’ experienced valuation of the tested food products. Moreover, in the lab experiment, the consumers’ choices were consequential (i.e., participants had to purchase the product that they choose), and so participants’ responses were less hypothetical (Roe and Just, 2009; Colen et al., 2016).

The experiments were conducted for six branded food products, in six Member States (Table 2). The selection of Member States was made to ensure a wide geographical distribution, as well as a good representation of different socio-economic conditions across all EU Member States. The countries included in the experiments were Germany, Hungary, Lithuania, Romania, Spain, and Sweden. The selection of the six food products was made based on results from the JRC 2018/2019 JRC EU-wide testing campaign (European Commission, 2019), in combination with results from a market survey, and focus groups held in each of the six Member States. The market survey helped to identify the most commonly purchased food categories and brands, while the focus groups contributed to refining the selection of branded food products, by providing insights on consumers’ awareness, expectations, perceptions, and experiences of the DC-SIP issue. The JRC 2018/2019 EU-wide testing campaign’s (European Commission 2019) results were used to identify products where DC-SIP were present, and to obtain the product composition across the selected countries. The final list of selected products included: flavoured yogurt, a pre-cooked pasta dish, chocolate cookies, an orange soft drink, crisps, and fish fingers.

The experimental design of both online and lab experiments included two treatments:

- Treatment 1: Product presented only with the list of ingredients and nutritional facts panel.

---

1 Information disclosure regulation considers provision of (complete) information to consumers on DC-SIP (e.g., labelling, mandatory information on websites, advertising, or any other form of communication). Product-of-reference regulation obliges firms to sell a reference product version in all markets. One-market, one-quality regulation requires firms to sell a product of the same quality in all markets, whatever the quality level.
2 For more details see Russo, Menapace, and Sansone (2020).
3 For more details see Colen et al. (2020).
4 For more details see Di Marcantonio et al. (2020).
• Treatment 2: The same information as in Treatment 1, as well as information indicating for which country each tested version would be sold in, in the form of a “made for” claim.\(^5\)

The first treatment was used to evaluate the impact of DC-SIP on consumers’ preferences under current circumstances, whilst the second treatment revealed how consumers would react if the existence of DC-SIP was made more salient. For this purpose, “made for” claims (country of destination) were revealed to respondents to test how this affected their preferences. Under Treatment 1, if respondents were indifferent between different product versions, this would imply that the DC-SIP practice does not affect their preferences and purchasing decisions. However, if respondents show a preference for particular product version(s) over other product version(s), this would imply that DC-SIP could affect their purchasing decisions. Under Treatment 2, results would indicate whether the availability of explicit information about the country of destination for each version (a proxy for making DC-SIP salient) impacted consumers’ preferences for different versions.

The online experiment was carried out across the six Member States, with a total of 1,500 respondents in each Member State. Out of the six selected products, three products were tested in each country (Table 3). The design of the online experiment considered three attributes per product (i.e., price, nutritional information, and brand). These attributes were combined in different choice cards which included three product versions (one version representing the product available in the domestic market, and two taken from foreign countries), and a no-buy option (i.e., the possibility for a consumer not to choose any of the proposed versions). The order of the choice cards, the order of the product profiles within a choice card, and the order of products were randomised across respondents. Each respondent made 18 choices, six choices for each of the three products.

For the lab experiments, four products and four Member States were selected from the list of branded products and Member States which were used in the online experiment,\(^6\) with two pairs of products being tested in two pairs of countries. Participants tested three different countries’ versions of each product (Table 3). The lab experiment included 400 participants from each of the four Member States. Participants were paid a fixed amount for participating, which they could either keep for themselves, or use to buy the chosen products, in order to avoid hypothetical bias. As such, consumers were asked to make a purchase choice for all of the products presented, and a randomly selected ex-post choice was binding, implying that consumers had to realise the choice made when buying the selected product.

Overall, in the lab experiment, each participant tasted three versions of two different products (six tasting experiences in total for each participant). The main steps in the sequence of the lab experiment were as follows:

• Step 1: Participants tasted three different versions of a product without any information (i.e., “blind tasting”), rated them (on a scale from 1 to 10), and ranked them from the most preferred to the least preferred;

• Step 2: Participants received information on the prices, ingredients, and nutritional content of the three different versions, and depending on the treatment, information on which country each version was “made for”;

• Step 3: Participants selected the version that they wished to purchase.

For each participant, two rounds were conducted, with each round comprising of the above three steps. In the Round 2, all participants received the “made for” claim in Step 2, and those having it received in Round 1 received information on the brand in addition\(^7\).

For **Objective 3 (horizontal analysis)**, the methodology consisted of an econometric analysis using a probit estimator, to empirically identify which demand and production-related factors determined the presence of DC-SIP across Member States in the European Union. The estimations were based on the data available from the JRC 2018/2019 EU-wide testing campaign (European Commission, 2019), in combination with demand factors and production-related factors collected from different statistical sources (e.g., Eurostat, Eurobarometer, World Bank, and Global Dietary Database), to reflect the findings from the theoretical analyses undertaken for Objectives 1 and 2. In total, the data set contained information on 127 branded food products from 19 Member States,\(^8\) resulting in 7,848

---

\(^5\) In the lab experiment also the explanation of DC-SIP itself was provided to respondents additionally to revealing the “made for” claim.

\(^6\) Romania, which is one of the Member States included in the lab experiment, had to be dropped from the sample due to the problems encountered during the execution of the lab experiment.

\(^7\) The remaining information (prices, ingredients, nutritional content) was received by all participants in round 2.

\(^8\) One product (pineapple slices) was dropped from the samples because the versions available in different MS were considered to be different products.
The following consumer demand factors were considered: difference in GDP per capita, food group price level, dietary index, and attitude index between Member States. The following production-related factors were considered: distance between Member States, company size (multinational company), product complexity (number of ingredients), shared official language, difference in front packaging between different versions, and shared border. Additionally, specific characteristics of different product categories, and country-specific factors, were controlled for in the estimation in order to account for potential structural factors/characteristics (e.g., type of ingredients, sourcing options, type of technology), for different branded products belonging to the same category, and to capture potential Member State-specific factors (such as differences in competition environments, technologies, national regulations, and institutions).

Table 2. Methodological approach

<table>
<thead>
<tr>
<th>Objective 1 (Producer side)</th>
<th>Objective 2 (Consumer side)</th>
<th>Objective 2 (Horizontal analyses)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Aim</strong></td>
<td>Incentives of brand owners to use DC-SIP practices</td>
<td>Impact of DC-SIP on consumers’ purchasing decisions and welfare</td>
</tr>
<tr>
<td><strong>Approach</strong></td>
<td>Application of theoretical and empirical knowledge developed in the fields of industrial organisation, international marketing, international business, and management</td>
<td>Application of theoretical and empirical knowledge developed in the fields of demand theory, behavioural economics, marketing, and consumer psychology</td>
</tr>
<tr>
<td><strong>Type of analyses</strong></td>
<td>Conceptual</td>
<td>Conceptual</td>
</tr>
<tr>
<td><strong>Product coverage</strong></td>
<td>No specific products</td>
<td>No specific products</td>
</tr>
<tr>
<td><strong>Member State coverage</strong></td>
<td>No specific Member States</td>
<td>No specific Member States</td>
</tr>
</tbody>
</table>

9 Each observation represents the comparison of a product between two Member States (e.g., flavoured yogurt compared in Germany and Italy).
10 For more details see Nes, Ciaian, and Di Marcantonio (2020).
Table 3. Products tested in each country for the lab and online experiments

<table>
<thead>
<tr>
<th>Countries</th>
<th>Products</th>
<th>Versions</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Online experiment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>Flavoured yogurt</td>
<td>Germany</td>
</tr>
<tr>
<td>Hungary</td>
<td>Pre-cooked pasta dish</td>
<td>Hungary</td>
</tr>
<tr>
<td>Lithuania</td>
<td>Chocolate cookies</td>
<td>Lithuania</td>
</tr>
<tr>
<td>Spain</td>
<td>Orange soft drink</td>
<td>Spain</td>
</tr>
<tr>
<td>Romania</td>
<td>Crisps</td>
<td>Romania</td>
</tr>
<tr>
<td>Sweden</td>
<td>Fish fingers</td>
<td>Sweden</td>
</tr>
<tr>
<td><strong>Lab experiment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>Flavoured yogurt</td>
<td>Germany</td>
</tr>
<tr>
<td>Hungary</td>
<td>Chocolate cookies</td>
<td>Hungary</td>
</tr>
<tr>
<td>Romania*</td>
<td>Orange soft drink</td>
<td>Romania</td>
</tr>
<tr>
<td></td>
<td>Crisps</td>
<td>Sweden</td>
</tr>
</tbody>
</table>

Notes: * Romania had to be removed from the sample due to problems encountered during the execution of the lab experiment.
4 INCENTIVES OF BRAND OWNERS FOR USING DC-SIP PRACTICES

A first step in understanding the incentives driving firms to offer seemingly identical products with a different composition, to different groups of consumers, was to explain the factors motivating firms to embark on product differentiation (e.g., composition). Product differentiation of firms is the main topic of an extensive literature in the field of Industrial Organisation. The standard assumption is that firms behave rationally when they make decisions on the quality (including composition) of the products that they supply. They will have incentives to supply the product version which maximises profits (e.g., Tirole, 1988; Eaton and Lipsey, 1989; Pepall et al., 2014; Waldman and Jensen, 2016).

Thus, the product quality choice is the result of the profit maximisation problem for firms (Box 1). Rational firms choose the product composition which maximises their profits, under a set of constraints and market conditions, including consumer demand factors, production factors (cost structure), competition, and regulations and institutions. Product differentiation is more likely to occur when these factors are heterogeneous between different groups of consumers or markets.

- **Demand factors** refer to variations of consumers’ preferences regarding food product composition and quality across the Single Market. If preferences are spatially heterogeneous, firms might have an incentive to supply products with different compositions to consumer in different national markets (Lancaster, 1966; Mussa and Rosen, 1978; Saitone and Sexton, 2010; Giannakas, 2011; Merél and Sexton, 2011).

- **Production factors** include factors which affect the firms’ production costs related to product quality provision (and consequently of composition), including particularly the cost structure of production (e.g., economy of scale and the nature of research and development costs, set-up costs, and advertising costs), the cost of providing quality (e.g., differences in the costs of providing quality or sourcing of ingredients between markets), and technological factors (e.g., cost of transportation, cost of product preservation, local weather conditions). In the presence of diseconomies of scale, higher variable costs of quality, higher transportation/preservation costs, the incentive to supply goods of different composition increases. Firms may have an incentive to supply goods with different compositions, even when consumers’ preferences are homogeneous, if production costs differ across countries (Eaton and Lipsey, 1989; Motta, 1993; Melewar and Vemmervik, 2004; Brécard, 2010).

- The nature of **competition** affects the equilibrium level of product differentiation across differentiated markets. The composition of products might reflect the different competition environment, as firms might decide to adjust the composition of the products, depending on the strengths of competitors. Consequently, if the degree of rivalry differs across markets, differences in composition may emerge, even if consumer preferences and production costs are homogeneous (Motta, 1993; Bonanno et al., 2018).

- **Regulations and institutions** refer to the rules of game (e.g., food quality and safety standards, and private standards) which firms need to comply with if they want to operate in a given market. Differences in regulations and institutions between markets may influence production and composition choice, and thus may lead to product differentiation.

These factors explain why firms might decide to provide products with different compositions to different groups of consumers across the Single Market. If these factors vary, there is an incentive to adjust the composition of the products. As a consequence, different product versions of a product can be found in different areas. In general, economic theory concludes that such differentiation is socially efficient under perfect information, and if local conditions differ across both consumer groups and Member States. As a consequence, a degree of spatial differentiation of products is efficient, as it reflects differences in consumer taste, production factors, market structure, and even safety and quality regulations.

---

11 For more details see Russo, Menapace, and Sansone (2020).
Box 1. The meaning of “quality” in economics

In the economic literature (especially in the Industrial Organisation literature), the word “quality” is used in many different contexts to refer to any type of product differentiation. It refers to the nature and intensity of product attributes or characteristics (Lancaster 1966). Products serving the same purpose, but with different attributes or characteristics are “of different quality”. It must be noted that the term may refer to a vertical idea of “quality level” (e.g., high quality versus low quality products), and a horizontal notion of “different variety” (such as different flavour or colour) alike. In this sense, it includes the case of differences in composition of seemingly identical branded (food) products (DC-SIP). An important distinction is the attributes’ classification in search, experience, and credence. This classification is based on the ability of consumers to learn about the “quality” of a product before purchase (search quality), after purchase (experience quality), or not at all (credence quality). DC-SIP concerns differences in experience or credence attributes.

4.1 Market separation and discrimination as possible sources of DC-SIP

Product differentiation does not usually imply DC-SIP. As explained above, product differentiation is contingent on the spatial heterogeneity of factors, including demand factors, production factors, competition, and regulations and institutions, but does not necessarily imply DC-SIP, in the sense that different product versions are marketed similarly or identically (with same or similar packaging) in different markets while they have different composition. A key driver for DC-SIP to emerge is market separation which allows firms to engage in third-degree quality discrimination. That is, DC-SIP can be rationalised as an optimal differential treatment of consumers by firms in separated national markets based on the demand conditions.

The third-degree quality discrimination refers to firms’ ability to discriminate between different market segments or groups of consumers, that is, selling different versions of the same product to different groups of consumers. In the case of DC-SIP, this refers to composition discrimination between consumers in different national markets. The quality discrimination is only possible in the absence of (or restricted) arbitrage or parallel trade between markets. For example, third-degree price discrimination between international markets occurs when it is not possible to buy the good at a low price in one country and resell it at a higher price in another country. In other words, firms can only engage in discrimination across borders when it is possible to keep the national markets separate, which could arise when arbitrage or parallel trade between markets is impeded for legal, institutional, or strategic reasons - e.g., exclusive territories, and territorial supply constraints. In contrast, without separated markets, when parallel trade between countries is possible, firms are not able to engage in third-degree price discrimination across national borders. The possibility of arbitrage would imply that the different versions are made available in markets other than that intended by the manufacturer of the product, and that different versions of the same product would coexist on the same markets.

Consequently, when markets are separate, a profit-maximising firm with market power will have incentives to exploit such market segmentation opportunities, to extract profits from consumers. With separated markets, a profit-maximising firm with market power can set market-specific values for each of the decision variables under its control (e.g., composition, price). In the context of DC-SIP, a firm can offer different product composition across different markets. In other words, separated markets are a pre-condition for firms to be able to offer country-specific product versions (as in the case of DC-SIP), which are selectively available only in the countries for which they are intended. If

---

12 Other forms of discrimination are first- and second-degree quality discrimination. The first-degree discrimination, or perfect quality discrimination, occurs when firms differentiate product composition for each unit sold, while the second-degree discrimination occurs when firms differentiate product for different quantities sold. The first- and second-degree quality discrimination appear not to be relevant for DC-SIP because both imply that consumers have access to more than one version of the product of the same brand in a given market (Member State), whereas in the case of DC-SIP only one version is offered in each market. For example, a firm engages in second-degree discrimination when it is not able to engage in third-degree discrimination, essentially because the firm cannot distinguish which consumers belong to which group/segment. In this case, firms provide more than one quality (version) and rely on consumers to (self-) select their preferred quality from those available based on their preferences. In that case, different versions would necessarily be marketed distinctly, for the consumer to be able to distinguish and select his/her preferred version.

13 This is analogous to the more commonly known third-degree price discrimination when firms charge different prices to different groups of consumers for the same product.

14 Arbitrage refers to the practice of taking advantage from a price difference between two or more markets; that is, buying a good at a low price in one market and selling it in another market at a higher price.
markets are not separated, the likelihood that more than one product version is available in any given market increases (provided that consumers in that market have heterogeneous preferences).\footnote{It is in principle possible that preferences are such that only one version is demanded in each market. Nevertheless, this case seems not to be empirically relevant as the only explanation for DC-SIP.}

Overall, the implications for DC-SIP can be summarised along the following three possible cases (Paroush, 1978; Paroush and Peles, 1981; Valletti and Szymanski, 2006; Kyle, 2011):

- **If markets are separated**, country-specific versions of a given product may possibly emerge. The occurrence of DC-SIP practice is possible if barriers between national markets within the Single Market exist.

- **If markets are not separated**, country-specific product versions are likely to be available in countries other than that for which they are originally intended. This means that different versions of a given product would co-exist in a given national market. It might then be profitable for a firm to either remove differences (so that ultimately only one product version is available), or label the different versions (e.g., to use labels/branding, to allow the consumer to distinguish the different versions). The use of distinctive labels/brands is to be expected in order for the firm to avoid any negative effects of consumers’ uncertainty regarding product quality.\footnote{If the product features distinguishing the different versions are search attributes that are easily observable prior to consumption (e.g., size, colour), they do not require branding, labelling, or certification, as consumers can establish the features of the product before purchase.} It follows that the DC-SIP practice is less likely to occur when markets are not separated (i.e., when the EU market is indeed a Single Market) and information on product quality (including composition) is readily available or easy to acquire. DC-SIP could still emerge when preferences between different markets are significantly different, and preference overlap is very modest. Likewise, DC-SIP could still emerge when arbitrage across countries is difficult (e.g., high transportation cost, and low price-quality differential between countries).

- **A theoretical possibility is that when markets are not separated**, composition differences (in the form of “national” product versions) could be introduced by firms to re-establish the ability of the firm to price discriminate internationally. That is, the introduction of national versions helps a firm creating some sort of barriers between countries. This would be the case if a firm manages to separate markets by introducing market-specific versions. A possible example of how introducing versions might contribute to create trade barriers between countries is the use of a limited set of languages on the package, restricting distribution of that version to a specific set of countries. Another possible explanation is that retailers might be reluctant to place “similar” (although not identical) products from the same manufacturer (or with the same brand) on their shelves, to avoid consumer dissatisfaction due to composition differences. However, it must be noted that this third case is only a theoretical possibility, as such a case was not explored in the literature, and it is unclear whether it is empirically meaningful.

**Box 2. Parallel trade**

Parallel trade is a form of arbitrage which undermines the ability of a firm to engage in third-degree price discrimination. There are different doctrines concerning parallel trade. In the USA, the prevailing doctrine is the “first sale” doctrine. This means that once a product is sold, the original owner of the property who had rights over the product loses his/her rights to determine how the product is subsequently sold or distributed. The effect of this doctrine is to prevent price discrimination against consumers in the jurisdiction that applies this doctrine. The European Union has a regime called “community exhaustion”. This means that once products have been sold in any Member State, the intellectual property right holder has lost the right to control/restrict any further movement of the products within the European Union. Nevertheless, this doctrine allows the original property holder to prevent products sold at low prices outside the European Union from re-entering into the European markets. The reason for this regime is to promote the integration of the European Union market.
4.2 Marketing mix strategies to place products in different markets as possible sources of DC-SIP

A different strand of studies linked to international marketing, and international business literature suggest that DC-SIP could arise due to a mix of strategies which firms use to place products in different markets. The 'marketing mix' strategies pursued by international firms across national borders could include either adaptation and localisation of products ('go international'), or standardisation of products ('go global') (Schmid and Kotulla, 2011; Jeong et al., 2018; Ohmae, 1989; Taylor, 1991; Levitt, 1983; Vignali, 2001; Vrontis et al., 2009; Son et al., 2018).

The main benefits of the adaptation and localisation strategy ('go international') are due to factors such as cultural/religious differences, differences in taste and preferences, the existence of country-specific laws and customs, heterogeneity in the ecological and competition environments, and heterogeneity in economic situation (e.g., consumers’ willingness to pay). In turn, the main benefits of the standardisation ('go global') strategy are due to factors such as economies of scale and cost reduction, improved resources allocation, cultural convergence and technology development, increase of border-crossing and tourist activities, harmonisation of internal production, and quality control and global brand reputation.

A third (hybrid) strategy is possible where firms employ a mix of both strategies in order to benefit from local product adaptation ('go international'), and global brand reputation ('go global'), as both have positive relationships with performance. This hybrid strategy might imply DC-SIP because companies offer global brands tailored to local conditions (Figure 1). According to Schmid and Kotulla (2011), the optimal degree of product standardisation/adaptation to achieve performance depends on "four situational fits": (i) cross-national homogeneity of demand, (ii) potential for cross-national economies of scale, (iii) cost of modification of the product, and (iv) foreign price elasticity of demand. These four situations affect the relationship between standardisation/adaptation and foreign product profit. The implications for DC-SIP are such that they are more likely to occur when cross-national heterogeneity of demand is high, potential for cross-national economies of scale are limited, the costs of changing the composition of the product are low, and the elasticity of demand in the foreign market is low (because a potential price increase, generated by increased costs of adapting the product for the foreign market, would have a small effect on quantity demanded when the demand elasticity is low).
4.3 What are the possible reactions of brand owners to, and the market effects of, different DC-SIP regulation options?

To answer this question, numerical simulations using a stylised market equilibrium model were conducted to investigate the possible reactions of brand owners to, and possible market impacts of, hypothetical regulation options of DC-SIP. As mentioned above, the following three regulation options were considered: (i) information disclosure to consumers (i.e., disclosing information on product versions being different across Member States), (ii) setting the ‘product-of-reference’, and (iii) requiring ‘one-market, one-quality’ across Member States (i.e., one product version offered across all Member States). Following Paroush (1978), the model considers two countries with separated markets, where arbitrage is not possible between them. Three firms selling branded products are considered: two local firms, each selling in their own home country, and an international firm selling in both countries. Each firm is assumed to sell only one branded product per country. The stylised model adopts several restrictive assumptions, and as a consequence the results cannot be considered as general predictions of actual policy outcomes. Instead, they are just illustrative examples of possible consequences of hypothetical regulation.

The simulation results obtained from using the stylised market equilibrium model indicate the following:

- DC-SIP may lead to inefficient market allocations if consumers are not able to assess perfectly the differences among the product versions that are sold under the same brand and packaging (i.e., in the presence of consumers’ imperfect information) in different markets. The main reason explaining this effect is distortion of consumer decisions due to lack of information about DC-SIP, which prevents them from taking
an informed purchasing decision. This means that the DC-SIP practice reduces social welfare, and may have unexpected redistribution effects across firms and across consumers. It might be possible that certain groups of consumers benefit from DC-SIP strategies. Similarly, it might be possible that local firms may enjoy higher profits if the international firm engages in a DC-SIP strategy (e.g., when tailoring versions to local demand conditions).

- Information disclosure regulations perform better than mandatory quality regulations (i.e., ‘product-of-reference’, and ‘one-market, one-quality’ policies) to address DC-SIP. Information disclosure regulations still allow firms to adopt socially efficient product differentiation if needed (see above). By contrast, mandatory quality regulations might prevent firms from adapting products to local demand and conditions, even in those cases when consumers might benefit from it.

- Information disclosure policies—if they are successful in reducing the information asymmetry—are socially efficient, but two results of the model must be considered.
  - Firstly, they might have unintended redistribution effects. The change in consumer information is expected to trigger adaptation of the marketing mix (see section 4.2) by regulated firms. Competition forces are expected to determine adjustments in the marketing mix of other firms as well (see Section 4, bullet point 3). The final outcome is a change in the overall market equilibrium. The model supports the theoretical possibility that the emerging equilibrium might result in a reduction of surplus of specific consumer groups and/or in profit losses for firms that were not engaging in DC-SIP strategies before regulation.
  - Secondly, the policy may be difficult to design and implement in practice, as the information requirements may be complex and may differ from consumer to consumer.

- It is possible that mandatory quality regulations which impose the same product composition (‘product-of-reference’, and ‘one-market, one-quality’ policies) in all Member States may have unintended consequences as well. These policies may result in trade reduction, less competition in the market, harm to consumers, and profit loss to firms that were not engaging in DC-SIP strategies before regulation (e.g., local firms).

- Enforcement of specific quality levels such as the ‘product-of-reference’ and ‘one-market, one-quality’ policies could only be socially beneficial if the differences in consumers’ preferences between markets are sufficiently small (i.e., if the difference in consumers quality preferences between markets is small), and if the information deficiency (i.e., imperfect consumer information about DC-SIP) is relatively large. The conditions for avoiding welfare-reducing regulations are stricter for the ‘product-of-reference’ policy than for the ‘one-market, one-quality’ policy.
5  IMPACT OF DC-SIP ON CONSUMERS

5.1  What does the literature suggest about the potential impact of DC-SIP on consumers?\textsuperscript{17}

The literature shows that consumers care about the perceived quality of food products they consume (Grunert, 2005). DC-SIP may thus affect consumers’ purchasing decisions and welfare, if perceived quality differs between versions of DC-SIP products offered in different Member States. When consumers have a choice between product versions, they are expected to choose the version which provides the highest net value (surplus) by comparing perceived quality and price across all versions. The process of consumer quality perception formation, and individual consumer preferences, play a crucial role. As a result, the impact of DC-SIP is not straightforward, and depends on consumer perception formation and preferences, as well as on the price at which products are offered. Presenting consumers with the product version typically offered in a different country-market, instead of with the product version they would be offered under DC-SIP, can affect purchasing decisions and welfare either positively, negatively or not at all (Figure 2).

Depending on the formation of quality perception by consumers, certain differences (particularly small ones) between DC-SIP product versions may go unnoticed, or may not be valued, and will therefore not affect purchasing decisions or consumer welfare. DC-SIP may affect consumer welfare only when consumers perceive and value the quality of the own-country (domestic) product version and product version offered in other countries differently.

If consumers perceive the domestic version to be of higher quality than the version offered in other countries, DC-SIP can have negative, positive, or no impact on consumers:

- When companies succeed in adapting product versions to the specific preferences in each country, then on average the own-country product version will be valued more highly than (and preferred to) other-country versions. As long as the prices do not offset the differences in consumer valuation between versions, consumers would likely prefer and purchase product version offered in their own country. In this case the existence of DC-SIP increases consumer welfare.

- If the price difference exactly offsets the difference in consumer valuation between domestic and non-domestic versions, consumers would not be affected by DC-SIP because they would be indifferent between different versions: the consumer surplus derived from the own-country version would be the same as the surplus obtained from the other-country product version.

- However, if the price difference more than offsets the difference in consumer valuation between the own-country and other-country version, consumers would be affected negatively by DC-SIP because the consumer surplus derived from the own-country version (even though consumers value it more highly) would be lower than it would be if they were offered the alternative product version with its corresponding lower price. This would occur in situations when the price of the other-country version is significantly smaller than the price of the own-country version, so that it would not pay for consumers to purchase the higher valued own-country version if they had the option to choose.

If companies offer different product versions and consumers perceive the version offered in their own country as of lower value, again DC-SIP can have negative, positive, or no impact on consumers, depending on the price at which different versions are offered:

- If the alternative product version offered in other countries can only be offered at a relatively high price, such that the price difference more than offsets the difference in consumers’ valuation between versions, consumers would choose their own country version, and thus the DC-SIP practice is welfare-enhancing. In this case, the other-country version would be perceived as too expensive for consumers even though it is valued higher.

- If instead the price of the other-country version is such that the price difference exactly offsets the consumer valuation difference between versions, then consumers would not be affected by DC-SIP because they would be indifferent between versions.

\textsuperscript{17} For more details see Colen et al. (2020).
However, when the price of the alternative product version is lower, equal or not sufficiently higher as compared to the price of the own-country version, such that the price difference does not offset the additional valuation of the other-country version, then the consumer surplus derived from the own-country version would be lower than if they were offered the alternative product version. In this setting, the DC-SIP practice has a negative impact on consumer welfare and purchasing decisions.
Figure 2. Expected impact of DC-SIP on consumers’ purchasing choices and welfare

Do consumers perceive and value product versions offered in different Member States differently?

Yes

Own version is valued higher than other-country version?

Yes, the price difference is greater than the difference in consumers’ valuation between own- and other-country version

DC-SIP has negative impact on consumers

DC-SIP has positive or no impact on consumers

No, the price difference is equal to or lower than the difference in consumers’ valuation between own- and other-country version

DC-SIP has positive or no impact on consumers

No

Own version is valued lower than other-country version?

Yes, the price difference is equal to or higher than the difference in consumers’ valuation between own- and other-country version

DC-SIP has positive or no impact on consumers

No, the price difference is lower than the difference in consumers’ valuation between own- and other-country version

DC-SIP has negative impact on consumers

DC-SIP does not impact consumers
Formation of consumers’ quality perceptions

The assessment of the impact of DC-SIP on consumers’ purchasing choices and welfare shown in Figure 2 is thus dependent on consumers’ perception of product versions as different. That is, it depends on consumers’ quality valuation of the different product versions. The formation of quality perception by consumers is a complex and often subjective process. Consumers use a variety of signals or cues to infer the quality of food products, which ultimately determines their purchase behaviour (Cox, 1962; Olson and Jacoby, 1972).

When consumers evaluate the quality of a product (i.e., when they form their quality perception of a product), they use (an array of) available signals or cues relating to a product to generate a perception relating to each of the factors that are relevant in their decision-making, and to make a judgement of the product (Cox, 1962). The manner in which consumers derive a quality perception based on signals and cues is relevant to understanding the potential impact of DC-SIP on consumers (Box 1).

The process of food quality perception formation has vertical and horizontal dimensions (Grunert, 2005). The vertical dimension of food quality perception refers to the use of intrinsic or extrinsic cues to infer the food quality of a product. Intrinsic cues refer to the physical properties of the product, such as ingredients, which cannot be changed without also altering the physical properties of the product. Extrinsic cues refer to everything else, such as price, brand name, packaging, store image, and advertising, which is not part of the physical product (Olson and Jacoby, 1972). The extent to which cues are used to infer product quality vary by product and by consumer (Cox, 1962; Steenkamp, 1990). Consumers use only those cues that (i) they believe to be predictive of the quality they want to evaluate; and (ii) they feel confident in using (Cox, 1962; Olson and Jacoby, 1972).

The horizontal dimension of food quality perception refers to consumers’ adjustment of quality perceptions over time (before and after purchase). Before purchase, consumers’ quality assessment is based on observable intrinsic and extrinsic cues. After purchase, their quality perception might be confirmed or disconfirmed when unobservable cues are revealed, or after the product is experienced (tasted), which will determine repurchasing decisions. Credence qualities (e.g., health or organic production processes, the occurrence of DC-SIP, or other characteristics which cannot be observed or experienced by consumers even after consumption of the product) might be revealed by information provided at any stage of the purchasing choice process and may confirm or disconfirm quality perceptions, and will determine consumer satisfaction and consumers’ repurchasing decisions (Oliver, 1980).

The definition of DC-SIP essentially refers to product versions that are different in their intrinsic characteristics, while their extrinsic characteristics (particularly brand) are the same, or largely the same. The literature shows that consumers’ product quality perceptions are often based on extrinsic quality cues (e.g., brand, place of origin, packaging) (Webb and Po, 2000; Erdem and Swait, 1998, Aaker, 1991, Verlegh and Steenkamp, 1999; Silayoi and Speece, 2004), which may result in any intrinsic differences in composition between product versions going unnoticed. That is, when the predictive value of intrinsic cues is low, when consumers do not have confidence in intrinsic cues or in their own ability to interpret them, or when intrinsic cues are difficult to assess because of time constraints, extrinsic cues become more important in the quality judgement process and will lead consumers’ purchasing decisions (Olson and Jacoby, 1972). The more quality perception is based on specific extrinsic quality cues, the less likely it is that DC-SIP will be noticed, and the less likely it is that consumers’ purchasing decision and welfare will be affected by compositional differences between branded products.

Moreover, consumers are confronted with a large amount of information and limited time when making purchasing decisions. As a result, consumers mostly rely on just a few key cues that are easy to assess, from which they form a perception of the overall quality of the product (Selnes, 1993). In that sense, visual cues such as brands and packaging (i.e., front-of-pack information) may play a stronger role than, for example, information provided on the back-of-pack—even though the latter likely provide more and more accurate information on the ingredients or actual composition of the product.

The differences between DC-SIP versions are probably noticed by consumers (and affect their purchasing decisions) only in situations when the intrinsic differences are significant, are important cues for signalling quality, and/or are relatively easily detectable.

Even if differences in intrinsic characteristics are noted upon comparing the two product versions, the likelihood of DC-SIP being detected might be low in many cases, because it is not possible to compare a product version from a different place. Only people travelling often or living close to a border may be able to detect DC-SIP.
When DC-SIP are noticed or people are able to taste/experience the difference, the impact on consumers’ decisions can be expected to be highly heterogeneous. The multitude of combinations and contexts described above—regarding both intrinsic and extrinsic food product cues, the consumer relationships with brands in dissimilar product categories, the time-constrained setting in which consumers tend to make purchasing decisions, the varying consumer relationships to different countries of origin or globality cues, and the information deficiency regarding product versions available in other country markets—predict a very substantial heterogeneity in consumers’ product quality assessment. This heterogeneity is expected to lead to diversity in consumers’ quality perceptions and preferences for the different quality dimensions, between products, shopping contexts or countries. Individual consumers themselves may also act in different ways as time passes (Baltas and Doyle, 2001). As a result, whether or not consumers perceive two product versions as different, whether differences are considered significant, and which of the differences is stronger, is expected to be heterogeneous between countries, between consumers within the same country, between products, and may even depend on the context and situation in which a consumer finds themselves at a particular point in time.

Consumers’ perception of deception and unfairness and the implication of DC-SIP for their food choices

Aside from the question of whether different product versions are perceived and valued differently, the existence of DC-SIP itself may generate consumer reactions.

In most situations, it is likely the case that consumers expect that the branded product they buy in one Member State is the same as the one they would buy in another Member State. Most consumers do not have the chance to verify whether this is true, so it can be considered a credence attribute of the product. That means that, unless information about different versions being offered in different Member States is explicitly and clearly communicated to consumers, the existence of different versions is neither suspected nor detected, and purchasing decisions will not be affected.

An exception are populations living close to borders, living in two countries or travelling frequently, who might therefore do some shopping abroad. The greater the geographical proximity, and the more frequent between-countries consumer travel, the more likely it is that some consumers will be exposed to what happens in the other country’s market. By actually comparing the details on the back of product packaging, or by experiencing similar or identically branded and packaged products offered in different Member States, those consumers themselves may find differences in lists of ingredients, nutritional compositions, taste or texture, etc. Yet, for the larger part of consumers, the existence of different versions is likely neither suspected, nor detected.

Consumers might be exposed to the DC-SIP issue by various means, such as by communication with other consumers, a third party, or via public media. Once people become exposed to the fact that different country-markets receive different product versions, this might result in consumer dissatisfaction and generate a consumer reaction (Oliver, 1980). Strong cultural differences between countries, trust and beliefs, and expectations (what practices to expect from industry) are relevant here, and will guide the direction and strength of reaction, which might differ between and within countries.

The dissatisfaction resulting from consumers’ exposure to DC-SIP might derive from two potential sources:

- **Perceived deception**: Awareness of DC-SIP may disconfirm consumers’ expectations associated with particular brands (e.g., their belief that they are identical across countries, their feeling of belonging to a larger community, their belief that the branded product guarantees a minimum or high level of quality, status associated with brands). This disconfirmation of expectations may lead consumers to feel deceived or misled.

- **Perceived unfairness**: The fact that product versions are not equal across countries may generate a feeling of unfair treatment. The extent of unfairness perceptions depends on the reasons and motivations for DC-SIP. Unfairness perception occurs particularly when consumers perceive that they are treated unequally compared to other consumers (consumers in other countries) (Xia et al., 2004) or perceive DC-SIP as illegitimate, deceptive, unethical (Smith et al., 2010) or generating disproportionate profits to brand owners (Kahneman et al., 1986).

Perceptions of deception or unfairness with respect to DC-SIP are asymmetric: consumers are expected to have a stronger perception of deception and unfairness in markets receiving the lower quality versions, as compared to markets receiving the higher quality versions (Colen et al., 2020). In markets where the higher-quality version is offered, consumers are likely to consider the DC-SIP issue less important.
Both deception and unfairness perceptions might affect consumers’ satisfaction in a product, may generate consumers’ responses, and affect their (re)purchase behaviour. Consumers’ reaction to DC-SIP will ultimately depend on how strongly they believe that product versions vary, and on the magnitude of the perceived unfairness and the disconfirmation of expected brand value (Laufer et al., 2005; Sengupta et al., 2015).

- For consumers with low perceived unfairness and disconfirmation of expectations, their reaction to DC-SIP is likely to be insignificant or could be short-lived.

- If the perceived unfairness is strong or disconfirmation of expectations is sizable, it might generate consumers’ reactions such as reconsideration of purchasing decisions, reduced purchasing intentions, switch to other brands, reduction of the company’s brand trust and image, and breakdown of consumers’ trust in the uniformity or status they associated with global brands.

- Depending on how strongly consumers’ feel about DC-SIP, consumers’ responses may be only a short-term reaction, after which consumers may revert back to their habitual purchase pattern, while if consumers care strongly about DC-SIP, this effect may last longer.

- However, even in the presence of high perceived unfairness and the disconfirmation of expectations, consumers may not necessarily respond by changing their purchasing behaviours, for various reasons. The negative experience may play only a limited role in their motivations for product choice, no better alternative products may be available, they might be budget-constrained, or due to various habits or cultural factors.

- On the other hand, consumers’ non-response to DC-SIP by not changing their purchase behaviours might still lead to a reduction in consumer welfare due to feelings of unfairness or dissatisfaction with brand value if the version offered in the own country-market is perceived to be of lower value.

These analyses of the potential impact of DC-SIP on consumers’ purchasing decisions and welfare are based on the existing conceptual and empirical literature in the fields of demand theory, behavioural economics, marketing and consumer psychology, and other related areas. The existing literature does not provide a specific assessment of DC-SIP. As a result, this analysis did not quantify the exact impact of DC-SIP, but provides understanding of the potential impacts DC-SIP might have on consumers. The magnitude of DC-SIP’s effect on consumers is an empirical question, which is analysed next.

### 5.2 Empirical evidence of the potential impact of DC-SIP on consumers\(^\text{18}\)

While the above analysis provides a general, conceptual understanding of the potential impacts of DC-SIP on consumer choices and welfare, the experiments conducted bring empirical evidence to bear on this issue. That is, the online and lab experiments conducted (Table 2) attempt to provide answers to the first two questions in Figure 2: whether consumers value product versions offered in different Member States differently and, if so, whether they value the domestic version above or below the non-domestic one.

The results of the online experiment (Figure 3) show that for the majority of tested country-product models (23 out of 30 cases), when there is no information provided on which country each version was made for (i.e., no “made for” claim in Treatment 1), the DC-SIP practice has a very limited impact on consumers. This means that consumers are indifferent between the domestic version as compared to versions sold in other tested countries. For the few cases where the impact of DC-SIP was detected, no systematic geographical or product pattern was spotted in terms of consumers’ preference for domestic or non-domestic versions.

When consumers are made aware about the existence of DC-SIP with the inclusion of the “made for” claim\(^\text{19}\) (Figure 3), in a majority of cases they show a preference for one version (the own-country or the other-country version). For 22 out of the 30 tested country-product combinations, consumers indicate a preference for one or the other version. In six cases, there is a preference for the domestic version of the product, in two for the non-domestic version, and in the remaining cases there are negative preferences for the domestic (8 cases) and non-domestic (9) versions\(^\text{20}\). Again, there is no clear geographical pattern in the effect of the “made for” claim. Hence, when consumers are made aware

---

\(^{18}\) For more details see Di Marcantonio et al. (2020).

\(^{19}\) This claim bring to the attention of consumers that the products are different, as they are tailored to different countries.

\(^{20}\) In two cases, there were negative preferences for both domestic and non-domestic versions, whereas in one case both preference for domestic and negative preference for non-domestic were observed.
of different product versions with different composition being offered in different countries, they do react. However, this is not evidence of the impact of DC-SIP itself on consumers, but of the impact of the “made for” claim. As argued above in the conceptual analysis, consumers often use extrinsic signals to infer the quality of food products. The “made for” claim is just such an extrinsic signal and the results of the experiments suggest that consumer choices are affected when this information is revealed to them.

Figure 3. Results from the online experiment

The lab experiment mostly confirms the findings of the online experiment. The results of the lab experiment show that based on tasting, nutritional and ingredient information, participants in the majority of tested country-product combinations (4 out of 6 cases) have no preference for one or the other version (Figure 4). Yet, when participants are informed about DC-SIP by the ‘made for’ claim and for which country the different versions are made (Figure 4), they often do indicate a preference for the domestic version (8 out of 12 cases). However, in 3 out of these 8 cases, one of the other country versions was also preferred.21

21 Note that the total number of tested country-product models were 6 with “made for” claims and 12 without “made for” claims.
Combining the findings of the lab and online experiment, the empirical results suggest that:

- the impact of DC-SIP on consumers' valuation and purchasing decisions is heterogeneous across the studied products and Member States;
- in both settings (lab and online experiments), without information on which country a product version is "made for", no distinct preference for any of the versions is found for a majority of country-product pairs. This suggests that in the absence of explicit information on the occurrence of DC-SIP, the DC-SIP practice has insignificant impact on consumers independent of the method used;
- when consumers are made aware of the existence of DC-SIP via the inclusion of a "made for" claim, there is a reversal of this finding in both settings. In 22 out of 30 product-country pairs for the online experiment, and for 8 out of 12 for the lab experiment, consumers show a preference for one of the versions. This largely confirms that consumers' preferences and choices are affected if they are made aware of the issue, independent of the method used;
- providing consumers with the "made for" claim, results both in preferences for the domestic and for the foreign versions of the products. Therefore, no clear conclusion on the impact on welfare of the "made for" claim when consumers are made aware of it can be drawn.

The experiments analysed DC-SIP's impact on consumers' preferences for a selected number of branded products and Member States. As a result, the analyses are valid only for the products and Member States included in the experiments, and cannot be straightforwardly extrapolated to other products and Member States.
6 Determinants of the occurrence of DC-SIP between Member States

The previous sections have attempted to provide understanding of the DC-SIP issues from the producer side (i.e., the incentives driving firms to offer seemingly identical products which have different compositions) and from the consumer side (i.e., the potential impact of DC-SIP on consumer choices and welfare). This section provides empirical evidence by considering both demand- and production-related factors, in an attempt to establish which factors explain the occurrence of DC-SIP between Member States. More specifically, the econometric estimates that were used to derive the results indicate whether a given demand- or production-related factor increases, decreases or does not affect the probability that Member States will have different versions of seemingly identical branded food products. The key results of the estimates are as follows (Table 4):

- The difference in GDP per capita is considered to account for potential differences in willingness to pay for products between Member States. The estimated results show that a greater difference in income level between two Member States increases the probability that the two Member States will have different versions of seemingly identical branded food products. If two Member States have identical income levels, the probability that the product versions offered in these two countries are different is 39%. As the income gap increases, the probability of the occurrence of DC-SIP between the country-pairs increases. For the country-pair with the greatest income difference, which is the country-pair Denmark and Bulgaria, the predicted probability of a product being different is 52%.

- Two variables were considered to control for cross-country differences in consumers’ preferences: the dietary index and the attitude index. The dietary index aims to derive preferences from current consumption patterns, while the attitude index captures consumers’ attitudes towards different product characteristics (e.g., whether it is organic, country of origin, respect for local tradition). The dietary index is found to have a positive impact on the probability of the occurrence of DC-SIP between Member States, while the attitude index has a statistically insignificant impact. That is, in the case of the dietary index, a greater difference in the index between Member States increases the probability that firms offer different product versions between Member States.

- Although the difference in food group price level between two Member States has a positive effect on the occurrence of DC-SIP, the magnitude of this effect is relatively small. This small magnitude implies that the probability of the occurrence of DC-SIP between Member State pairs increases as the price difference between Member States increases, but this effect is relatively minor.

- As the distance between two Member States increases, the probability that product versions are identical decreases. This relationship is expected, as products sold in Member States that are further apart are less likely to come from the same production plant. As products sold in the EU may originate from various production plants, products coming from the same manufacturing plant may be more likely to have a similar set of ingredients.

- If a product is produced by an international company, the probability of the product being different in the country-pair increases by around 8%. This could be because larger (multinational) companies can divide the fixed cost of product development among several markets, might be in a better position to benefit from global brand reputation, or might be in a position to maintain greater product portfolio and to access more markets.

- Similarly, less complex products—products with less than four ingredients—are about 25% less likely to have different composition for a given country-pair. This is because companies may have less incentive to create different versions of less complex products, given that the degree of freedom to create a new version is lower. The more ingredients a product contains, the more options firms have for adapting products to a local market. Also, as products may be produced at several production plants located in different countries, sourcing an identical bundle of ingredients across various plants may be more challenging for a firm as the number of ingredients increases.

- A shared official language between two Member States tends to reduce the probability of different versions being sold in the two Member States.

---

22 For more details see Nes, Ciaian, and Di Marcantonio (2020).
A greater difference in the design of the front-of-pack predicts a greater probability of DC-SIP. Compared to a product with an identical front-of-pack, a product with a similar front-of-pack appearance between country-pairs is around 22% more likely to be offered in different versions, while products with a different front-of-pack are around 37% more likely to be different versions between country-pairs.

Specific characteristics of different product categories and country-specific factors are also found to impact the presence of DC-SIP between Member States, which suggests that potential structural differences between categories of branded products and Member States affect whether versions are different or the same between Member States.

Table 4. Determinants of the occurrence of DC-SIP between Member States, derived from econometric estimates

<table>
<thead>
<tr>
<th></th>
<th>Effect on probability of occurrence of DC-SIP between Member States</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Consumer factors</strong></td>
<td></td>
</tr>
<tr>
<td>Difference in GDP per capita between Member States</td>
<td>Increases</td>
</tr>
<tr>
<td>Difference in food group price level between Member States</td>
<td>Increases</td>
</tr>
<tr>
<td>Difference in diet index between Member States</td>
<td>Increases</td>
</tr>
<tr>
<td>Difference in attitude index between Member States</td>
<td>No impact</td>
</tr>
<tr>
<td><strong>Production factors</strong></td>
<td></td>
</tr>
<tr>
<td>Difference in distance between Member States</td>
<td>Increases</td>
</tr>
<tr>
<td>Multinational company</td>
<td>Increases</td>
</tr>
<tr>
<td>Less complex products (products with less than four ingredients)</td>
<td>Decreases</td>
</tr>
<tr>
<td>Shared Official Language between Member States</td>
<td>Decreases</td>
</tr>
<tr>
<td>Difference in front packaging between different versions of the same branded products</td>
<td>Increases</td>
</tr>
<tr>
<td><strong>Other factors</strong></td>
<td></td>
</tr>
<tr>
<td>Product category and country-specific factors</td>
<td>Increases or decreases depending on the product category or Member States</td>
</tr>
</tbody>
</table>
7 Conclusions

The results of the economic analyses of DC-SIP in the Single Market described in this report allow the following conclusions to be drawn, relating to the three objectives of the project:

Incentives of brand owners for using DC-SIP practices (Objective 1):

- Conceptual analyses suggest that drivers that might motivate firms to offer products with different composition in different markets include spatial heterogeneity in demand factors (such as consumer preferences, culture, social and demographic characteristics), production factors (such as factor costs, economies/diseconomies of scale, fixed versus variable costs of providing different varieties), competition (such as the intensity and the nature of rivalry) and regulations/institutions. However, these factors might not necessarily lead to DC-SIP.

- The existence of separate national markets (e.g., due to territorial supply constraints) is the main precondition for DC-SIP to occur. When markets are separate, the rationale for the practice of DC-SIP is expected to be part of a firm's optimal strategy to maximise profits. A firm will adapt (or not adapt) the composition of the product, and offer (or not offer) national versions depending on market conditions (supply and demand), and on the ability of a firm to exploit differences and the separation of national markets.

- DC-SIP could arise as a result of a mix of marketing strategies that international firms pursue to place products in different markets. These strategies could include adaptation ('go international') or standardisation ('go global') of products across markets. DC-SIP may occur when firms engage in a hybrid strategy encompassing both adaptation and standardisation, as both have positive relationships with performance. This hybrid strategy might imply DC-SIP because companies offer global brands tailored to local conditions.

- Numerical simulations using a stylised market equilibrium model suggest that (i) the DC-SIP practice reduces social welfare and may have unexpected redistribution effects across firms and across consumers; (ii) policies ensuring that consumers have enough information to assess products perfectly (information disclosure) is the best option for tackling DC-SIP, as it restores market efficiency and maximises social surplus; (iii) mandatory quality regulations which impose the same product composition ('product-of-reference', and 'one-market, one-quality' policies) in all Member States appear to be inferior to information disclosure regulations, as they may have unintended consequences and are socially efficient only under specific circumstances.

Impact of DC-SIP on consumers (Objective 2):

- Conceptual analyses show that perceived quality and preferences determine how consumers value a product. The formation of consumers’ perception of DC-SIP is a complex process, as consumers take in consideration different intrinsic (e.g., composition) and extrinsic signals (e.g., brand, geographical origin, brand) to infer food quality. Moreover, DC-SIP may lead to consumer perception of deception (disconfirmation of expected value of branded products) and perception of unfairness (resulting from product versions not being equal across countries). As a result, the impact of DC-SIP on consumer choices could be nil or unnoticed, positive or negative, and heterogeneous across consumers within a Member State:
  - DC-SIP might be unnoticed or not taken in consideration when making purchasing decisions because consumers often use extrinsic signals to infer the quality of products rather intrinsic signals (i.e., composition).
  - Consumers might be more likely to be affected by DC-SIP when differences in composition are significant between different versions.
  - Price differences between different versions may offset the consumers’ valuation differences between the versions and thus may affect consumers’ purchasing decisions. For example, even if composition is significantly different between versions and the versions are valued differently by consumers, consumers may still prefer the perceived lower quality version if it is significantly cheaper than the perceived higher quality version.
  - The mere occurrence of DC-SIP may affect consumers’ choices and welfare if consumers’ perceptions of deception and unfairness are strong.

- The results of behavioural experiments show that if consumers are not informed about which country each version of the product is “made for”, in the majority of cases they are indifferent between versions for tested products in selected Member States. There is no evidence of geographical patterns of difference in preferences for DC-SIP products. These results indicate that the DC-SIP practice does not impact consumer choices when its presence is not made explicit to consumers.
However, when consumers are informed about which country each version of the product is “made for”, in the majority of cases they prefer one of the versions. There is a clear preference for domestic or non-domestic versions in the online experiment, whereas there is prevalence for domestic versions in the lab experiment. These results suggest that it is the provision of information about which country the product version is “made for” and thus the awareness about the existence of DC-SIP that generates the preference for one of the versions.

Determinants of the occurrence of DC-SIP between Member States (Objective 3):

Econometric estimates show that a greater difference in income level between two Member States increases the probability that the two Member States have different versions of seemingly identical branded food products. The analyses also show that, although the income difference between two Member States is a driver of DC-SIP, other factors—such as heterogeneous consumer preferences across Member States, distance between Member States, company size, price level and product complexity—also contribute to a firm's motivation to offer different versions of seemingly identical branded food products in different Member States. Specific characteristics of different product categories and country-specific factors are also found to impact the occurrence of DC-SIP between Member States.
REFERENCES


Néhib. (2017). Kiadvány a Magyarországon és külföldön forgalmazott élelmiszerek 2017. Évi összehasonlító vizsgálatának tapasztalatairól. https://portal.nebih.gov.hu/documents/10182/323140/03.29_Terme%cc%81ko%cc%88sszehasonl%cc%81ta%cc%81s_kiad%cc%81n


Olson, J.C., and Jacoby, J. (1972). 'Cue utilization in the quality perception process.' ACR Special Volumes.


ACKNOWLEDGEMENTS

The authors would like to acknowledge participants in the stakeholder meetings held on 14th May 2019 in Seville and 14th February 2020 in Brussels, where early versions of this report were presented and comments were received. Moreover, they are grateful to their European Commission colleagues: Franz Ulberth, Elke Anklam and Giampiero Genovese (JRC) for valuable inputs and support in different phases of the study, and Stefano Soro and Jaroslaw Swierczyna (DG GROW) for their close collaboration.
**List of Abbreviations**

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>DC-SIP</td>
<td>Differences in Composition of Seemingly Identical branded Products</td>
</tr>
<tr>
<td>DG GROW</td>
<td>Directorate-General for Internal Market, Industry, Entrepreneurship and SMEs</td>
</tr>
<tr>
<td>EU</td>
<td>European Union</td>
</tr>
<tr>
<td>JRC</td>
<td>Joint Research Centre</td>
</tr>
<tr>
<td>NGO</td>
<td>Non-governmental organisation</td>
</tr>
<tr>
<td>UCPD</td>
<td>Unfair Commercial Practices Directive</td>
</tr>
</tbody>
</table>
List of Tables

Table 0. Summary of the methods used, the products, and markets analysed in the report ........................................2
Table 1. The structure of the analyses .....................................................................................................................7
Table 2. Methodological approach ........................................................................................................................10
Table 3. Products tested in each country for the lab and online experiments ..........................................................11
Table 4. Determinants of the occurrence of DC-SIP between Member States, derived from econometric estimates ....27
LIST OF FIGURES

FIGURE 1. MARKETING MIX STRATEGIES PURSUED BY INTERNATIONAL FIRMS TO PLACE PRODUCTS IN DIFFERENT MARKETS........................................16
FIGURE 2. EXPECTED IMPACT OF DC-SIP ON CONSUMERS’ PURCHASING CHOICES AND WELFARE..................................................................20
FIGURE 3. RESULTS FROM THE ONLINE EXPERIMENT.........................................................................................................................24
FIGURE 4. RESULTS FROM THE LAB EXPERIMENT..........................................................................................................................25
GETTING IN TOUCH WITH THE EU

In person
All over the European Union there are hundreds of Europe Direct information centres. You can find the address of the centre nearest you at: https://europa.eu/european-union/contact_en

On the phone or by email
Europe Direct is a service that answers your questions about the European Union. You can contact this service:
- by freephone: 00 800 6 7 8 9 10 11 (certain operators may charge for these calls),
- at the following standard number: +32 2299696, or
- by electronic mail via: https://europa.eu/european-union/contact_en

FINDING INFORMATION ABOUT THE EU

Online
Information about the European Union in all the official languages of the EU is available on the Europa website at: https://europa.eu/european-union/index_en

EU publications
You can download or order free and priced EU publications from EU Bookshop at: https://publications.europa.eu/en/publications. Multiple copies of free publications may be obtained by contacting Europe Direct or your local information centre (see https://europa.eu/european-union/contact_en).
The European Commission’s science and knowledge service
Joint Research Centre

JRC Mission
As the science and knowledge service of the European Commission, the Joint Research Centre’s mission is to support EU policies with independent evidence throughout the whole policy cycle.