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## The impact of consumer protection in the digital age: Evidence from the European Union

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# DISCUSSION PAPER

NO 330

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**Justus Haucap**  
**Ulrich Heimeshoff**

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# The Impact of Consumer Protection in the Digital Age: Evidence from the European Union

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## Abstract

We investigate the effect of an EU-wide consumer protection regulation on consumer trust as well as consumer behavior. The Unfair Commercial Practice Directive (UCPD) was implemented by EU member states between 2007 and 2010. We utilize data from the Special and Flash Eurobarometer for the years between 2006 and 2014 and experts' evaluation on consumer protection levels before the introduction of the regulation. This rich data set allows us to apply a difference-in-difference estimator with multiple time periods. We find a significant relationship between the introduction of the UCPD and consumer trust and cross-border purchases for countries with a low consumer protection level before the introduction of the UCPD. The relationship increases over time and stays then relatively constant.

*JEL Codes:* D18, K20, L50, L51

*Keywords:* Consumer Protection, UCPD, B2C, E-Commerce, Consumer Trust, Cross-border Purchase

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## 1. Introduction

In 2017, more than half of the 560 million consumers in the European Union shopped online, but only 13 percent of them shopped cross-border ([Eurostat \(2018\)](#)). Although digital technologies have the potential to reduce information costs, negative distance and border effects still exist in online business-to-consumer (B2C) cross-border trade ([Gomez-Herrera et al. \(2014\)](#), [Cowgill & Dorobantu \(2012\)](#), [Blum & Goldfarb \(2006\)](#), [McCallum \(1995\)](#)). As e-commerce is a global phenomenon, it is connected with several issues such as language barriers, cultural differences or trust frictions ([Gomez-Herrera et al. \(2014\)](#), [Cowgill & Dorobantu](#)

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(2012), [Blum & Goldfarb \(2006\)](#), [McCallum \(1995\)](#)). To support the development of an integrated European market - a digital single market - the European Commission has long engaged in extensive harmonization exercises. Moreover, consumer authorities argue for international standards regarding consumer protection and data security ([Craswell \(1982\)](#), [Pitofsky \(1977\)](#)).

Consumer protection has gained more prominence in recent years. Many recent developments demonstrate the high relevance of consumer protection and regulation of e-commerce in the European Union. In 2018, the European Commission published a draft for a new guideline called “New Deal for Consumer” ([European Commission \(2018\)](#)).<sup>1</sup> The increasing focus on e-commerce is not confined to European activities but also illustrated by initiatives of the World Trade Organization for a public-private dialogue on e-commerce in 2017 ([World Trade Organization \(2017\)](#)).

E-commerce has a significant impact on economic growth and trade (see e.g., [Terzi \(2011\)](#)). As information costs are reduced and distance becomes less important, markets expand in size and competition intensifies. While consumers unambiguously benefit from market expansion and more intensive competition, effects on sellers are more ambiguous: Although they benefit from markets expansions (e.g., [Grandon & Pearson \(2004\)](#)), as they can reach out to more potential customers, they also face more intensive competition.

The EU single market policy seeks to eliminate barriers to cross-border flows of goods, services, capital and labor between the EU member states. E-commerce contributes to this and thus plays an important role in EU policy. However, a general European standard in terms of consumer protection has been missing for a long time. To boost consumer confidence and to make it easier to trade across borders, the European Parliament and the European Council passed the Unfair Commercial Practice Directive (UCPD) as Directive 2005/29/EC ([Council of European Union \(2005\)](#)). It regulates unfair business practices in the European Union, as part of European consumer law, based on the principle of *minimum* harmonization. In order to remove internal market barriers and to increase legal certainty for both consumers and businesses, the UCPD was passed by the European Parliament and the European Council in 2005 and enacted into national law by member states from 2007 on. The aim was a European minimum standard for consumer protection at a specific level. Consumers’ uncertainty about different consumer protection standards was seen as a significant barrier to online cross-border shopping by final consumers. Hence, EU-wide protection of consumer rights is a key pillar in the EU’s consumer agenda.

Our paper now analyzes the UCPD’s effects on consumer trust and shopping behavior within the EU. More specifically, in terms of consumer attitudes we analyze the UCPD’s effects on consumer trust vis-à-vis retailers and services located in consumers’ home countries and on consumers trust vis-à-vis public enforcement authorities. By analyzing purchases consumer have made cross-border, i.e., from other EU member states,

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<sup>1</sup>The key goal is to strengthen consumer protection by building on existing consumer policy framework concerning unfair business-to-consumer commercial practices. The commission proposed modern rules to fit the fast-changing markets and business practices which are part of the today’s digital markets. Amongst others, public and private damage claims as well as fines from national consumer protection authorities are part of this new deal.

as well as purchases from their own country, we can compare consumers' shopping behavior and how it is affected by the UCPD. As online shopping has gained more and more relevance in recent years and the main channel for cross-border purchases is online-shopping, we are focusing on consumers' attitudes and shopping behavior towards online B2C purchases.

We use data from different sources: First, the Eurobarometer survey which contains information about consumer attitudes concerning trust as well as their behavior in terms of online shopping. Second, data from private consultancy Civic Consulting is used which includes different indicators, most importantly evaluations of consumer protection levels, provided by legal and consumer protection experts. As we expect different outcomes for different consumer protection levels, these evaluations allow us to build different groups of consumer protection level which are used for the empirical analysis.

Applying a multiple difference-in-difference (DiD) approach, we show that the UCPD has indeed a significant effect on (i) consumer trust and trust into public authorities as well as on (ii) cross-border purchases while homeshopping is not affected. The introduction of the UCPD increased consumer trust vis-à-vis retailers and services in their home country and trust vis-à-vis public authorities. Moreover, online purchases from other EU countries increased after the introduction of the UCPD. We show that the effect is increasing over time for both trust measures and relatively constant for cross-border purchases. Furthermore, the effects are estimated to be robust and not sensitive to our tests.

This paper is related to different strands in both the economics and legal literature. There are several studies that examine consumer trust in the digital age in general without any focus on the UCPD ([Culnan & Armstrong \(1999\)](#), [Doney & Cannon \(1997\)](#), [Gefen & Straub \(2004\)](#), [Hoffman et al. \(1999\)](#), [Jarvenpaa et al. \(2000\)](#), [Lee & Turban \(2001\)](#), [Lim et al. \(2006\)](#), [McKnight & Choudhury \(2006\)](#), [Palvia \(2009\)](#), [Teo & Liu \(2007\)](#), [Wright et al. \(2009\)](#)). Conditions under which consumer trust in online retailing increases are, to some extent, addressed by the UCPD. Of course, other relevant but non-regulatory factors exist that contribute to consumers' trust in online retailers as [Lim et al. \(2006\)](#) have shown. Our study contributes to previous research by examining consumer trust and cross-border purchase after the introduction of minimum consumer protection regulations within the European Union. Previous studies have focused on the consumer-retailer relationship and how retailers may gain consumer trust. Our study analyzes the regulatory framework that may support consumer trust in retailers and services as well as cross-border purchase. We also contribute to the strand of regulation literature. To the best of our knowledge, the effects of the harmonization of consumer protection regulations in the European Union have not been empirically analyzed before. Hence, we are the first to investigate whether the UCPD did actually affect consumers' attitudes and shopping behavior.

This paper is also related to legal studies that have examined the introduction of the UCPD. In contrast to our study, these papers have analyzed the UCPD from a purely legal perspective ([Collins \(2005, 2010\)](#), [Gomez \(2006\)](#), [Schulte-Nölke \(2007\)](#), [Velentzas et al. \(2012\)](#), [Wright et al. \(2009\)](#)). As most studies suggest, the UCPD may be a first step to full harmonization in terms of consumer protection and to contribute to

the goal of a digital single market. Among others, especially [Collins \(2010\)](#) and [Osuji \(2011\)](#) state that the UCPD alone will not be sufficient for full harmonization. This is especially relevant concerning our results. We contribute to this strand of literature as we show that the UCPD had a significant treatment effect on consumers' behavior although it does not achieve a full harmonization of consumer protection regulations in the EU. We leave it open whether full harmonization is necessary or preferred over the current UCPD.

As our study analyses the effects of the Unfair Commercial Practice Directive, we contribute to the broad economic literature on policy evaluation. Early policy evaluation studies were conducted by [Ashenfelter \(1978\)](#), [Ashenfelter & Card \(1985\)](#), [Heckman & Robb Jr \(1985\)](#), [Angrist \(1990\)](#), [Angrist & Krueger \(1991\)](#), [Angrist et al. \(1996\)](#), [Card \(1990\)](#), [Card et al. \(1994\)](#), [Heckman \(1990\)](#), [Manski \(1990\)](#). More recently, policy evaluation focuses on the examination of treatments as we do in our study (among others [Angrist & Lavy \(1999\)](#), [Angrist & Pischke \(2008\)](#), [Athey & Imbens \(2017\)](#), [Blundell & Dias \(2002\)](#), [Donald & Lang \(2007\)](#))<sup>2</sup>. The growing literature on causal treatments in program evaluation often uses a difference-in-difference estimators with multiple treatments and multiple time periods. This method, developed by [Athey & Imbens \(2006\)](#) and refined by [Imbens & Wooldridge \(2009\)](#), is also used in this paper. With respect to consumer protection measures, the program evaluation literature is relatively small. In fact, most of the consumer protection measures implemented at the EU level are not subject to any systematic ex post evaluation. Hence, our paper contributes to the growing literature on evidence-based policy analysis. In particular, we contribute to the literature by analyzing whether the UCPD has achieved its own objective, which has been formulated by the European Commission as follows: “The objective of the new EU rules on unfair commercial practices from 2005 was to boost consumer confidence and make it easier for businesses, especially small and medium-sized enterprises, to trade across borders.”<sup>3</sup>

Our paper is structured as follows: Section 2 describes the underlying economic problem that the Unfair Commercial Practices Directives addresses and our theoretical expectations about its introduction. In Section 3, data and the identification strategy are discussed. Results are discussed in Section 4, before Section 5 concludes.

## 2. Regulation and the Unfair Commercial Practices Directive (UCPD)

### 2.1. Information problems in online cross-border shopping

The internet has greatly reduced information and travel or transport cost so that consumers can, in principle, easily purchase from retailers located far away from home. Shipping goods over long distances has become relatively cheap and the internet enabled consumers to inform themselves about offers of retailers that are located far away. For consumers to engage in online shopping, they need to trust retailers who promise to

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<sup>2</sup>A very good summary of policy evaluation and methods is provided by [Abadie & Cattaneo \(2018\)](#).

<sup>3</sup>See, e.g.: [https://ec.europa.eu/info/law/law-topic/consumers/unfair-commercial-practices-law/unfair-commercial-practices-directive\\_en](https://ec.europa.eu/info/law/law-topic/consumers/unfair-commercial-practices-law/unfair-commercial-practices-directive_en).

fulfill consumer orders and to guarantee certain quality and service levels. While retailers have developed various practices to build consumer trust, shoppers still need more trust than in brick and mortar stores where they immediately take away their purchases.

A particular problem of cross-border purchases is that consumers will be often unfamiliar with foreign consumer protection standards. While consumers may have some basic understanding about typical consumer protection levels at home, online shopping abroad may be considered even more risky, as foreign consumer protection standards are less well known. In the European Union, consumers are unlikely to have expert or even lay knowledge about consumer laws of 28 different member states within the European Union. Given the costs involved in finding out and understanding foreign consumer protection legislation, consumers may refrain from shopping abroad, but rather shop at home. Put differently, consumers are likely to have some basic understanding of relevant consumer protection standards in their home country, but they are unlikely to be familiar with consumer protection standards abroad. Hence, consumers may be more reluctant to shop online abroad.

## *2.2. The Unfair Commercial Practices Directive (UCPD)*

The UCPD intended to set minimum standards for consumer protection, but does not replace higher national standards. Hence, after the adoption of the UCPD consumers could rely, at minimum, on the rules provided in the UCPD. From an information economic perspective this means that, even if consumers lack knowledge about the particular consumer protection standards in place in any of the 28 member states, they could rely on the minimum standard provided by the UCPD.

The UCPD was one of the most significant European pieces of legislation that affects how markets operate in the European Union. The main focus are unfair commercial business-to-consumer practices in the internal market ([Commission of the European Communities \(2005\)](#)). The directive has thereby two main goals: on the one hand, to achieve a minimum harmonization of national rules concerning unfair commercial practices, and on the other hand, to successfully implement a guaranteed consumer protection level. The first is a complex task, as many countries in the European Union had very few rules or relatively low standards concerning unfair commercial practices, making cross-border online shopping particularly risky.

It is sometimes argued that harmonized consumer protection standards can - possibly as an unintended consequence - reduce market competition, as (i) offers with lower standards are excluded from the market and (ii) firms can no longer compete in different standards. The latter is only true for full harmonization though. Minimum standards in contrast still allow for competition, even though lower protection standards are excluded, which is the first risk mentioned above. This argument, however, assumes that consumers make informed decisions about purchases from countries with different protection levels. In reality, it seems plausible that many consumers are not well-informed about 28 different standards and find it too costly or troublesome to acquire and process this information. In this case, risk averse consumers may prefer the shop from sellers in their home country, so that competition between home and foreign retailers becomes *less*



intense. In this case, minimum standards even *foster* competition, as they resolve information problems and facilitate competition between home and foreign retailers.

In fact, [Gomez \(2006\)](#) argues that the directive is necessary to mitigate information asymmetries. These might arise especially from firm behavior affecting communication, advertising, sales promotion, contracting and pre-contracting conduct.

In terms of misleading commercial practices, the UCPD prohibits false information. The UCPD refers to the average consumer's right to correct and complete information. In addition, the UCPD prohibits aggressive commercial practices which include harassment, coercion or influence. The UCPD is intended to protect the freedom of choice of the average consumer which may not be given under aggressive commercial practice if the average consumer is caused to take a transactional decision that he or she would not have taken otherwise ([European Parliament and Council \(2005\)](#), [Willett \(2010\)](#)).

### *2.3. Expectations*

Many consumers are unfamiliar with consumer protection levels in foreign countries. Hence, consumers may be reluctant to shop abroad, as gathering correct information about foreign laws and regulations can be costly. The introduction of a minimum standard through the UCPD at EU level can mitigate this information problem, as consumers can now trust in a minimum level of consumer protection even if they are still unfamiliar with the detailed consumer protection level in any particular country. This effect should be particularly strong in countries with initially low levels of consumer protection, as consumers will learn that consumer protection levels rise after the introduction of the UCPD, both at home and abroad. In particular, they can infer that the same minimum protection level will be guaranteed EU wide. In contrast, consumers from countries with already high levels of consumer protection may not learn much about changed protection levels abroad if the level of consumer protection at home remains largely unchanged. Hence, we expect trust to rise in response to the minimum standard provided by the UCPD especially in countries with initially low levels of consumer protection. Consequently, we also expect cross-border trade to be affected the most in these countries.

The introduction of the UCPD should consequently lead to higher consumer protection standard in member states with initially low consumer protection standards. Hence, consumers should have an increased trust in retailers and services providers as well as in public authorities. This is especially true for consumers in countries with a low consumer protection level before the introduction of the UCPD. Consequently, we expect cross-border purchases to also increase.

### 3. Data and empirical strategy

#### 3.1. Data

The main data is collected from Eurobarometer<sup>4</sup>, which is a survey conducted on behalf of the European Commission. It was established in 1974 and contains beside the Standard Eurobarometer, which is collected once a year, Special and Flash Eurobarometer surveys. While the Standard Eurobarometer contains questions about general opinions concerning the European Union as well as demographic characteristics of the persons surveyed, Flash Eurobarometer are ad hoc thematic interviews. Special Eurobarometer are based on in-depth thematic studies carried out for various services of the European Commission or other EU institutions. Each survey consists of approximately 1,000 interviews per country, conducted partly by telephone and partly face-to-face in all European countries. Access to data from Eurobarometer is granted by GESIS – the Institute for Social Sciences, which provides a collection of all waves of Standard, Special and Flash Eurobarometer surveys on the individual level. This leads to an overall sample of 179,724 respondents representing the 28 member states of the European Union<sup>5</sup> between 2006 and 2014.<sup>6</sup>

As we are analyzing attitudes and trust of consumers concerning cross-border purchases, we are focusing on four main outcome variables, namely consumer trust and public authority trust as well as cross-border purchase and homeshopping. Concerning consumer trust the respondents were asked how strongly they agree or disagree to the following statement: “In general, retailers and services providers respect your rights as a consumer”. The resulting categorical variable of how strongly consumers trust in the retailers in services of their own country contains four different categories ‘strongly agree’, ‘agree’, ‘disagree’ and ‘strongly disagree’.

For the variable public authority trust, respondents were asked to what extent the respondents trust the public authorities to protect their rights as consumers. Respondent had the same four different answer possibilities as for consumer trust.

For the third main variable, cross-border purchase, respondents were asked if they had at least one purchase in another EU country in the last 12 months. This variable is an indicator that turns one if the respondent had at least one purchase (via internet) in another EU country than their own in the last 12 months, and remains zero otherwise.<sup>7</sup>

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<sup>4</sup>The used data sources are in detail: Special Eurobarometer 252 (2006), Special Eurobarometer 298 (2008), Flash Eurobarometer 282 (2009), Flash Eurobarometer 299 (2010), Flash Eurobarometer 332 (2011), Flash Eurobarometer 358 (2012), and Flash Eurobarometer 397 (2014).

<sup>5</sup>The Unfair Commercial Practice Directive was not only implemented within member states of the European Union but rather within the European Economic Area (EEA) so that countries such Iceland and Norway also implemented the regulation into national law. As Civic Consulting is not providing data for countries other than EU member states, we excluded countries of the EEA which are not part of the EU from our dataset.

<sup>6</sup>No Eurobarometer surveys are available in 2007 and 2013 that focused on consumer attitude or shopping behavior.

<sup>7</sup>In general, respondents had four different answer possibilities: “Yes, via internet”, “Yes, via telephone”, “Yes, via door-to-door advertising” or “No”. We chose to exclude the possibilities of ordering via telephone or door-to-door advertising from the sample as this study focuses on online shopping purchases. Unfortunately, in the years 2006 and 2008, the question did not distinguish between online and offline cross-border purchase so that shares of cross-border purchase do not exclusively refer to online shopping in these two years. In later years, the share of consumers who ordered products offline was extremely low. Although this may reflect a decreasing time trend, we believe that the share of offline cross-border purchases was also very low before 2008. However, in any case, purchases made during vacation or business trips in other countries are explicitly excluded.

The last main variable is called homeshopping. Here, respondents were asked whether they had at least one purchase in the past twelve months from their current home country. The same answer possibilities as for cross-border purchase are given which results in an indicator variable that turns one if respondent had at least one purchase in the past 12 months (via the internet) at a retailer or service provider located within their home country.

In a next step, other individual level data from the same Eurobarometer surveys were added, such as an indicator that turns one for female, a continuous variable for age ( $\log(age)$ ) and its squared term ( $\log(age)^2$ ) as well as an indicator whether nationality differs from the current living country. The data were then matched with country level data from Eurostat to control for country-specific effects such as the share of internet access (as percentage of population), the log of GDP per capita at respective prices ( $\log(GDP)$ ), unemployment shares (as percentage of population) as well as the actual share of cross-border purchases (as percentage of population).<sup>8</sup>

This sample was then matched with variables of consulting firm Civic Consulting which contributed an index for the level of consumer protection in the particular country before the introduction of the Unfair Commercial Practice Directive (pre-UCPD). This leads to an ordinal variable with five different outcomes, where the value 1 is the worst pre-UCPD evaluation level and 5 the best. Moreover, they provide an indicator (incident) that turned one if a country faced a crisis or unexpected event that may affected consumer trust.<sup>9</sup>

### 3.2. Identification strategy

We analyze the effect of the UCPD on four main outcomes: consumer trust and public authority trust as well as cross-border purchase and homeshopping. We firstly analyze descriptive statistics to identify suitable identification strategy for each dependent variable.<sup>10</sup> Figure 1 shows consumer trust over time by the different treatment groups, namely legal pre-UCPD experts' evaluation level of consumer protection. This figure shows that the different consumer protection levels perfectly fit consumer trust levels. A country with a high consumer protection standard before the UCPD correlates with high consumer trust in this country and vice versa. The overall shape of Figure 1 shows a decrease from 2006 to 2008 for all pre-UCPD consumer protection evaluation levels, followed by an increase for the lowest evaluation type. Especially, the very low evaluated countries strongly increase their trust during the observation time. Moreover, the lowest rating did not suffer from a decrease in consumer trust in 2012 as much as the other groups, although the increase lowers to a small extent.

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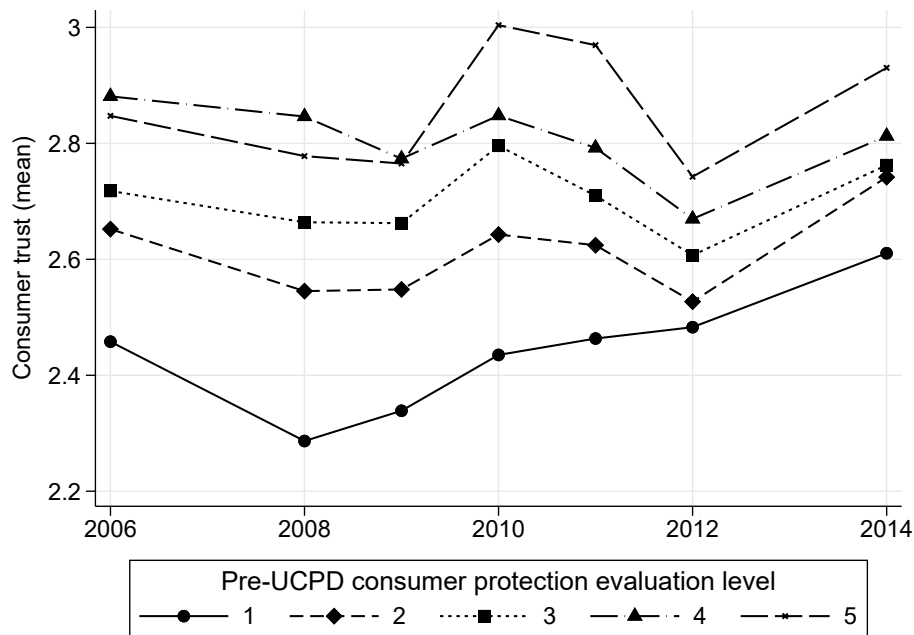
<sup>8</sup>Note that the variable "share of cross-border purchase" is not the same as the main variable "cross-border purchase" but the share of consumers within a country doing any cross-border purchase in another country as percentage of population given by Eurostat. We do not include this variable in the regression when estimating the effect of the introduction of the UCPD on individual cross-border purchases within the EU.

<sup>9</sup>Descriptive statistics for the mentioned variables are shown in Table A.1.1.

<sup>10</sup>As the variables consumer trust and public authority trust as well as cross-border purchase and homeshopping are very similar, we choose to only analyze the descriptives of one of each pair and use the same identification strategy for both variables for comparison purposes.

This perfect fit of pre-UCPD legal expert’s evaluation cannot be observed for cross border purchase, as can

Figure 1: Consumer trust over time by level of pre-UCPD evaluation

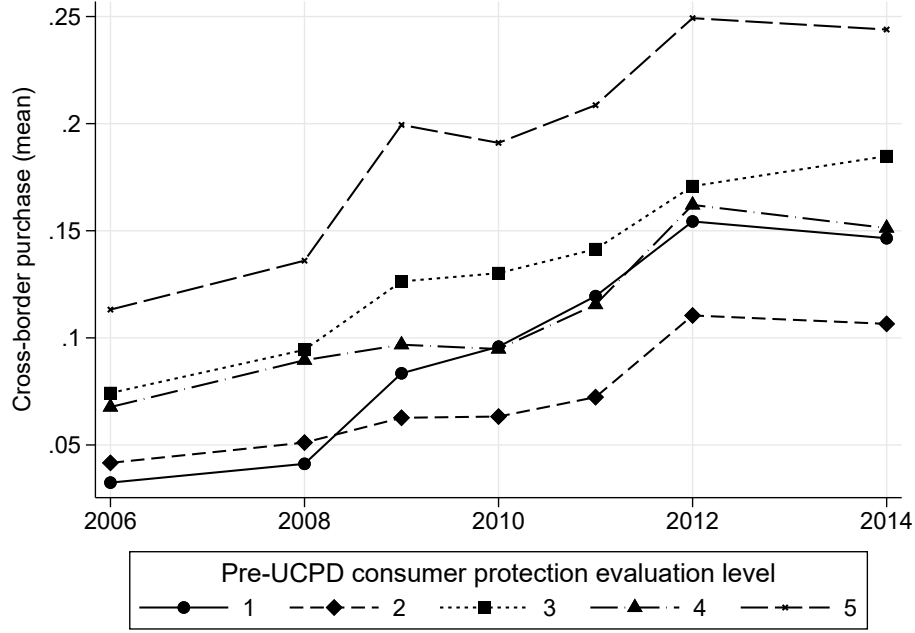


*Notes.* This figure is based on Eurobarometer 2006-2014 and shows the correlation between the mean of consumer trust by the different legal experts’ evaluation levels over time. Legal experts’ pre-UCPD evaluation is based on data provided by Civic Consulting. These levels reach from one to five where one is the worst and five the best pre-UCPD consumer protection index. The index is therefore equivalent to: 1 - “very low”, 2 - “low”, 3 - “middle”, 4 - “high”, 5 - “very high” consumer protection standards before the introduction of the UCPD.

be seen in Figure 2. First thing to note is an overall increase in all five different evaluation groups. This is plausible as with an increase in internet consumption and the ongoing digital single market policy, more consumers are engaging in cross-border shopping. Countries with a pre-UCPD evaluation of one, three or five have a similar development over time. Respondents of these countries did not purchase more from other EU-countries until 2008, but they all show a sharp increase from 2008 to 2009 and later a slighter increase until 2014. However, the most interesting part of this picture is the strong increase of cross-border purchase in countries with a pre-UCPD evaluation of one.

Figures 1 and 2 show that the trust outcome increases most for the lowest pre-UCPD consumer protection evaluation group. For cross-border purchase a different picture emerges. Still, countries with a very low pre-UCPD consumer protection evaluation level benefit in both cases most from the introduction of the UCPD. This is in line with previous literature, as, e.g., [Collins \(2010\)](#). [Osuji \(2011\)](#) suggests that the UCPD may only be a first step to full harmonization and therefore only provides a very low consumer protection level. The UCPD appears to strongly affect countries with a very low pre-UCPD consumer protection level. Countries with higher consumer protection level before the introduction of the UCPD will be not or at least less affected by its introduction. Consequently, we assume that consumers in countries with a very low pre-UCPD consumer protection level have a higher likelihood of an effect on trust and shopping behavior in

Figure 2: Cross-border purchase over time by level of pre-UCPD evaluation



*Notes.* This figure is based on Eurobarometer 2006-2014 and shows the correlation between the mean of cross-border purchases by the different legal experts' evaluation levels over time. Legal experts' pre-UCPD evaluation is based on data provided by Civic Consulting. These levels reach from one to five where one is the worst and five the best pre-UCPD consumer protection index. The index is therefore equivalent to: 1 - "very low", 2 - "low", 3 - "middle", 4 - "high", 5 - "very high" consumer protection standards before the introduction of the UCPD.

result of the introduction of the UCPD compared to the other pre-UCPD evaluation groups.

A first relevant question in this context is how to choose appropriate treatment and control groups. The European market and its consumer protection regulation are rather unique which makes it complex to find an appropriate control group outside the European Union. As all EU countries are required to implement the regulation, finding a control group within the European Union is not trivial. However, the UCPD will, although introduced in all EU countries, eventually affect only countries with a very low pre-UCPD consumer protection evaluation level, as it is a minimum standard and as confirmed by the descriptive statistics. Consequently, we choose our treatment group so that it includes all countries with a very low pre-UCPD consumer protection evaluation level while countries with a higher pre-UCPD consumer protection evaluation level state the control group.

To analyze the effect of the UCPD on attitudes towards trust and shopping behavior within the EU, we utilize a difference-in-difference (DiD) approach with multiple time periods following [Athey & Imbens \(2006\)](#) as well as [Imbens & Wooldridge \(2009\)](#). They extended the standard DiD-estimator with two time periods and two groups to a general DiD-estimator with multiple time periods and multiple groups. As we have only one treatment group, countries with a very low pre-UCPD consumer protection evaluation level, the

difference-in-difference estimator is only generalized in terms of time periods.<sup>11</sup> This is due to the fact that the UCPD was introduced at different times in different countries. The implementation dates vary across EU member states, as countries were required to implement UCPD by 2013 the latest. The directive was initially enacted in 2005 and it became effective in 2007. Member states then had up to six years to effectively implement the new regulation into their national provisions. The exact years when the directive was applied at the national level are shown in Table 1, Column (4). No country implemented the regulation later than 2010. However, we use the exact year when the UCPD went in place so that the treatment has different timings.

The difference-in-difference estimation equation looks as follows:

$$Y_{it} = \beta_0 + \beta_1(Post_{ct} \times L_{cj}) + \beta_2 X_{it} + \beta_3 Z_{ct} + \tau_t + \delta_c + u_{ict} \quad (1)$$

Here,  $Y_{it}$  is the outcome variable, namely consumer trust, public authority trust, cross-border purchase or homeshopping. Similar to consumer trust, we expect public authority trust to increase after the introduction of the UCPD. Cross-border purchase is also expected to increase after the introduction of the UCPD as the directive should make it easier to shop across borders. The other included outcome variable, homeshopping, gives an insight whether the UCPD only affects cross-border purchases or whether online purchases in home countries are also affected by the directive. On the one hand, a positive effect would be possible. As the consumer protection level rises in the home country, consumers may shop more within their own country. On the other hand, no or even a negative effect is possible. As cross-border shopping becomes relatively easy and the UCPD only provides a minimum consumer protection standard, consumers of low pre-UCPD consumer protection standard level countries might shift their purchases towards other countries of the EU that provide an even higher consumer protection standard. Although consumer protection standard rises in their own country, consumers then prefer to shop cross-border. Expectations concerning homeshopping are therefore ambiguous although a negative effect is rather unlikely as distance and language effects still play a role.

The variable  $Post_{ct}$  is an indicator that turns one once the UCPD was implemented and it remains one from then on. Moreover, we assign  $L_{cj}$  to an indicator for legal experts that have evaluated the consumer protection before the UCPD was implemented. The variable  $L_{cj}$  can take five values  $j \in \{1, \dots, 5\}$ , where 5 is the best evaluation and 1 is the worst. Countries with a pre-UCPD consumer protection evaluation level of 1 (very low) form our treatment group. This reflects the hypothesis that the introduction of UCPD only affects countries with a very low pre-UCPD consumer protection level. All other, higher pre-UCPD evaluation levels of consumer protection form the control group. Therefore, we measure the effect of the introduction of the

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<sup>11</sup>There is a growing literature on heterogeneous treatment effects applying a difference-in-difference approach with multiple time periods and varying treatment timing, e.g., [Abraham & Sun \(2018\)](#), [Athey & Imbens \(2018\)](#), [Callaway & Sant'Anna \(2018\)](#), [de Chaisemartin & D'Haultfoeuille \(2019\)](#), [Goodman-Bacon \(2018\)](#), [Han \(2018\)](#).

UCPD for low consumer protection countries in comparison to higher consumer protection countries.<sup>12</sup> The exact evaluation levels of the legal and consumer protection experts are shown in the second and third column of Table 1. For the baseline regression, legal experts' evaluation levels are used while consumer protection experts' evaluation levels are later used as a robustness check.

The interaction term  $Post_{ct} \times L_{cj}$  between both variables is our variable of interest. Its coefficient is the

Table 1: Detailed descriptive statistics of countries, their pre-UCPD evaluation level and region within Europe

Country	Legal experts' evaluation	Protection experts' evaluation	UCPD inplace	Region in Europe
Austria	5	5	2007	west
Belgium	3	3	2007	east
Bulgaria	1	1	2007	east
Croatia	3	3	2009	south
Cyprus (Republic)	3	3	2007	south*
Czech Republic	2	3	2009	east
Denmark	5	5	2007	north
Estonia	2	2	2007	north
Finland	4	4	2009	north
France	4	5	2009	west
Germany	5	5	2009	west
Greece	2	2	2007	south
Hungary	3	3	2007	east
Ireland	3	3	2007	north
Italy	3	3	2007	south
Latvia	2	2	2007	north
Lithuania	2	2	2009	north
Luxembourg	3	4	2010	west
Malta	1	1	2007	south
Poland	3	3	2007	east
Portugal	1	3	2009	south
Romania	2	2	2007	east
Slovakia	3	3	2007	south
Slovenia	2	2	2007	south
Spain	4	4	2010	south
Sweden	3	3	2007	north
The Netherland	2	3	2009	west
United Kingdom	4	4	2009	north

*Notes.* This table shows the descriptive statistics of the EU member states, their pre-UCPD consumer protection level evaluated each by legal or by protection experts, the implementation date of the UCPD in each country and the region of the country within Europe. Legal and protection expert's evaluation as well as UCPD inplace information are part of the data provided by private consultancy Civic Consulting. Experts' evaluation level is an index which ranges from one to five, where one equals the worst and five the best consumer protection evaluation level. Regions are based on [United Nations Statistics Division \(2018\)](#) except of Cyprus which is by this definition not part of Europe. \*We chose to define Cyprus in the region of "south" as different other sources suggest it similar (e.g., [Bosco & Verney \(2012\)](#), [World Atlas \(2018\)](#)).

effect of the introduction of the UCPD ( $Post_{ct}$ ) on the outcome (consumer trust, public authority trust, cross-border purchase or homeshopping) for consumers in countries with a low pre-UCPD evaluation level

<sup>12</sup>A detailed description concerning the choice of treatment and control group can be found in [Appendix A.3](#).

by legal experts ( $L_{cj} = 1$ ) in relation to consumers in higher pre-UCPD evaluated countries ( $L_{cj} = 2 - 5$ ). For more detailed insights into our treatment and control group, Table A.1.2 provides an overview about the descriptive statistics for both groups before and after the treatment.

Returning to Equation 1,  $X_{it}$  are individual socio-demographic characteristics ( $\log(age)$ ,  $\log(age)^2$ , female (indicator), nationality (indicator)) and  $Z_{ct}$  are the country specific economic characteristics (share of unemployment (as percentage of population), internet, share of internet access (as percentage of population),  $\log(GDP)$ , share of cross-border purchase (as percentage of population)) described above. Additionally, we include year and country fixed effects,  $\tau_t$  and  $\delta_c$ , respectively.

To account for the nature of our two dependent variables, we apply the following econometric models: For trust we apply as a baseline specification a linear probability model and later an ordered probit model due to the different categories of the variables. To analyze shopping behavior, we choose the probit model due to the binary outcome variables.

Additionally, we account for the correct inference. Bertrand et al. (2004) highlight that standard errors are inconsistent as state sizes vary. To address this problem, we cluster standard errors at the country level and, moreover, show the robustness of the effects, as we apply bootstrapped standard errors in the sensitivity analysis.

## 4. Results

Our analysis below examines aspects of consumer attitudes and consumer behavior within the European Union after the introduction of the Unfair Commercial Practice Directive, including their trust concerning retailers and services providers as well as the public authority, online cross-border purchases and online purchases in their home country.

### 4.1. Trust

In a first step, we report the results of the outcomes concerning trust attitudes. As baseline we use a linear probability model but we also show the results of an ordered probit model. With the marginal effects of the latter we are then able to show the specific effects on each category of the outcomes. The results of the linear probability and ordered probit estimation of Equation 1 are shown in detail in Table 2 and 3, respectively.<sup>13</sup> Two different panels are reported in each model: panel A constitutes the results for effects of the introduction of the Unfair Commercial Practice Directive on consumer trust. Panel B includes the effects of its introduction on public authority trust.<sup>14</sup>

<sup>13</sup>For the ordered probit model, we only report marginal effects due to simplicity and to interpret the results. The corresponding coefficients are available upon request.

<sup>14</sup>We estimated the reduced form as well as the full model for both panels. Adding the control variables to the model, the effect remains similar and the coefficient of interest, the interaction term  $Post_{ct} \times L_{cj}$ , even rises. For the control variables in panel A, coefficients of  $\log(age)$ ,  $\log(age)^2$  and the share of internet access (as percentage of population) show significant



The results for panel A and B in Table 2 suggest that with the introduction of the UCPD, consumer trust and public authority trust rise for consumers in countries with a low pre-UCPD consumer protection evaluation in comparison to consumers of all other countries.<sup>15</sup> Consequently, the results imply that the UCPD has indeed an effect on consumer trust and public authority trust.

The marginal effects of the ordered probit model in Table 3 allow a detailed insight into the effects on the

Table 2: Linear probability model estimation

	Panel A: Consumer trust		Panel B: Public authority trust	
Post <sub>ct</sub> (indicator, UCPD inplace)	−0.073* (0.042)	−0.065* (0.038)	−0.014 (0.042)	−0.018 (0.033)
Treat ( $L_{cj} = 1$ )	−0.539*** (0.052)	−0.253* (0.125)	−0.495*** (0.023)	−0.120 (0.116)
Treat ( $L_{cj} = 1$ ) × Post <sub>ct</sub>	0.178** (0.068)	0.198*** (0.058)	0.161*** (0.028)	0.168*** (0.031)
Individual controls	No	Yes	No	Yes
Country controls	No	Yes	No	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Country cluster	Yes	Yes	Yes	Yes
Pseudo $r^2$	0.073	0.080	0.074	0.083
Observations	167,722		167,607	

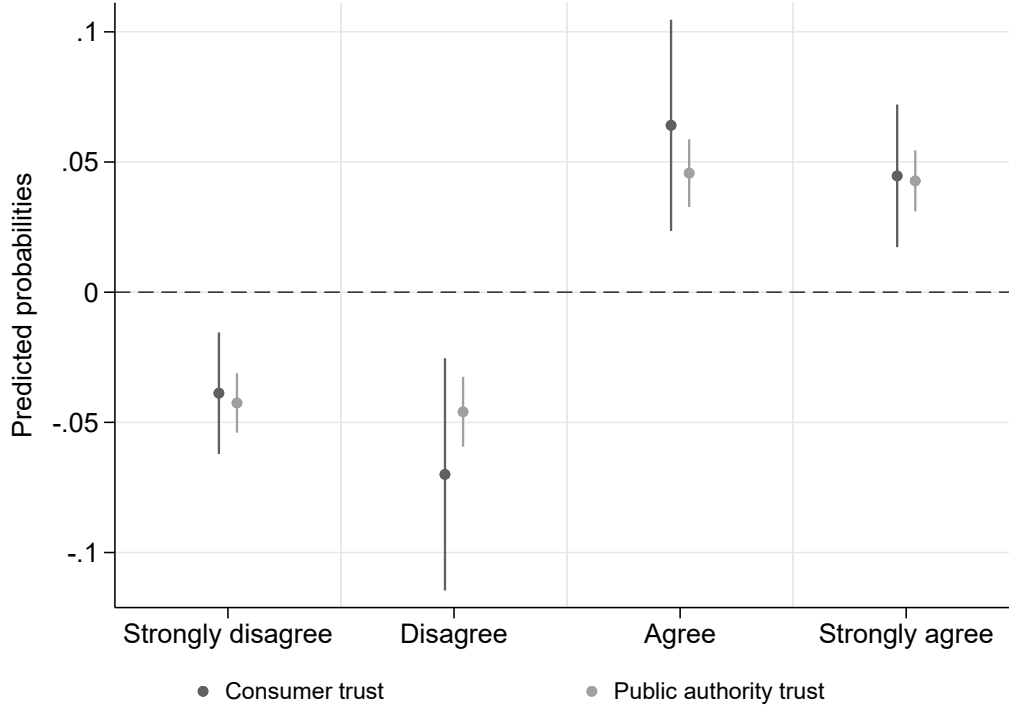
*Notes.* This table shows the results of the linear probability difference-in-difference estimation. Panel A reports the coefficients of the introduction of the Unfair Commercial Practice Directive on consumer trust while panel B reports coefficients on public authority trust. Treatment and control groups are based on an index that shows evaluation of the pre-UCPD consumer protection level. These evaluation levels reach from one to five where one is the worst and five the best pre-UCPD consumer protection index. The index is therefore equivalent to: 1 - “very low”, 2 - “low”, 3 - “middle”, 4 - “high”, 5 - “very high” consumer protection standards before the introduction of the UCPD. Here, the treatment group states the lowest pre-UCPD consumer protection evaluation while higher pre-UCPD consumer protection evaluation level are the summarized control group. Standard errors clustered at the country level are in parentheses. Significance: \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level.

different outcomes. From these results, we can conclude that the effect is not only statistically significant but also economically relevant. The marginal effects are estimated for each outcome of the dependent variable separately so that the results can be interpreted as predicted probabilities for each outcome. Focusing on the interaction term Post<sub>ct</sub> ×  $L_{cj}$ , every regression in both panels show a highly statistical significant effect. In panel A the outcome “strongly disagree” has a value of -0.04, meaning that after the introduction of the UCPD, consumers of countries with a very low pre-UCPD consumer protection evaluation level ( $L_{cj} = 1$ ) are by 4 percentage points less likely to answer the question whether they trust retailers and services in their country with “strongly disagree” compared to countries with a higher pre-UCPD consumer protection evaluation ( $L_{cj} = 2 - 5$ ). A similar value can be found for public authority trust in panel B where the

effects. In panel B coefficients female, nationality, the share of unemployment (as percentage of population) and the log ( $GDP$ ) are additionally significant. For both panels, the reported marginal effects in Table 3 are estimated with the full model including individual and country control variables, year and country fixed effects as well as with clustered standard errors at the country level. Reduced form estimates and coefficients are available upon request.

<sup>15</sup>Consumers of countries with low pre-UCPD consumer protection levels are by roughly 20 percent (17 percent) more likely of answering the consumer trust (public authority) question with a higher category after the introduction of the UCPD in comparison to consumers of higher pre-UCPD consumer protection evaluation countries.

Figure 3: Marginal effects of consumer trust and public authority trust by outcomes



*Notes.* This figure shows marginal effects of the interaction term  $\text{Treat}(L_{cj} = 1) \times \text{Post}_{ct}$  for panel A (consumer trust) and panel B (public authority trust) separately for each outcome (Table 3). The lines correspond to 95% confidence intervals.

probability of “strongly disagree” is decreased by 4.2 percentage points.

For the outcome “disagree” the change in probability is with 7.2 percentage points even higher. Consumers of lower consumer protection countries are by 7.2 percentage points less likely to disagree to the statement that retailers and services providers respect their rights as consumers after the introduction of the UCPD in comparison to countries with higher pre-UCPD consumer protection evaluation ( $L_{cj} = 2 - 5$ ).

In contrast to this, the two outcomes “agree” and “strongly agree” have positive predicted probabilities. Therefore, consumers of countries with a low pre-UCPD consumer protection evaluation are by 6.6 percentage points and 4.8 percentage points (respectively) more likely to trust retailers and services providers after the introduction of the UCPD than before and in comparison to countries with a higher consumer protection evaluation ( $L_{cj} = 2 - 5$ ). Changes in probabilities for trust into public authorities are with 4.6 (“agree”) and 4.3 (“strongly agree”) percentage points similar but lower. An overview of the marginal effects is provided in Figure 3.

Overall, these estimation results show that consumers of countries with a low pre-UCPD evaluation trust retailers and services providers as well as public authorities more after the introduction of the UCPD as their probability of answering these questions with “strongly disagree” or “disagree” decreases and the probability for “agree” or “strongly agree” increases compared to other countries. This is especially the case as coun-

Table 3: Marginal effects for consumer trust and public authority trust

	Strongly Disagree	Disagree	Agree	Strongly Agree
Panel A: Consumer trust				
Post <sub>ct</sub> (indicator, UCPD inplace)	0.013* (0.008)	0.024* (0.014)	−0.022* (0.013)	−0.015* (0.009)
Treat ( <i>L</i> <sub><i>cj</i></sub> = 1)	0.052** (0.026)	0.095** (0.046)	−0.087** (0.043)	−0.060** (0.029)
Treat ( <i>L</i> <sub><i>cj</i></sub> = 1 ) × Post <sub>ct</sub>	−0.040*** (0.011)	−0.072*** (0.021)	0.066*** (0.019)	0.046*** (0.013)
Observations	167,722			
Panel B: Public authority trust				
Post <sub>ct</sub> (indicator, UCPD inplace)	0.004 (0.008)	0.004 (0.009)	−0.004 (0.009)	−0.004 (0.008)
Treat ( <i>L</i> <sub><i>cj</i></sub> = 1)	0.033 (0.030)	0.035 (0.032)	−0.035 (0.032)	−0.033 (0.030)
Treat ( <i>L</i> <sub><i>cj</i></sub> = 1 ) × Post <sub>ct</sub>	−0.042*** (0.007)	−0.046*** (0.008)	0.046*** (0.007)	0.043*** (0.007)
Observations	167,607			
Individual controls	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Country cluster	Yes	Yes	Yes	Yes

*Notes.* This table shows the marginal effects as predicted probabilities at means of all other variables. Baseline for the calculations is full model of the ordered probit difference-in-difference estimation. Panel A reports the marginal effects effects of the introduction of the UCPD on consumer trust while panel B reports marginal effects on public authority trust. Treatment and control groups are based on an index that shows evaluation of the pre-UCPD consumer protection level. These evaluation levels reach from one to five where one is the worst and five the best pre-UCPD consumer protection index. The index is therefore equivalent to: 1 - “very low”, 2 - “low”, 3 - “middle”, 4 - “high”, 5 - “very high” consumer protection standards before the introduction of the UCPD. Here, the treatment group states the lowest pre-UCPD consumer protection evaluation while higher pre-UCPD consumer protection evaluation level are the summarized control group. Standard errors clustered at the country level are in parentheses. Significance: \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level.

tries with a higher pre-UCPD consumer protection evaluation level already have a satisfying high consumer protection standard. In conclusion, consumer trust is increasing with the introduction of UCPD when the country was pre-evaluated by legal experts' indicator of one, compared to indicators between two and five. Trust rises, therefore, especially for consumers in countries where the evaluation of the pre-UCPD consumer protection was very low. The consumer protection standard that is introduced by the UCPD is thus comparable to a pre-UCPD protection evaluation of not higher than two. The minimum consumer protection standard provided by the UCPD is not high enough to change much for consumers in countries with a higher pre-UCPD consumer protection level so that trust in retailers and services providers as well as the public authority did not increase significantly.

With the results of the linear probability model (Table 2) and the marginal effects (Table 3), we can conclude that the UCPD has indeed a significant effect on consumer trust and public authority trust, especially for countries with a low pre-UCPD consumer protection evaluation. We can confirm that consumers of countries with a low pre-UCPD consumer protection have, in comparison to higher pre-UCPD consumer protection evaluation, level a higher probability to trust retailers and services providers as well as public authorities after the introduction of the UCPD compared to before.

#### 4.2. Online shopping

For online cross-border purchase and homeshopping (purchases from current home country), we implemented a probit model with the same difference-in-difference estimation as in Equation 1. Table 4 shows the marginal effects for both panels, cross-border purchase (panel A) and homeshopping (panel B), respectively.<sup>16</sup>

For panel A the results show a highly statistical significant and positive effect. Consumers of countries with a very low pre-UCPD consumer protection evaluation level are by 9 percentage points more likely of having a cross-border purchase after the introduction of the UCPD compared to consumers of countries with a higher pre-UCPD consumer protection evaluation level. For homeshopping in panel B we do find a positive but not statistically significant effect.

The results show that with the introduction of the UCPD, individuals of countries with a low pre-UCPD consumer protection evaluation are more likely to shop cross-border. Surprisingly, we do not find any effect for homeshopping. These results may appear counter-intuitive at first sight: Although the goal of the Unfair Commercial Practice Directive is to strengthen the digital single market, so that cross-border shopping is easier, there might be an effect on purchases within the own country. This is due to the fact that we still analyze countries with a very low pre-UCPD consumer protection evaluation level. Hence, consumers of countries with a very low consumer protection standard may increase their purchases at home when the consumer protection standard is increased there. This does not hold for countries with higher standards,

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<sup>16</sup>The corresponding estimation results (coefficients) are available upon request. The basis for the computation of the marginal effects are the full models for both panels such that individual and country controls as well as year and country fixed effects are included.

as discussed, the UCPD only provides a very low consumer protection level. However, we do not find that consumers of low pre-UCPD consumer protection evaluation level countries rising their purchases at home significantly. An explanation may be that with knowing the consumer protection standard rising in their own country, consumers know that either the consumer protection standard in other countries is also rising or that the consumer protection is higher although the standard is rising in their country.

Table 4: Marginal effects for cross-border purchase and homeshopping

	<b>Panel A: Cross-border purchase</b>	<b>Panel B: Homeshopping</b>
$Post_{ct}$ (indicator, UCPD inplace)	-0.035*** (0.012)	-0.025 (0.030)
$Treat (L_{cj} = 1)$	-0.219*** (0.036)	-0.164* (0.093)
$Treat (L_{cj} = 1) \times Post_{ct}$	0.090*** (0.011)	0.040 (0.036)
Individual controls	Yes	Yes
Country controls	Yes	Yes
Year fixed effects	Yes	Yes
Country fixed effects	Yes	Yes
Country cluster	Yes	Yes
Observations	179,724	173,479

*Notes.* This table shows the marginal effects as predicted probabilities at means of all other variables. Baseline for the estimation is the full model of the probit difference-in-difference estimation. Panel A reports the marginal effects effects of the introduction of the UCPD on cross-border purchase while panel B reports marginal effects on homeshopping. Treatment and control groups are based on an index that shows evaluation of the pre-UCPD consumer protection level. These evaluation levels reach from one to five where one is the worst and five the best pre-UCPD consumer protection index. The index is therefore equivalent to: 1 - “very low”, 2 - “low”, 3 - “middle”, 4 - “high”, 5 - “very high” consumer protection standards before the introduction of the UCPD. Here, the treatment group states the lowest pre-UCPD consumer protection evaluation while higher pre-UCPD consumer protection evaluation level are the summarized control group. Standard errors clustered at the country level are in parentheses. Significance: \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level.

#### 4.3. Changing effect sizes over time

In a next step, we analyze how the effect changes over time.<sup>17</sup> Countries had to choose on their own when to introduce the UCPD between 2007 and 2013 although no country introduced the UCPD later than 2010.

We are implementing the same equation to estimate the baseline results, but now interact the variable of interest with year dummies, leaving the following estimation equation:

$$Y_{ict} = \beta_0 + \beta_1(Post_{ct} \times L_{cj} \times \sum_{t=2008}^{2014} year_t) + \beta_2 X_{ict} + \beta_3 Z_{ct} + \tau_t + \delta_c + \varepsilon_{ict} \quad (2)$$

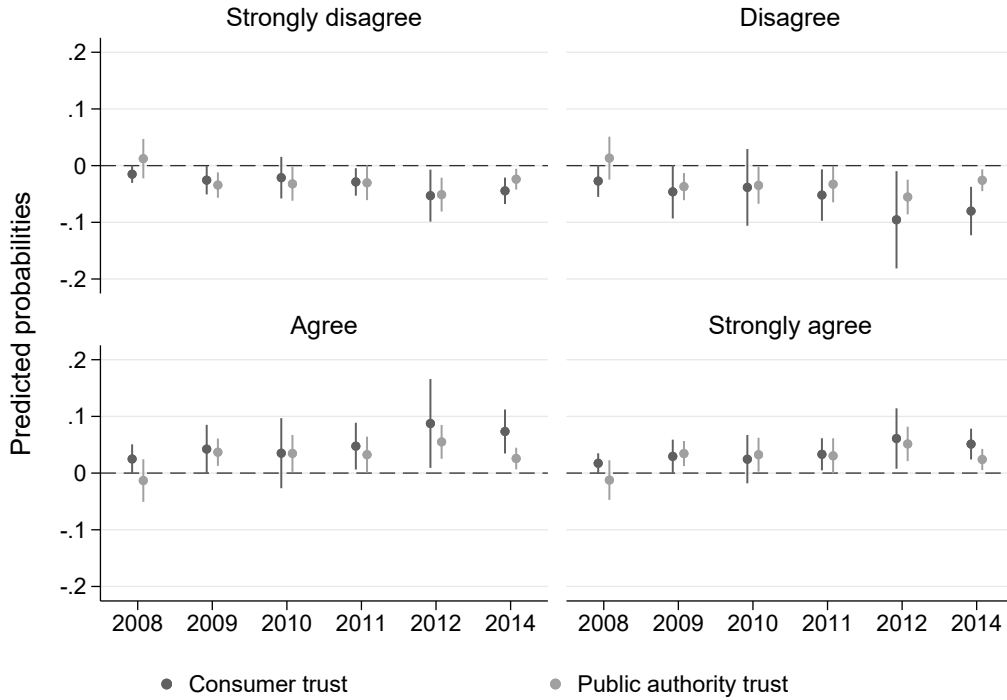
Leaving out the indicator for 2006 is necessary to have a reference point. As countries implemented the regulation between 2007 and 2010 into national law, there was no effect of the UCPD in 2006. Therefore, 2006 serves as the reference year. As data is missing in 2007, the effect for the implementation is caught in 2008 data. However, delayed effects even after 2010 may be expected, as trust has to build up often over a

<sup>17</sup>The tables with marginal effects of this analysis can be found in [Appendix A.2](#).

long time (Williams (2007)). Moreover the shopping variables reflect the shopping behavior of the past 12 months so that, for example, purchases in 2008 are caught only by the question in 2009.

The marginal effects for trust in Figure 4 support these considerations.<sup>18</sup> In panel A the effect is stable and highly statistically significant after 2010 for all possible outcomes. Similar results emerge for panel B, public authority trust, although the effect is not as strong. Panel A has lower effects in the beginning but highly increasing effects over time, so that the full effect hits in 2012 where it almost reaches 10 percentage points for two (“disagree” and “agree”) of the four outcomes. In panel B there is also an increase over time. The effect is highly statistically significant from 2009 onward, but the peak in 2012 only reaches 5 percentage points for all outcomes.

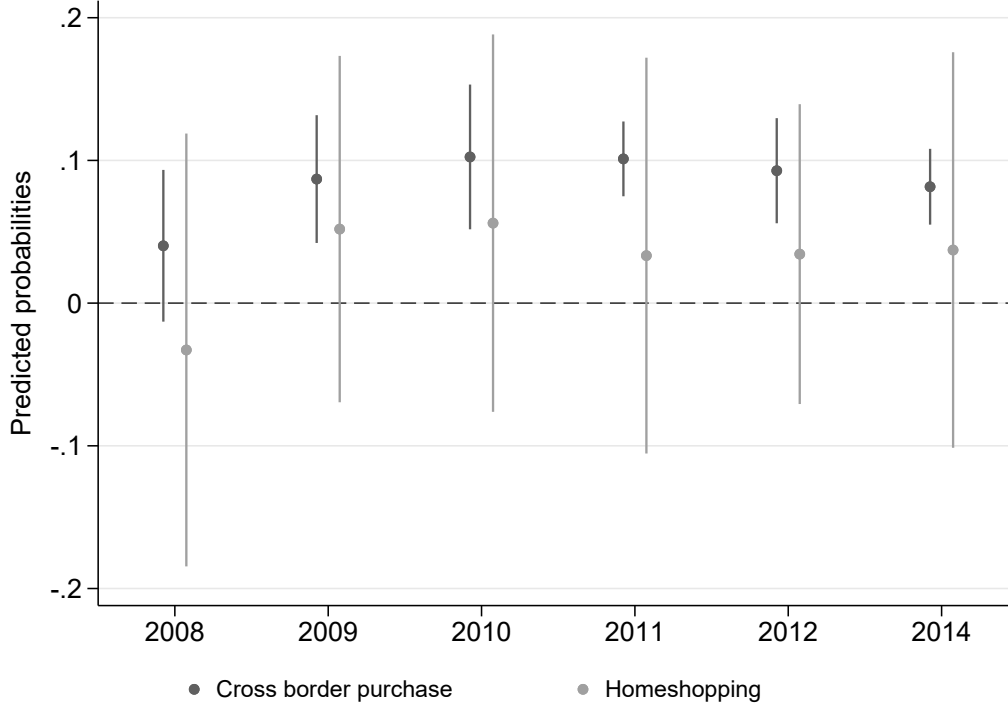
Figure 4: Marginal effects of consumer trust and public authority trust over time



*Notes.* This figure shows marginal effects of the interaction term  $\text{Treat}(L_{cj} = 1) \times \text{Post}_{ct} \times \sum_{t=2008}^{2014} \text{year}_t$  for panel A (consumer trust) and panel B (public authority trust) separately for each outcome and over time (Table A.2.1). The lines correspond to 95% confidence intervals.

<sup>18</sup>Exact values can be found in Table A.2.1 in Appendix A.2

Figure 5: Marginal effects of cross-border purchase and homeshopping over time



*Notes.* This figure shows marginal effects of the interaction term  $\text{Treat}(L_{cj} = 1) \times \text{Post}_{ct} \times \sum_{t=2008}^{2014} \text{year}_t$  for panel A (cross-border purchase) and panel B (homeshopping) over time (Table A.2.2). The lines correspond to 95% confidence intervals.

The variables for cross-border purchase and homeshopping catch the shopping behavior in the last 12 months. Therefore, the effect of the UCPD is also delayed in our estimation. Although the effect is increasing in the beginning, it stays constant over time and only decreases relatively less in the end. Most of the treated countries in our sample implemented the directive by 2007. Hence, it is not surprising that the positive and statistically significant effect is visible since 2008. However, a stable effect can only be shown by 2010 until the end of our sample. In contrast to the trust outcomes, the impact of the UCPD on cross-border purchase (panel A) is more long-lasting and more stable over time. For panel B, however, the effect shows a similar yet lower development over time which can be nicely seen in Figure 5. Nevertheless, the effect on homeshopping behavior is not statistically significant at any point in time.<sup>19</sup>

We provide various robustness checks. The results are robust to all these sensitivity tests.<sup>20</sup>

<sup>19</sup>Exact values can be found in Table A.2.2 in Appendix A.2

<sup>20</sup>Robustness checks include varying the method, varying the treatment and treatment groups, transforming the data and accounting for the correct inference of the standard error. The discussion and results of the robustness checks are provided in the Appendix A.4.

#### 4.4. Discussion

The results of this analysis show that consumers' trust vis-à-vis retailers and services providers as well as vis-à-vis public authorities could be obtained by the introduction of the Unfair Commercial Practice Directive. We show that consumer trust rises for consumers of countries with a very low pre-UCPD consumer protection standard by roughly 11 percentage points adding together the changes from strongly disagree and disagree as well as agree and strongly agree. For public authority trust this effect is about 9 percentage points (see Table 3). The probability of a cross-border online purchase raised after the introduction by about 9 percentage points while homeshopping is increasing by 4 percentage points and is not statistically significant (see Table 4).

The EU Digital Agenda (DAE)<sup>21</sup> has set different policy targets for e-commerce, e.g., by 2015, the EU would like to have 50 percent of its citizens buying online and 20 percent engaged in cross-border trade. We show for cross-border purchases an increase by 9 percentage points, after the introduction of the UCPD, for consumers in countries with a low pre-UCPD consumer protection level. From an initial low cross-border shopping level of 6 percent in 2006, this is a crucial result (European Commission (2009)) and therefore, the UCPD substantially contributed to the goal of increasing cross-border trade. Still, the general cross-border share within the EU member states was in 2017 only at 13 percent (Eurostat (2018)). Our results showed that the discussed barriers in terms of language, culture or trust may be decreasing but cannot be vanished completely with the help of the UCPD. However, the ultimate objective of the DAE is to increase consumer welfare and not cross-border trade itself. These welfare effects are also achieved by minimum standard which implies, e.g., reduced information costs and thus higher trust.

However, the results have to be interpreted with caution. First, our sample only showed this effect for a small number of countries. Second, the analysis is based on a survey sample and does not reflect administrative data. However, this is partly necessary due to the trust outcomes. Third, there are only few studies that examine trust empirically. Either the studies have used different trust measure (e.g., Lewicki et al. (2006), Ennew & Sekhon (2007)) or they examined trust in another context (e.g., Ha (2004), Cheung & Lee (2006), Xu et al. (2003)). Our results are, therefore, difficult to interpret and discuss in their height compared to other studies.

Importantly, all effects increased over time and stay relatively constant so that the introduction of the UCPD had a constant effect over time and does not only affect the shown outcomes once. This is relevant as the effect does not vanish (at least until the end of our sample in 2014) and the regulation has a constant effects on attitudes concerning trust and shopping behavior.

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<sup>21</sup>See: <https://ec.europa.eu/digital-single-market/en/policies/shaping-digital-single-market>



## 5. Conclusion

In this paper, we present evidence that the introduction of a minimum consumer protection standard within the European Union significantly improves trust and online shopping behavior of consumers, especially in countries with initially low consumer protection levels. Our study analyses the Unfair Commercial Practice Directive (UCPD) which was implemented in EU member states between 2007 and 2010. We find that the introduction of the UCPD has led to significant increase in consumer trust, public authority trust and cross-border purchases. The effects are only visible for consumers in countries with low pre-UCPD consumer protection levels which is in line with our expectations. The effects have been becoming stronger over time, and we find a peak for both trust outcomes in 2012 while shopping behavior stays on a constant high level from 2010 onwards. The results pass several robustness tests, including controlling for time invariant effects, changes on model specification and tests on treatment and control group. In general, the results imply that improved and standardized consumer protection within the European Union has positive effects on trust that consumers have vis-à-vis retailers and services providers as well as public authorities, and on online purchases.

To analyze the UCPD, we have used data for the years between 2006 and 2014 which was provided by different sources: First, we have used Eurobarometer survey data for the outcomes and controls on an individual level. Second, Civic Consulting provided data on the consumer protection level in each country before the introduction of the UCPD and specific time information on its implementation. Third, the data were merged with country-level data from Eurostat to control for country specific factors. The main identification was driven by the pre-UCPD consumer protection level. This index enables us to apply a difference-in-difference estimation method with multiple time periods. The European Union is a unique market so that it is difficult to find a suitable control group which did not introduce the UCPD or a similar consumer protection regulation outside the EU.

We argue that the UCPD - only providing a minimum consumer protection standard - affects countries with a very low pre-UCPD consumer protection evaluation level the most. Therefore, these countries were chosen as treated while countries with a higher initial protection level form the control group. Hence, the estimation results only measure a minimum effect the UCPD has on trust and shopping behavior of the treated countries. Our results indicate that consumers in countries with low pre-UCPD consumer protection levels have on average more trust in retailers and services providers as well as in public authorities after the introduction. Additionally, these consumers shop more cross-border within the EU while the effect on homeshopping behavior is not statistically significant. An obvious reason for the different effect on cross-border shopping and homeshopping is that consumers tend to be familiar with consumer protection levels at home, but the UCPD removes uncertainties about the minimum protection levels provided abroad which is relevant for cross-border shopping. The UCPD is an important instrument of the European Union to strengthen the European single market policy. As discussed, the UCPD does not provide full harmonization and the implemented consumer

protection standard is relatively low. Hence, countries with a low pre-UCPD consumer protection standard benefit the most, while countries with high levels of consumer protection remain largely unaffected.

More generally, market-wide minimum consumer protection levels, as now also provided by the General Data Protection Regulation (GDPR), may especially benefit consumers in countries with initially low standards. While it may not change their knowledge about regulation levels at home, it removes uncertainties about foreign protection levels, thereby, facilitating further market integration and, hence, more intense competition. The key idea is that consumers tend to be unfamiliar with regulations of all 28 EU member states, and that getting information about foreign regulation is not costless. Hence, harmonization at minimum level can reduce consumer information cost and thereby, facilitate trade and competition. While, at this point, it is too early to evaluate the effects of the GDPR on trust, trade and competition, it appears a worthwhile exercise for future research.

As mentioned, the European Commission has proposed a “New Deal for Consumers” in April of 2018 which shall revise existing consumer protection initiatives like the UCPD. This was also due to substantial critique that followed the implementation of the UCPD. Among others, the European Consumer Organisation (Bureau Européen des Unions de Consommateurs, BEUC) raised concerns in terms of harmonization, effectiveness and enforcement of the UCPD. While the UCPD only provides a minimum consumer protection standard, as of 2013 member states are no longer allowed to introduce or maintain higher level of consumer protection rules in this area.<sup>22</sup> It is unclear, however, whether full harmonization provides similar benefits as minimum standards. ([Bureau Européen des Unions de Consommateurs \(2013, 2016\)](#))

Our analysis has shown that the UCPD can, to some extent, contribute to trust in retailers and services within the EU and increase cross-border purchase. However, these results are only valid for countries with a very low pre-UCPD consumer protection standard. If policymakers also want to address consumers of countries with a high consumer protection level before the introduction of the UCPD, measures have to be carefully designed. On the one hand, standardized consumer protection regulations have to address different consumer preferences. On the other hand, replacing higher national standards can create uncertainty so that consumers still prefer to shop at home rather than cross-border within the internal market.

Moreover, the legal regime of the UCPD is largely based on enforcement through courts and public authorities. In some member states with a strong private enforcement tradition, not much has changed after the introduction of the UCPD while public enforcement is rather common in other member states ([Bureau Européen des Unions de Consommateurs \(2016\)](#)). To address consumers’ concerns, policy makers should be clear about the position of national authorities, consumer associations, and the European Commission. If consumer protection regulations are standardized and fully harmonized, a European consumer agency that replaces or complements the national agencies may be beneficial.

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<sup>22</sup>As of June 2013 member states may not enact higher standard for unfair practices than those prescribed by the UCPD except of the areas relating to financial services and immovable property.

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## **Appendix A. Appendix**

### *Appendix A.1. Descriptive Statistics*

Table A.1.1: Descriptive Statistics

	Obs.	Mean	Std. Dev.	Min	Max	p1	p25	p50	p75	p99
<i>Dependent variables</i>										
Consumer trust	167,580	2.688	0.751	1	4	1	2	3	3	4
Public authority trust	167,475	2.633	0.844	1	4	1	2	3	3	4
Cross-border purchase	179,724	0.115	0.319	0	1	0	0	0	0	1
Homeshopping	173,479	0.293	0.455	0	1	0	0	0	1	1
<i>Treatment variables</i>										
Pre-UCPD consumer protection evaluation level by legal experts ( $L_{cj}$ )	179,724	2.920	1.147	1	5	1	2	3	4	5
Pre-UCPD consumer protection evaluation level by protection experts ( $P_{cj}$ )	179,724	3.136	1.098	1	5	1	2	3	4	5
<i>Individual controls</i>										
Female	179,724	0.579	0.494	0	1	0	0	1	1	1
Nation (indicator, nationality different to current country)	179,724	0.326	0.469	0	1	0	0	0	1	1
Age	179,724	49.173	17.695	15	99	16	35	50	63	85
$\log(\text{age})$	179,724	3.818	0.414	2.708	4.595	2.773	3.555	3.912	4.143	4.443
<i>Country controls</i>										
Share of internet access (% of population)	179,724	65.687	16.792	23	96	25	54	67	78	94
Share of unemployment (% of population)	179,724	9.277	4.321	3.4	26.5	3.7	6.5	7.9	11	24.8
$\log(GDP)$	179,724	9.914	0.633	8.517	11.402	8.517	9.384	10.012	10.463	11.280
Incident (indicator, consumer trust affected by crisis)	179,724	0.212	0.409	0	1	0	0	0	0	1
Share of border purchase (% of population)	167,580	13.190	10.582	1	51	1	6	10	17	45

Table A.1.2: Descriptive statistics of treatment and control group

Treatment ( $L_{cj} = 1$ )	Post <sub>ct</sub>		Total
	0	1	
0	34,297	129,693	163,99
1	2,512	14,057	16,569
Total	36,809	143,75	180,559

*Notes.* This table shows detailed descriptive statistics of treatment and control group before and after the introduction of the Unfair Commercial Practice Directive (UCPD). Treatment and control groups are based on an index that shows evaluation of the pre-UCPD consumer protection level. These evaluation levels reach from one to five where one is the worst and five the best pre-UCPD consumer protection index. The index is therefore equivalent to: 1 - “very low”, 2 - “low”, 3 - “middle”, 4 - “high”, 5 - “very high” consumer protection standards before the introduction of the UCPD.

## *Appendix A.2. Analysis over time*

Table A.2.1: Marginal effects for consumer trust and public authority trust over time

	Strongly Disagree	Disagree	Agree	Strongly Agree
Panel A: Consumer trust				
Treat ( $L_{cj} = 1$ ) $\times$ Post <sub>ct</sub> $\times$ 2006	Reference category			
Treat ( $L_{cj} = 1$ ) $\times$ Post <sub>ct</sub> $\times$ 2008	-0.015* (0.008)	-0.027* (0.014)	0.025* (0.013)	0.017* (0.009)
Treat ( $L_{cj} = 1$ ) $\times$ Post <sub>ct</sub> $\times$ 2009	-0.026** (0.013)	-0.046* (0.024)	0.042* (0.022)	0.029** (0.015)
Treat ( $L_{cj} = 1$ ) $\times$ Post <sub>ct</sub> $\times$ 2010	-0.021 (0.019)	-0.038 (0.035)	0.035 (0.032)	0.024 (0.022)
Treat ( $L_{cj} = 1$ ) $\times$ Post <sub>ct</sub> $\times$ 2011	-0.029** (0.012)	-0.052** (0.023)	0.048** (0.021)	0.033** (0.014)
Treat ( $L_{cj} = 1$ ) $\times$ Post <sub>ct</sub> $\times$ 2012	-0.053** (0.023)	-0.096** (0.044)	0.087** (0.040)	0.061** (0.027)
Treat ( $L_{cj} = 1$ ) $\times$ Post <sub>ct</sub> $\times$ 2014	-0.044*** (0.012)	-0.080*** (0.022)	0.073*** (0.020)	0.051*** (0.014)
Observations	167,722			
Panel B: Public authority trust				
Treat ( $L_{cj} = 1$ ) $\times$ Post <sub>ct</sub> $\times$ 2006	Reference category			
Treat ( $L_{cj} = 1$ ) $\times$ Post <sub>ct</sub> $\times$ 2008	0.012 (0.018)	0.013 (0.019)	-0.013 (0.019)	-0.012 (0.018)
Treat ( $L_{cj} = 1$ ) $\times$ Post <sub>ct</sub> $\times$ 2009	-0.034*** (0.011)	-0.037*** (0.012)	0.037*** (0.012)	0.034*** (0.011)
Treat ( $L_{cj} = 1$ ) $\times$ Post <sub>ct</sub> $\times$ 2010	-0.032** (0.015)	-0.035** (0.017)	0.035** (0.017)	0.032** (0.015)
Treat ( $L_{cj} = 1$ ) $\times$ Post <sub>ct</sub> $\times$ 2011	-0.030* (0.016)	-0.033** (0.016)	0.033** (0.016)	0.030* (0.016)
Treat ( $L_{cj} = 1$ ) $\times$ Post <sub>ct</sub> $\times$ 2012	-0.051*** (0.015)	-0.055*** (0.016)	0.055*** (0.015)	0.051*** (0.015)
Treat ( $L_{cj} = 1$ ) $\times$ Post <sub>ct</sub> $\times$ 2014	-0.024** (0.009)	-0.026*** (0.010)	0.026*** (0.010)	0.024** (0.009)
Observations	167,607			
Individual controls	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Country Cluster	Yes	Yes	Yes	Yes

*Notes.* This table shows the the marginal effects as predicted probabilities at means of all other variables, separately for each outcome and over time. Baseline for the calculations is the full models of the ordered probit difference-in-difference estimation. The reference group states the year 2006 such that all other interactions are interpretable in reference to this year. Panel A reports the marginal effects effects of the introduction of the UCPD over time on consumer trust while panel B reports marginal effects on public authority trust. Treatment and control groups are based on an index that shows evaluation of the pre-UCPD consumer protection level. These evaluation levels reach from one to five where one is the worst and five the best pre-UCPD consumer protection index. The index is therefore equivalent to: 1 - "very low", 2 - "low", 3 - "middle", 4 - "high", 5 - "very high" consumer protection standards before the introduction of the UCPD. Here, the treatment group states the lowest pre-UCPD consumer protection evaluation while higher pre-UCPD consumer protection evaluation level are the summarized control group. Standard errors clustered at the country level are in parentheses. Significance: \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level.

Table A.2.2: Marginal effects cross-border purchase and homeshopping over time

	<b>Panel A: Cross-border purchase</b>	<b>Panel B: Homeshopping</b>
Treat ( $L_{cj} = 1$ ) $\times$ Post <sub>ct</sub> $\times$ 2006	<i>Reference category</i>	
Treat ( $L_{cj} = 1$ ) $\times$ Post <sub>ct</sub> $\times$ 2008	0.040** (0.017)	−0.033 (0.077)
Treat ( $L_{cj} = 1$ ) $\times$ Post <sub>ct</sub> $\times$ 2009	0.052 (0.017)	0.052 (0.062)
Treat ( $L_{cj} = 1$ ) $\times$ Post <sub>ct</sub> $\times$ 2010	0.102*** (0.016)	0.056 (0.067)
Treat ( $L_{cj} = 1$ ) $\times$ Post <sub>ct</sub> $\times$ 2011	0.101*** (0.015)	0.033 (0.071)
Treat ( $L_{cj} = 1$ ) $\times$ Post <sub>ct</sub> $\times$ 2012	0.093*** (0.016)	0.034 (0.054)
Treat ( $L_{cj} = 1$ ) $\times$ Post <sub>ct</sub> $\times$ 2014	0.082*** (0.016)	0.037 (0.071)
Individual controls	Yes	Yes
Country controls	Yes	Yes
Year fixed effects	Yes	Yes
Country fixed effects	Yes	Yes
Country Cluster	Yes	Yes
Observations	179,724	173,479

*Notes.* This table shows the marginal effects as predicted probabilities at means of all other variables and over time. Baseline for the calculations is full model of the probit difference-in-difference estimation. The reference group states the year 2006 such that all other interactions are interpretable in reference to this year. Panel A reports the marginal effects effects of the introduction on cross-border purchase for each year while panel B reports marginal effects on homeshopping over time. Treatment and control groups are based on an index that shows evaluation of the pre-UCPD consumer protection level. These evaluation levels reach from one to five where one is the worst and five the best pre-UCPD consumer protection index. The index is therefore equivalent to: 1 - “very low”, 2 - “low”, 3 - “middle”, 4 - “high”, 5 - “very high” consumer protection standards before the introduction of the UCPD. Here, the treatment group states the lowest pre-UCPD consumer protection evaluation while higher pre-UCPD consumer protection evaluation level are the summarized control group. Standard errors clustered at the country level are in parentheses. Significance: \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level.

### Appendix A.3. Control groups

As a very first step, utilizing a difference-in-difference estimator with multiple time periods and multiple treatments was chosen. To do so, the regression estimation included all five pre-UCPD consumer protection evaluation levels. To approach this combination of periods and groups, we use the generalized DiD-estimator suggested by [Athey & Imbens \(2006\)](#) as well as [Imbens & Wooldridge \(2009\)](#). Here, all different pre-UCPD consumer protection levels represent an individual treatment. The estimation equation looks as follows:

$$Y_{it} = \beta_0 + \sum_{j=2}^5 (\beta_j Post_{ct} \times L_{cj}) + \beta_5 X_{it} + \beta_6 T_{ct} + \tau_t + \delta_c + u_{ict} \quad (A.1)$$

Due to the five different treatments, we sum over the interaction term. The estimation will then automatically omit one of the treatments which state the reference category or control group. In this estimation the omitted category is the lowest consumer protection level, namely  $L_{cj} = 1$ . The results show indeed a significant effect of the introduction of the UCPD for all pre-UCPD consumer protection evaluation levels higher than one in comparison to a pre-UCPD consumer protection evaluation of one.<sup>23</sup> The results of the marginal effects shown in Tables [A.3.1](#) and [A.3.2](#) are counter-intuitive as they lead in the other direction than expected. Thus, it is more likely to answer the question whether retailers and services providers respect the rights of consumer with ‘strongly disagree’ or ‘disagree’ for consumers of countries with a pre-UCPD consumer protection evaluation level of two, three or four compared to consumers of countries with a very low pre-UCPD consumer protection evaluation level.

A control group that equals the lowest consumer protection evaluation level is more intuitive as countries of a very low pre-UCPD consumer protection evaluation level are by chance the ones which benefit the most of a general EU consumer protection standard. This is due to the higher consumer protection standard within their own country which should lead to a higher consumer trust. However, when using this argumentation as a base for the choice of treatment and control group, we start with using all pre-UCPD consumer protection levels lower than five as treatment groups while  $P_{cj} = 5$  states the control group. In doing so, the results are ambiguous. (Tables [A.3.3](#) and [A.3.4](#)). While all pre-UCPD consumer protection evaluation levels smaller than four face insignificant effects after the introduction of the UCPD compared to countries with a pre-UCPD consumer protection evaluation level of five, the evaluation level of four is statistical significant. The marginal effects reveal an increasing likelihood for consumers of countries with a low pre-UCPD consumer protection evaluation answering the trust question with strongly disagree or disagree and on the other hand a decreasing likelihood for the answers agree and strongly agree (Tables [A.3.3](#) and [A.3.4](#)).

Literature (e.g., [Collins \(2010\)](#), [Osuji \(2011\)](#)) suggest that the UCPD only leads to a very low minimum consumer protection level. That is why consumer trust should only be affected in the very low pre-UCPD consumer protection evaluation level countries. Countries with higher consumer protection evaluation level

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<sup>23</sup>Coefficients of the results are available upon request.

should not be affected by the minimum standard in the EU and therefore, consumers are not expected to have a higher trust in the retailers and services providers of their own country.

However, for shopping behavior we expect a similar picture, so that we choose the same treatment and control group for outcomes concerning shopping behavior. <sup>24</sup>

Table A.3.1: Marginal effects of multiple difference-in-difference estimations with reference category  $L_{cj} = 1$

	Strongly disagree	Disagree	Agree	Strongly agree
<b>Panel A: Consumer trust</b>				
Post <sub>ct</sub> (indicator, UCPD inplace)	−0.029*** (0.010)	−0.052*** (0.018)	0.048*** (0.017)	0.033*** (0.012)
Treat ( $L_{cj} = 1$ )	<i>Reference category</i>			
Treat ( $L_{cj} = 2$ )	0.020 (0.023)	0.036 (0.042)	−0.033 (0.039)	−0.023 (0.027)
Treat ( $L_{cj} = 3$ )	0.007 (0.028)	0.013 (0.050)	−0.012 (0.046)	−0.008 (0.032)
Treat ( $L_{cj} = 4$ )	−0.035* (0.020)	−0.064* (0.036)	0.058* (0.034)	0.041* (0.023)
Treat ( $L_{cj} = 5$ )	−0.039 (0.029)	−0.071 (0.052)	0.065 (0.048)	0.045 (0.033)
Treat ( $L_{cj} = 1$ ) × Post <sub>ct</sub>	<i>Reference category</i>			
Treat ( $L_{cj} = 2$ ) × Post <sub>ct</sub>	0.040*** (0.013)	0.072*** (0.025)	−0.066*** (0.023)	−0.046*** (0.015)
Treat ( $L_{cj} = 3$ ) × Post <sub>ct</sub>	0.041*** (0.010)	0.074*** (0.020)	−0.068*** (0.018)	−0.047*** (0.012)
Treat ( $L_{cj} = 4$ ) × Post <sub>ct</sub>	0.051*** (0.012)	0.092*** (0.023)	−0.084*** (0.021)	−0.059*** (0.014)
Treat ( $L_{cj} = 5$ ) × Post <sub>ct</sub>	0.021 (0.015)	0.038 (0.027)	−0.035 (0.025)	−0.024 (0.017)
Individual controls	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Country cluster	Yes	Yes	Yes	Yes
Observations	167,722			

*Notes.* This table shows the marginal effects estimated as predicted probabilities at means all other variables. Panel A reports the marginal effects of the introduction of the UCPD on consumer trust. Treatment and control groups are based on an index that shows evaluation of the pre-UCPD consumer protection level. These evaluation levels reach from one to five where one is the lowest and five the highest. The index is equivalent to: 1 - “very low”, 2 - “low”, 3 - “middle”, 4 - “high”, 5 - “very high” consumer protection standards before the introduction of the UCPD. Here, the control group states the lowest pre-UCPD consumer protection evaluation. The multiple DiD approach leads to four different treatment groups which are all evaluation levels higher than one. Standard errors clustered at the country level are in parentheses. Significance: \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level.

<sup>24</sup>Coefficients for the estimations for shopping behavior with different multiple difference-in-difference estimation are available upon request. Marginal effects are, however, shown in Table A.3.5 and A.3.6



Table A.3.2: Marginal effects of multiple difference-in-difference estimations with reference category  $L_{cj} = 1$ 

	Strongly disagree	Disagree	Agree	Strongly agree
<b>Panel B: Public authority trust</b>				
Post <sub>ct</sub> (indicator, UCPD inplace)	−0.038*** (0.009)	−0.041*** (0.010)	0.041*** (0.010)	0.038*** (0.009)
Treat ( $L_{cj} = 1$ )	<i>Reference category</i>			
Treat ( $L_{cj} = 2$ )	0.025 (0.032)	0.027 (0.034)	−0.027 (0.034)	−0.025 (0.032)
Treat ( $L_{cj} = 3$ )	0.017 (0.035)	0.019 (0.038)	−0.019 (0.038)	−0.017 (0.035)
Treat ( $L_{cj} = 4$ )	−0.007 (0.024)	−0.007 (0.026)	0.007 (0.026)	0.007 (0.024)
Treat ( $L_{cj} = 5$ )	−0.008 (0.029)	−0.009 (0.032)	0.008 (0.031)	0.008 (0.029)
Treat ( $L_{cj} = 1$ )	<i>Reference category</i>			
Treat ( $L_{cj} = 2$ ) × Post <sub>ct</sub>	0.065*** (0.010)	0.071*** (0.011)	−0.070*** (0.011)	−0.066*** (0.010)
Treat ( $L_{cj} = 3$ ) × Post <sub>ct</sub>	0.039*** (0.009)	0.042*** (0.009)	−0.042*** (0.009)	−0.039*** (0.009)
Treat ( $L_{cj} = 4$ ) × Post <sub>ct</sub>	0.032*** (0.011)	0.035*** (0.012)	−0.034*** (0.012)	−0.032*** (0.011)
Treat ( $L_{cj} = 5$ ) × Post <sub>ct</sub>	0.026*** (0.007)	0.028*** (0.008)	−0.028*** (0.008)	−0.026*** (0.007)
Individual controls	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Country cluster	Yes	Yes	Yes	Yes
Observations	167,607			

*Notes.* This table shows the marginal effects estimated as predicted probabilities at means all other variables. Panel B reports marginal effects of the introduction of the UCPD on public authority trust. Treatment and control groups are based on an index that shows evaluation of the pre-UCPD consumer protection level. These evaluation levels reach from one to five where one is the lowest and five the highest. The index is equivalent to: 1 - “very low”, 2 - “low”, 3 - “middle”, 4 - “high”, 5 - “very high” consumer protection standards before the introduction of the UCPD. Here, the control group states the lowest pre-UCPD consumer protection evaluation. The multiple DiD approach leads to four different treatment groups which are all evaluation levels higher than one. Standard errors clustered at the country level are in parentheses. Significance: \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level.

Table A.3.3: Marginal effects of multiple difference-in-difference estimations with reference category  $L_{cj} = 5$ 

	Strongly disagree	Disagree	Agree	Strongly agree
<b>Panel A: Consumer trust</b>				
Post <sub>ct</sub> (indicator, UCPD inplace)	−0.008 (0.013)	−0.014 (0.024)	0.013 (0.022)	0.009 (0.015)
Treat ( $L_{cj} = 1$ )	0.039 (0.029)	0.071 (0.052)	−0.065 (0.048)	−0.045 (0.033)
Treat ( $L_{cj} = 2$ )	0.059*** (0.015)	0.107*** (0.026)	−0.098*** (0.024)	−0.068*** (0.017)
Treat ( $L_{cj} = 3$ )	0.047*** (0.014)	0.084*** (0.026)	−0.077*** (0.024)	−0.054*** (0.017)
Treat ( $L_{cj} = 4$ )	0.004 (0.016)	0.007 (0.028)	−0.007 (0.026)	−0.005 (0.018)
Treat ( $L_{cj} = 5$ )		<i>Reference category</i>		
Treat ( $L_{cj} = 1$ ) × Post <sub>ct</sub>	−0.021 (0.015)	−0.038 (0.027)	0.035 (0.025)	0.024 (0.017)
Treat ( $L_{cj} = 2$ ) × Post <sub>ct</sub>	0.019 (0.017)	0.034 (0.031)	−0.031 (0.028)	−0.022 (0.020)
Treat ( $L_{cj} = 3$ ) × Post <sub>ct</sub>	0.020 (0.013)	0.036 (0.024)	−0.033 (0.022)	−0.023 (0.015)
Treat ( $L_{cj} = 4$ ) × Post <sub>ct</sub>	0.030** (0.015)	0.054* (0.028)	−0.050* (0.026)	−0.035** (0.018)
Treat ( $L_{cj} = 1 \times$ Post <sub>ct</sub> )		<i>Reference category</i>		
Individual controls	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Country cluster	Yes	Yes	Yes	Yes
Observations	167,722			

*Notes.* This table shows the marginal effects estimated as predicted probabilities at means all other variables. Panel A reports the marginal effects of the introduction of the UCPD on consumer trust. Treatment and control groups are based on an index that shows evaluation of the pre-UCPD consumer protection level. These evaluation levels reach from one to five where one is the lowest and five the highest. The index is equivalent to: 1 - “very low”, 2 - “low”, 3 - “middle”, 4 - “high”, 5 - “very high” consumer protection standards before the introduction of the UCPD. Here, the control group states the highest pre-UCPD consumer protection evaluation. The multiple DiD approach leads to four different treatment groups which are all evaluation levels lower than five. Standard errors clustered at the country level are in parentheses. Significance: \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level.

Table A.3.4: Marginal effects of multiple difference-in-difference estimations with reference category  $L_{cj} = 5$ 

	Strongly disagree	Disagree	Agree	Strongly agree
<b>Panel B: Public authority trust</b>				
Post <sub>ct</sub> (indicator, UCPD inplace)	−0.012 (0.011)	−0.013 (0.012)	0.013 (0.012)	0.012 (0.011)
Treat ( $L_{cj} = 1$ )	0.008 (0.029)	0.009 (0.032)	−0.008 (0.031)	−0.008 (0.029)
Treat ( $L_{cj} = 2$ )	0.033** (0.016)	0.036** (0.016)	−0.035** (0.016)	−0.033** (0.015)
Treat ( $L_{cj} = 3$ )	0.025 (0.016)	0.027* (0.017)	−0.027 (0.017)	−0.025 (0.016)
Treat ( $L_{cj} = 4$ )	0.001 (0.016)	0.001 (0.017)	−0.001 (0.017)	−0.001 (0.016)
Treat ( $L_{cj} = 5$ )	<i>Reference category</i>			
Treat ( $L_{cj} = 1$ ) × Post <sub>ct</sub>	−0.026*** (0.007)	−0.028*** (0.008)	0.028*** (0.008)	0.026*** (0.007)
Treat ( $L_{cj} = 2$ ) × Post <sub>ct</sub>	0.040*** (0.012)	0.043*** (0.013)	−0.043*** (0.013)	−0.040*** (0.012)
Treat ( $L_{cj} = 3$ ) × Post <sub>ct</sub>	0.013 (0.008)	0.014* (0.009)	−0.014* (0.009)	−0.013 (0.008)
Treat ( $L_{cj} = 4$ ) × Post <sub>ct</sub>	0.006 (0.012)	0.007 (0.014)	−0.007 (0.013)	−0.006 (0.013)
Treat ( $L_{cj} = 5$ × Post <sub>ct</sub> )	<i>Reference category</i>			
Individual controls	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Country cluster	Yes	Yes	Yes	Yes
Observations	167,607			

*Notes.* This table shows the marginal effects estimated as predicted probabilities at means all other variables. Panel A reports the marginal effects of the introduction of the UCPD on public authority trust. Treatment and control groups are based on an index that shows evaluation of the pre-UCPD consumer protection level. These evaluation levels reach from one to five where one is the lowest and five the highest. The index is equivalent to: 1 - “very low”, 2 - “low”, 3 - “middle”, 4 - “high”, 5 - “very high” consumer protection standards before the introduction of the UCPD. Here, the control group states the highest pre-UCPD consumer protection evaluation. The multiple DiD approach leads to four different treatment groups which are all evaluation levels lower than five. Standard errors clustered at the country level are in parentheses. Significance: \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level.

Table A.3.5: Marginal effects of multiple difference-in-difference estimations with reference category  $L_{cj} = 1$ 

	<b>Panel A:</b> Cross-border purchase	<b>Panel B:</b> Homeshopping
Post <sub>ct</sub> (indicator, UCPD inplace)	0.060*** (0.015)	0.019 (0.038)
Treat ( $L_{cj} = 1$ )	<i>Reference category</i>	
Treat ( $L_{cj} = 2$ )	0.058 (0.042)	0.303*** (0.106)
Treat ( $L_{cj} = 3$ )	0.061 (0.045)	0.330*** (0.117)
Treat ( $L_{cj} = 4$ )	0.074** (0.037)	0.422** (0.082)
Treat ( $L_{cj} = 5$ )	0.190*** (0.040)	0.144 (0.102)
Treat ( $L_{cj} = 1$ ) $\times$ Post <sub>ct</sub>	<i>Reference category</i>	
Treat ( $L_{cj} = 2$ ) $\times$ Post <sub>ct</sub>	-0.101** (0.022)	-0.028 (0.040)
Treat ( $L_{cj} = 3$ ) $\times$ Post <sub>ct</sub>	-0.083*** (0.019)	-0.041 (0.038)
Treat ( $L_{cj} = 4$ ) $\times$ Post <sub>ct</sub>	-0.105*** (0.013)	-0.068 (0.043)
Treat ( $L_{cj} = 5$ ) $\times$ Post <sub>ct</sub>	-0.064*** (0.011)	-0.004 (0.056)
Individual controls	Yes	Yes
Country controls	Yes	Yes
Year fixed effects	Yes	Yes
Country fixed effects	Yes	Yes
Country cluster	Yes	Yes
Observations	179,724	173,479

*Notes.* This table shows the marginal effects estimated as predicted probabilities at means all other variables. Panel A reports the marginal effects of the introduction of the UCPD on cross-border purchase while panel B reports marginal effects on homeshopping. Treatment and control groups are based on an index that shows evaluation of the pre-UCPD consumer protection level. These evaluation levels reach from one to five where one is the lowest and five the highest. The index is equivalent to: 1 - “very low”, 2 - “low”, 3 - “middle”, 4 - “high”, 5 - “very high” consumer protection standards before the introduction of the UCPD. Here, the control group states the lowest pre-UCPD consumer protection evaluation. The multiple DiD approach leads to four different treatment groups which are all evaluation levels higher than one. Standard errors clustered at the country level are in parentheses. Significance: \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level.

Table A.3.6: Marginal effects of multiple difference-in-difference estimations with reference category  $L_{cj} = 5$ 

	Panel A: Cross-border purchase	Panel B: Homeshopping
Post <sub>ct</sub> (indicator, UCPD inplace)	-0.004 (0.013)	0.015 (0.052)
Treat ( $L_{cj} = 1$ )	-0.190*** (0.040)	-0.144 (0.102)
Treat ( $L_{cj} = 2$ )	-0.132*** (0.014)	0.159*** (0.051)
Treat ( $L_{cj} = 3$ )	-0.129*** (0.016)	0.186*** (0.053)
Treat ( $L_{cj} = 4$ )	-0.116*** (0.009)	0.278*** (0.051)
Treat ( $L_{cj} = 5$ )	<i>Reference category</i>	
Treat ( $L_{cj} = 1$ ) $\times$ Post <sub>ct</sub>	0.064*** (0.011)	0.004 (0.056)
Treat ( $L_{cj} = 2$ ) $\times$ Post <sub>ct</sub>	-0.037* (0.022)	-0.024 (0.054)
Treat ( $L_{cj} = 3$ ) $\times$ Post <sub>ct</sub>	-0.019 (0.017)	-0.037 (0.051)
Treat ( $L_{cj} = 4$ ) $\times$ Post <sub>ct</sub>	-0.041*** (0.010)	-0.065 (0.059)
Treat ( $L_{cj} = 5$ ) $\times$ Post <sub>ct</sub>	<i>Reference category</i>	
Individual controls	Yes	Yes
Country controls	Yes	Yes
Year fixed effects	Yes	Yes
Country fixed effects	Yes	Yes
Country cluster	Yes	Yes
Observations	179,724	173,479

*Notes.* This table shows the marginal effects estimated as predicted probabilities at means all other variables. Panel A reports the marginal effects of the introduction of the UCPD on cross-border purchase while panel B reports marginal effects on homeshopping. Treatment and control groups are based on an index that shows evaluation of the pre-UCPD consumer protection level. These evaluation levels reach from one to five where one is the lowest and five the highest. The index is equivalent to: 1 - “very low”, 2 - “low”, 3 - “middle”, 4 - “high”, 5 - “very high” consumer protection standards before the introduction of the UCPD. Here, the control group states the highest pre-UCPD consumer protection evaluation. The multiple DiD approach leads to four different treatment groups which are all evaluation levels lower than five. Standard errors clustered at the country level are in parentheses. Significance: \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level.

#### *Appendix A.4. Robustness checks*

We present a variety of sensitivity analyses. First, we use a more simple method. It has been discussed in the literature (recently by, e.g., [Bond & Lang \(2019\)](#)) that for a cardinal variable an ordered logit or probit model might be a problem. Results of the re-estimation of Equation 1 with an ordinary least squares model support the main results of our analysis for the trust outcomes (Table [A.4.1](#)).

Moreover, we added Worldwide Governance Indicators (WGI) for all member states in addition to individual and country controls in our baseline specification. The governance indicators include: voice and accountability, political stability and absence of violence/terrorism, government effectiveness, regulatory quality, rule of law as well as control of corruption. The data was provided by [The World Bank \(2018\)](#). The marginal effects for the variables of interest can be found in Tables [A.4.2](#) and [A.4.3](#), respectively for trust and shopping behavior. The results reveal that including additional governance indicators does not change the marginal effects substantially. The effects for consumer trust seem to be a little bit smaller while public authority trust is not affected by including the governance indicators. A different picture arises for shopping behavior. While the effect for cross-border purchase is a slightly lower, the former (non-statistically but positive) effect for homeshopping diminishes completely.<sup>25</sup>

In our data different implementation dates in different countries happen. This leads to a difference-in-difference approach with multiple time periods and varying timing. Comparing treated and non-treated observations before and after the treatment may then lead to a comparison of treated countries compared to other treated countries that simply are not treated at this time. To overcome this issue, we fixed the treatment dates for all countries to 2010 as this is the latest year, countries have implemented the UCPD.<sup>26</sup> The results in Tables [A.4.4](#) and [A.4.5](#) confirm the previous results of a difference-in-difference approach with multiple time periods although the effects are not as high.

In the beginning, two different evaluation indexes were introduced. The first is an evaluation index by legal law expert's and their evaluation of the consumer protection situation before the introduction of the UCPD. The second is also an evaluation index of the pre-UCPD consumer protection standard but from consumer protection experts instead of legal experts. Similar to the first evaluation index, consumer protection experts evaluate the level of pre-UCPD consumer protection by a value from 1-5, where 1 is the lowest and 5 the highest. For analysis, we mainly focused on the evaluation of the legal experts. However, we re-estimated the main outcome variables (consumer trust, public authority trust, cross-border purchase and homeshopping)

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<sup>25</sup>The coefficients show similar results for the main variable of interest as in the baseline estimations. Interestingly, the governance indicators may influence consumer trust but do not explain public authority trust. While the regulatory quality and rule of law have statistically significant effects on consumer trust, political stability has an influence on cross-border purchase and government effectiveness is in addition relevant for homeshopping. The governance indicators reflect the situation in the home country, so that it is especially interesting that political stability in the home country has a statistical influence on cross-border purchase. However, it would also be interesting to investigate how political stability in countries of retailers and service providers influence cross-border purchase. Unfortunately, we are not able to observe directions of cross-border shopping, but only the consumer's country of origin. These estimation results are available upon request.

<sup>26</sup>We thank an anonymous referee for raising our awareness towards this issue and the suggestion for fixing the treatment date.

with a treatment and control group based on the protection experts' evaluation. The results indicating that our findings are robust across the evaluation indexes and can be found in Tables A.4.6 and A.4.7 for trust, while the results for shopping behavior are shown in Tables A.4.8 and A.4.9.

As the data are only available as repeated cross-section samples, it is not possible to account for time invariant effects by using a fixed effects estimation or to test for autocorrelation. To overcome this, we build a pseudo panel based on Deaton (1985).<sup>27</sup> Individual characteristics (home country, year of birth and gender) of the respondents are used to generate a panel that contains average persons from groups that are gathered by the mentioned characteristics. The groups contain between 1 to 7 individuals leaving a panel between 21,871 and 26,416 observation depending on the regression method. We utilized the synthetic panel to re-estimate Equation 1 with a fixed effects estimator and to tests for autocorrelation. The results of the fixed effects as well as (ordered) logit estimations with robust and clustered standard errors can be found in Tables A.4.10 and A.4.11, respectively for trust attitudes and shopping behavior. All estimates show similar positive and significant effects of the introduction of the UCPD on the outcomes except of homeshopping which remains insignificantly although positive. The estimates are therefore robust in the pseudo panel. Tests for first-degree autocorrelation as discussed by Verbeek & Nijman (1992) show no statistically significant results so that estimation results are not suffering from first-degree autocorrelation.

As mentioned by Bertrand et al. (2004) standard errors may be inconsistent with varying state sizes, therefore, we bootstrap the standard errors in the baseline regression to account for the correct inference. The results in Tables A.4.12 and A.4.13 show more coefficients being statistically significant so that even homeshopping now shows a highly statistically significant effect. Thus, we can confirm our baseline results and will rely on them.

In summary, our results are robust to all applied sensitivity tests.

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<sup>27</sup>This technique was, among others, applied by Verbeek & Vella (2005) and Guillerm (2017).

Table A.4.1: Ordinary least squares estimation results

	Panel A: Consumer trust		Panel B: Public authority trust	
Post <sub>ct</sub> (indicator, UCPD inplace)	−0.073*	−0.065*	−0.014	−0.018
	(0.042)	(0.038)	(0.042)	(0.033)
Treat ( $L_{cj} = 1$ )	−0.539***	−0.253*	−0.495***	−0.120
	(0.052)	(0.125)	(0.023)	(0.116)
Treat ( $L_{cj} = 1$ ) × Post <sub>ct</sub>	0.178**	0.198***	0.161***	0.168***
	(0.068)	(0.058)	(0.028)	(0.031)
<i>Individual controls</i>				
Female		0.000		0.037***
		(0.004)		(0.008)
Nation (indicator, nationality different to current country)		0.043**		0.096***
		(0.018)		(0.033)
log ( <i>age</i> )		−1.540***		−1.453***
		(0.147)		(0.196)
log ( <i>age</i> ) <sup>2</sup>		0.202***		0.180***
		(0.020)		(0.027)
<i>Country controls</i>				
Share of internet access (% of population)		0.010***		0.004**
		(0.003)		(0.002)
Share of unemployment (% of population)		0.004		−0.011***
		(0.005)		(0.003)
log ( <i>GDP</i> )		0.256		0.327**
		(0.168)		(0.147)
Incident (indicator, consumer trust affected by crisis)		−0.013		−0.019
		(0.019)		(0.022)
Share of border purchase (% of population)		−0.001		0.000
		(0.003)		(0.003)
Intercept	2.975***	2.743*	2.965***	2.276
	(0.023)	(1.596)	(0.024)	(1.436)
Year fixed effects	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Country Cluster	Yes	Yes	Yes	Yes
Pseudo $r^2$	0.073	0.080	0.074	0.083
Observations	167,722		167,607	

*Notes.* This table shows the results of the ordinary least squares difference-in-difference estimation of the introduction of the Unfair Commercial Practice Directive. Panel A reports the coefficients of the introduction on consumer trust while panel B reports coefficients on public authority trust. Treatment and control groups are based on an index that shows evaluation of the pre-UCPD consumer protection level. These evaluation levels reach from one to five where one is the worst and five the best pre-UCPD consumer protection index. The index is therefore equivalent to: 1 - “very low”, 2 - “low”, 3 - “middle”, 4 - “high”, 5 - “very high” consumer protection standards before the introduction of the UCPD. Here, the treatment group states the lowest pre-UCPD consumer protection evaluation while higher pre-UCPD consumer protection evaluation level are the summarized control group. Standard errors clustered at the country level are in parentheses. Significance: \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level.



Table A.4.2: Marginal effects including governance indicators as additional control variables

	Strongly Disagree	Disagree	Agree	Strongly Agree
Panel A: Consumer trust				
Post <sub>ct</sub> (indicator, UCPD inplace)	0.013* (0.007)	0.023* (0.013)	−0.021* (0.012)	−0.015* (0.008)
Treat ( <i>L</i> <sub><i>cj</i></sub> = 1)	0.029 (0.030)	0.052 (0.053)	−0.047 (0.049)	−0.033 (0.034)
Treat ( <i>L</i> <sub><i>cj</i></sub> = 1 ) × Post <sub>ct</sub>	−0.025*** (0.009)	−0.046*** (0.016)	0.042*** (0.015)	0.029*** (0.010)
Observations	167,722			
Panel B: Public authority trust				
Post <sub>ct</sub> (indicator, UCPD inplace)	0.004 (0.008)	0.004 (0.009)	−0.004 (0.009)	−0.004 (0.008)
Treat ( <i>L</i> <sub><i>cj</i></sub> = 1)	0.032 (0.033)	0.035 (0.036)	−0.035 (0.036)	−0.032 (0.034)
Treat ( <i>L</i> <sub><i>cj</i></sub> = 1 ) × Post <sub>ct</sub>	−0.042*** (0.008)	−0.046*** (0.009)	0.045*** (0.009)	0.043*** (0.008)
Observations	167,607			
Individual controls	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes
Governance indicators	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Country cluster	Yes	Yes	Yes	Yes

*Notes.* This table shows the marginal effects estimated as predicted probabilities at means all other variables. Panel A reports the marginal effects of the introduction of the UCPD on consumer trust while panel B reports marginal effects on public authority trust. Treatment and control groups are based on an index that shows evaluation of the pre-UCPD consumer protection level. These evaluation levels reach from one to five where one is the worst and five the best pre-UCPD consumer protection index. The index is therefore equivalent to: 1 - "very low", 2 - "low", 3 - "middle", 4 - "high", 5 - "very high" consumer protection standards before the introduction of the UCPD. Here, the treatment group states the lowest pre-UCPD consumer protection evaluation while higher pre-UCPD consumer protection evaluation level are the summarized control group. Standard errors clustered at the country level are in parentheses. Significance: \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level.

Table A.4.3: Marginal effects including governance indicators as additional control variables

	<b>Panel A: Cross-border purchase</b>	<b>Panel B: Homeshopping</b>
Post <sub>ct</sub> (indicator, UCPD inplace)	−0.031*** (0.010)	−0.019 (0.029)
Treat ( $L_{cj} = 1$ )	−0.207*** (0.038)	−0.098 (0.099)
Treat ( $L_{cj} = 1$ ) $\times$ Post <sub>ct</sub>	0.082*** (0.015)	−0.001 (0.037)
Individual controls	Yes	Yes
Country controls	Yes	Yes
Governance indicators	Yes	Yes
Year fixed effects	Yes	Yes
Country fixed effects	Yes	Yes
Country cluster	Yes	Yes
Observations	179,724	173,479

*Notes.* This table shows the marginal effects of the probit difference-in-difference estimation. Panel A reports the marginal effects of the introduction of the UCPD on cross-border purchase while panel B reports marginal effects on homeshopping. Treatment and control groups are based on an index that shows evaluation of the pre-UCPD consumer protection level. These evaluation levels reach from one to five where one is the worst and five the best pre-UCPD consumer protection index. The index is therefore equivalent to: 1 - “very low”, 2 - “low”, 3 - “middle”, 4 - “high”, 5 - “very high” consumer protection standards before the introduction of the UCPD. Here, the treatment group states the lowest pre-UCPD consumer protection evaluation while higher pre-UCPD consumer protection evaluation level are the summarized control group. Standard errors clustered at the country level are in parentheses. Significance: \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level.

Table A.4.4: Marginal effects with a fixed treatment implementation date

	Strongly Disagree	Disagree	Agree	Strongly Agree
Panel A: Consumer trust				
Post <sub>ct</sub> (indicator, UCPD inplace in 2010)	0.055*** (0.019)	0.100*** (0.035)	−0.091*** (0.032)	−0.064*** (0.022)
Treat ( <i>L<sub>cj</sub></i> = 1)	0.033 (0.020)	0.059* (0.036)	−0.054 (0.033)	−0.038 (0.023)
Treat ( <i>L<sub>cj</sub></i> = 1 ) × Post <sub>ct</sub>	−0.021* (0.012)	−0.038* (0.022)	0.035* (0.020)	0.024* (0.014)
Observations	167,722			
Panel B: Public authority trust				
Post <sub>ct</sub> (indicator, UCPD inplace in 2010)	0.039** (0.017)	0.042** (0.018)	−0.041** (0.017)	−0.039** (0.017)
Treat ( <i>L<sub>cj</sub></i> = 1)	0.022 (0.023)	0.024 (0.025)	−0.024 (0.024)	−0.022 (0.023)
Treat ( <i>L<sub>cj</sub></i> = 1 ) × Post <sub>ct</sub>	−0.026*** (0.008)	−0.028*** (0.009)	0.028*** (0.009)	0.026*** (0.009)
Observations	167,607			
Individual controls	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Country cluster	Yes	Yes	Yes	Yes

*Notes.* This table shows the marginal effects of an ordered probit difference-in-difference estimation. Panel A reports the marginal effects of the introduction of the UCPD on consumer trust while panel B reports marginal effects on public authority trust. Treatment and control groups are based on an index that shows evaluation of the pre-UCPD consumer protection level. These evaluation levels reach from one to five where one is the worst and five the best pre-UCPD consumer protection index. The index is therefore equivalent to: 1 - "very low", 2 - "low", 3 - "middle", 4 - "high", 5 - "very high" consumer protection standards before the introduction of the UCPD. Here, the treatment group states the lowest pre-UCPD consumer protection evaluation while higher pre-UCPD consumer protection evaluation level are the summarized control group. Standard errors clustered at the country level are in parentheses. Significance: \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level.

Table A.4.5: Marginal effects with a fixed treatment implementation date

	Panel A: Cross-border purchase	Panel B: Homeshopping
Post <sub>ct</sub> (indicator, UCPD inplace in 2010)	0.061** (0.027)	0.178*** (0.048)
Treat ( $L_{cj} = 1$ )	-0.166*** (0.031)	-0.148 (0.094)
Treat ( $L_{cj} = 1$ ) $\times$ Post <sub>ct</sub>	0.038*** (0.008)	0.027 (0.027)
Individual controls	Yes	Yes
Country controls	Yes	Yes
Year fixed effects	Yes	Yes
Country fixed effects	Yes	Yes
Country cluster	Yes	Yes
Observations	179,724	173,479

*Notes.* This table shows the marginal effects of the probit difference-in-difference estimation. Panel A reports the marginal effects of the introduction of the UCPD on cross-border purchase while panel B reports marginal effects on homeshopping. Treatment and control groups are based on an index that shows evaluation of the pre-UCPD consumer protection level. These evaluation levels reach from one to five where one is the worst and five the best pre-UCPD consumer protection index. The index is therefore equivalent to: 1 - “very low”, 2 - “low”, 3 - “middle”, 4 - “high”, 5 - “very high” consumer protection standards before the introduction of the UCPD. Here, the treatment group states the lowest pre-UCPD consumer protection evaluation while higher pre-UCPD consumer protection evaluation level are the summarized control group. Standard errors clustered at the country level are in parentheses. Significance: \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level.

Table A.4.6: Estimation results with treatment group indicator  $P_{cj} = 1$  (consumer protection evaluation by consumer protection experts)

	Panel A: Consumer trust		Panel B: Public authority trust	
Post <sub>ct</sub> (indicator, UCPD inplace)	-0.112*	-0.099*	-0.017	-0.020
	(0.065)	(0.059)	(0.058)	(0.046)
Treat ( $P_{cj} = 1$ )	-0.797***	-0.494**	-0.202***	0.149
	(0.087)	(0.214)	(0.034)	(0.145)
Treat ( $P_{cj} = 1$ ) $\times$ Post <sub>ct</sub>	0.268***	0.299***	0.220***	0.230***
	(0.098)	(0.085)	(0.039)	(0.037)
<i>Individual controls</i>				
Female		-0.003		0.045***
		(0.006)		(0.011)
Nation (indicator, nationality different to current country)		0.069**		0.129***
		(0.028)		(0.041)
log( <i>age</i> )		-2.449***		-1.972***
		(0.213)		(0.250)
log( <i>age</i> ) <sup>2</sup>		0.322***		0.245***
		(0.030)		(0.035)
<i>Country controls</i>				
Share of internet access (% of population)		0.015***		0.006**
		(0.005)		(0.002)
Share of unemployment (% of population)		0.006		-0.015***
		(0.007)		(0.005)
log( <i>GDP</i> )		0.379		0.417**
		(0.253)		(0.197)
Incident (indicator, consumer trust affected by crisis)		-0.021		-0.028
		(0.028)		(0.029)
Share of border purchase (% of population)		-0.002		0.000
		(0.004)		(0.004)
Cut 1	-1.982***	-1.917	-1.722***	-1.040
	(0.042)	(2.406)	(0.037)	(1.947)
Cut 2	-0.874***	-0.805	-0.759***	-0.071
	(0.041)	(2.411)	(0.032)	(1.948)
Cut 3	0.874***	0.950	0.740***	1.436
	(0.036)	(2.410)	(0.039)	(1.939)
Year fixed effects	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Country Cluster	Yes	Yes	Yes	Yes
Pseudo $r^2$	0.034	0.037	0.031	0.035
Observations	167,722		167,607	

*Notes.* This table shows the results of the ordered probit difference-in-difference estimation of the introduction of the Unfair Commercial Practice Directive. Treatment and control groups are based on an index that shows evaluation of the pre-UCPD consumer protection level by consumer protection experts. These evaluation levels reach from one to five where one is the worst and five the best pre-UCPD consumer protection index. The index is therefore equivalent to: 1 - “very low”, 2 - “low”, 3 - “middle”, 4 - “high”, 5 - “very high” consumer protection standards before the introduction of the UCPD. Here, the treatment group states the lowest pre-UCPD consumer protection evaluation while higher pre-UCPD consumer protection evaluation level are the summarized control group. Standard errors clustered at the country level are in parentheses. Significance: \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level.

Table A.4.7: Marginal effects with treatment group indicator  $P_{cj} = 1$  (consumer protection evaluation by consumer protection experts)

	Strongly Disagree	Disagree	Agree	Strongly Agree
Panel A: Consumer trust				
Post <sub>ct</sub> (indicator, UCPD inplace)	0.013* (0.008)	0.024* (0.014)	−0.022* (0.013)	−0.015* (0.009)
Treat ( <i>P</i> <sub>cj</sub> = 1)	0.066** (0.028)	0.118** (0.051)	−0.108** (0.047)	−0.076** (0.033)
Treat ( <i>P</i> <sub>cj</sub> = 1 ) × Post <sub>ct</sub>	−0.040*** (0.011)	−0.072*** (0.021)	0.066*** (0.019)	0.046*** (0.013)
Observations	167,722			
Panel B: Public authority trust				
Post <sub>ct</sub> (indicator, UCPD inplace)	0.004 (0.008)	0.004 (0.009)	−0.004 (0.009)	−0.004 (0.008)
Treat ( <i>P</i> <sub>cj</sub> = 1)	−0.028 (0.027)	−0.030 (0.029)	0.030 (0.029)	0.028 (0.027)
Treat ( <i>P</i> <sub>cj</sub> = 1 ) × Post <sub>ct</sub>	−0.042*** (0.007)	−0.046*** (0.008)	0.046*** (0.007)	0.043*** (0.007)
Observations	167,607			
Individual controls	Yes	Yes	Yes	Yes
Country controls	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Country cluster	Yes	Yes	Yes	Yes

*Notes.* This table shows the marginal effects of the ordered probit difference-in-difference estimation of the introduction of the Unfair Commercial Practice Directive. Panel A reports the marginal effects of the introduction on consumer trust while panel B reports marginal effects on public authority trust. Treatment and control groups are based on an index that shows evaluation of the pre-UCPD consumer protection level by consumer protection experts. These evaluation levels reach from one to five where one is the worst and five the best pre-UCPD consumer protection index. The index is therefore equivalent to: 1 - “very low”, 2 - “low”, 3 - “middle”, 4 - “high”, 5 - “very high” consumer protection standards before the introduction of the UCPD. Here, the treatment group states the lowest pre-UCPD consumer protection evaluation while higher pre-UCPD consumer protection evaluation level are the summarized control group. Standard errors clustered at the country level are in parentheses. Significance: \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level.

Table A.4.8: Estimation results with treatment group indicator  $P_{cj} = 1$  (consumer protection evaluation by consumer protection experts)

	Panel A: Cross-border purchase		Panel B: Homeshopping	
Post <sub>ct</sub> (indicator, UCPD inplace)	−0.137** (0.060)	−0.181*** (0.061)	−0.037 (0.087)	−0.069 (0.083)
Treat ( $P_{cj} = 1$ )	−0.479*** (0.046)	−0.180 (0.211)	−1.249*** (0.092)	−1.097*** (0.317)
Treat ( $P_{cj} = 1$ ) × Post <sub>ct</sub>	0.493*** (0.053)	0.469*** (0.058)	0.186* (0.101)	0.111 (0.099)
<i>Individual controls</i>				
Female		−0.278*** (0.020)		−0.133*** (0.020)
Nation (indicator, nationality different to current country)		−0.049 (0.089)		−0.130*** (0.033)
log (age)		9.815*** (0.337)		10.836*** (0.458)
log (age) <sup>2</sup>		−1.459*** (0.048)		−1.613*** (0.064)
<i>Country controls</i>				
Share of internet access (% of population)		0.013*** (0.004)		0.019*** (0.004)
Share of unemployment (% of population)		0.008 (0.008)		0.002 (0.010)
log (GDP)		0.322 (0.251)		0.189 (0.392)
Incident (indicator, consumer trust affected by crisis)		−0.004 (0.029)		−0.021 (0.028)
Intercept	−0.918*** (0.048)	−20.929 *** (2.537)	−0.981*** (0.045)	−21.606 *** (4.038)
Year fixed effects	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Country Cluster	Yes	Yes	Yes	Yes
Pseudo $r^2$	0.099	0.176	0.113	0.199
Observations	179,724		173,479	

*Notes.* This table shows the results of the probit difference-in-difference estimation of the introduction of the Unfair Commercial Practice Directive. Treatment and control groups are based on an index that shows evaluation of the pre-UCPD consumer protection level by consumer protection experts. These evaluation levels reach from one to five where one is the worst and five the best pre-UCPD consumer protection index. The index is therefore equivalent to: 1 - “very low”, 2 - “low”, 3 - “middle”, 4 - “high”, 5 - “very high” consumer protection standards before the introduction of the UCPD. Here, the treatment group states the lowest pre-UCPD consumer protection evaluation while higher pre-UCPD consumer protection evaluation level are the summarized control group. Standard errors clustered at the country level are in parentheses. Significance: \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level.

Table A.4.9: Marginal effects with treatment group indicator  $P_{cj} = 1$  (consumer protection evaluation by consumer protection experts)

	<b>Panel A: Cross-border purchase</b>	<b>Panel B: Homeshopping</b>
Post <sub>ct</sub> (indicator, UCPD inplace)	−0.035*** (0.012)	−0.025 (0.030)
Treat ( $L_{cj} = 1$ )	−0.035 (0.041)	−0.399*** (0.116)
Treat ( $L_{cj} = 1$ ) $\times$ Post <sub>ct</sub>	0.090*** (0.011)	0.040 (0.036)
Individual controls	Yes	Yes
Country controls	Yes	Yes
Year fixed effects	Yes	Yes
Country fixed effects	Yes	Yes
Country cluster	Yes	Yes
Observations	179,724	173,479

*Notes.* This table shows the marginal effects of the probit difference-in-difference estimation of the introduction of the Unfair Commercial Practice Directive. Panel A reports the marginal effects of the introduction on cross-border purchase while panel B reports marginal effects on homeshopping. Treatment and control groups are based on an index that shows evaluation of the pre-UCPD consumer protection level by consumer protection experts. These evaluation levels reach from one to five where one is the worst and five the best pre-UCPD consumer protection index. The index is therefore equivalent to: 1 - “very low”, 2 - “low”, 3 - “middle”, 4 - “high”, 5 - “very high” consumer protection standards before the introduction of the UCPD. Here, the treatment group states the lowest pre-UCPD consumer protection evaluation while higher pre-UCPD consumer protection evaluation level are the summarized control group. Standard errors clustered at the country level are in parentheses. Significance: \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level.



Table A.4.10: Estimation results of the pseudo panel

	OLS FE	oLogit	oLogit
<b>Panel A: Consumer trust</b>			
Post <sub>ct</sub> (indicator, UCPD inplace)	−0.025* (0.014)	−0.231*** (0.077)	−0.231 (0.198)
Treat ( $L_{cj} = 1$ )	-	−2.585*** (0.308)	−2.585*** (0.629)
Treat ( $L_{cj} = 1$ ) × Post <sub>ct</sub>	0.250*** (0.046)	0.864*** (0.129)	0.864*** (0.233)
Observations	21,871	26,416	26,416
<b>Panel B: Public authority trust</b>			
Post <sub>ct</sub> (indicator, UCPD inplace)	0.016 (0.016)	−0.093 (0.072)	−0.093 (0.147)
Treat ( $L_{cj} = 1$ )	-	−0.300 (0.250)	−0.300 (0.493)
Treat ( $L_{cj} = 1$ ) × Post <sub>ct</sub>	0.242*** (0.051)	0.818*** (0.125)	0.818*** (0.123)
Observations	21,895	26,448	26,448
Individual controls	Yes	Yes	Yes
Country controls	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes
Country Cluster	No	No	Yes
Robust SE	No	Yes	Yes

*Notes.* This table shows the results of the ordinary least squares and ordered logit difference-in-difference estimations. Panel A reports the coefficients of the introduction of the Unfair Commercial Practice Directive on consumer trust while panel B reports coefficients on public authority trust. Treatment and control groups are based on an index that shows evaluation of the pre-UCPD consumer protection level. These evaluation levels reach from one to five where one is the worst and five the best pre-UCPD consumer protection index. The index is therefore equivalent to: 1 - “very low”, 2 - “low”, 3 - “middle”, 4 - “high”, 5 - “very high” consumer protection standards before the introduction of the UCPD. Here, the treatment group states the lowest pre-UCPD consumer protection evaluation while higher pre-UCPD consumer protection evaluation level are the summarized control group. Standard errors clustered at the country level are in parentheses. Significance: \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level.

Table A.4.11: Estimation results of the pseudo panel

	OLS FE	Logit	Logit
<b>Panel A: Cross-border purchase</b>			
Post <sub>ct</sub> (indicator, UCPD inplace)	−0.025*** (0.006)	−0.688*** (0.169)	−0.688*** (0.177)
Treat ( $L_{cj} = 1$ )	-	−4.966*** (0.849)	−4.966*** (1.322)
Treat ( $L_{cj} = 1$ ) × Post <sub>ct</sub>	0.033* (0.018)	1.054*** (0.385)	1.054** (0.427)
Observations	22,152	26,744	26,744
<b>Panel B: Homeshopping</b>			
Post <sub>ct</sub> (indicator, UCPD inplace)	−0.017** (0.007)	−0.364*** (0.104)	−0.364 (0.279)
Treat ( $L_{cj} = 1$ )	-	−1.402** (0.573)	−1.402 (0.872)
Treat ( $L_{cj} = 1$ ) × Post <sub>ct</sub>	0.036 (0.023)	0.101 (0.483)	0.101 (0.198)
Observations	22,152	26,744	26,744
Individual controls	Yes	Yes	Yes
Country controls	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes
Country Cluster	No	No	Yes
Robust SE	No	Yes	Yes

*Notes.* This table shows the results of the ordinary least squares and logit difference-in-difference estimations. Panel A reports the coefficients of the introduction of the Unfair Commercial Practices Directive on cross-border purchase while panel B reports coefficients on homeshopping. Treatment and control groups are based on an index that shows evaluation of the pre-UCPD consumer protection level. These evaluation levels reach from one to five where one is the worst and five the best pre-UCPD consumer protection index. The index is therefore equivalent to: 1 - “very low”, 2 - “low”, 3 - “middle”, 4 - “high”, 5 - “very high” consumer protection standards before the introduction of the UCPD. Here, the treatment group states the lowest pre-UCPD consumer protection evaluation while higher pre-UCPD consumer protection evaluation level are the summarized control group. Standard errors clustered at the country level are in parentheses. Significance: \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level.

Table A.4.12: Estimation results with bootstrapped standard errors

	Panel A: Consumer trust		Panel B: Public authority trust	
Post <sub>ct</sub> (indicator, UCPD inplace)	−0.112*** (0.014)	−0.099*** (0.015)	−0.017 (0.014)	−0.020 (0.014)
Treat ( $L_{cj} = 1$ )	−0.836*** (0.029)	−0.394*** (0.055)	−0.677*** (0.027)	−0.177*** (0.049)
Treat ( $L_{cj} = 1$ ) × Post <sub>ct</sub>	0.268*** (0.029)	0.299*** (0.028)	0.220*** (0.025)	0.230*** (0.026)
<i>Individual controls</i>				
Female (indicator)		−0.003 (0.006)		0.045*** (0.006)
Nation (indicator, nationality different to current country)		0.069*** (0.017)		0.129*** (0.017)
log (age)		−2.449*** (0.110)		−1.972*** (0.105)
log (age) <sup>2</sup>		0.322*** (0.015)		0.245*** (0.014)
<i>Country controls</i>				
Share of internet access (% of population)		0.015*** (0.001)		0.006*** (0.001)
Share of unemployment (% of population)		0.006*** (0.002)		−0.015*** (0.001)
log (GDP)		0.379*** (0.052)		0.417*** (0.049)
Incident (indicator, consumer trust affected by crisis)		−0.021** (0.010)		−0.028*** (0.009)
Share of border purchase (% of population)		−0.002* (0.001)		0.000 (0.001)
Cut 1	−1.982*** (0.018)	−1.917*** (0.575)	−1.722*** (0.017)	−1.040* (0.547)
Cut 2	−0.874*** (0.017)	−0.805 (0.575)	−0.759*** (0.017)	−0.071 (0.547)
Cut 3	0.874*** (0.017)	0.950* (0.575)	0.740*** (0.016)	1.436*** (0.546)
Year fixed effects	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Country Cluster	No	No	No	No
Bootstrapped SE	Yes	Yes	Yes	Yes
Pseudo $r^2$	0.034	0.037	0.031	0.035
Observations	167,722		167,607	

*Notes.* This table shows the results of the ordered probit difference-in-difference estimation. Panel A reports the coefficients of the introduction of the Unfair Commercial Practice Directive on consumer trust while panel B reports coefficients on public authority trust. Treatment and control groups are based on an index that shows evaluation of the pre-UCPD consumer protection level. These evaluation levels reach from one to five where one is the worst and five the best pre-UCPD consumer protection index. The index is therefore equivalent to: 1 - “very low”, 2 - “low”, 3 - “middle”, 4 - “high”, 5 - “very high” consumer protection standards before the introduction of the UCPD. Here, the treatment group states the lowest pre-UCPD consumer protection evaluation while higher pre-UCPD consumer protection evaluation level are the summarized control group. Bootstrapped standard errors obtained by 200 replications in parentheses. Significance: \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level.

Table A.4.13: Estimation results with bootstrapped standard errors

	Panel A: Cross-border purchase		Panel B: Homeshopping	
Post <sub>ct</sub> (indicator, UCPD inplace)	−0.137*** (0.022)	−0.181*** (0.024)	−0.037** (0.019)	−0.069*** (0.019)
Treat ( $L_{cj} = 1$ )	−1.418*** (0.059)	−1.139*** (0.099)	−0.829*** (0.049)	−0.450*** (0.078)
Treat ( $L_{cj}$ ) × Post <sub>ct</sub>	0.493*** (0.057)	0.469*** (0.064)	0.186*** (0.054)	0.111** (0.054)
<i>Individual controls</i>				
Female (indicator)		−0.278*** (0.009)		−0.133*** (0.007)
Nation (indicator, nationality different to current country)		−0.049* (0.027)		−0.130*** (0.025)
log ( <i>age</i> )		9.815*** (0.178)		10.836*** (0.155)
log ( <i>age</i> ) <sup>2</sup>		−1.459*** (0.025)		−1.613*** (0.021)
<i>Country controls</i>				
Share of internet access (% of population)		0.013*** (0.001)		0.019*** (0.001)
Share of unemployment (% of population)		0.008*** (0.003)		0.002 (0.002)
log ( <i>GDP</i> )		0.322*** (0.094)		0.189*** (0.072)
Incident (indicator, consumer trust affected by crisis)		−0.004 (0.014)		−0.021* (0.011)
Intercept	−0.918***	−20.929 ***	−0.981***	−21.606 ***
Year fixed effects	Yes	Yes	Yes	Yes
Country fixed effects	Yes	Yes	Yes	Yes
Country Cluster	No	No	No	No
Bootstrapped SE	Yes	Yes	Yes	Yes
Pseudo $r^2$	0.099	0.176	0.113	0.199
Observations	179,724		173,479	

*Notes.* This table shows the results of the probit difference-in-difference estimation. Panel A reports the coefficients of the introduction of the Unfair Commercial Practices Directive on cross-border purchase while panel B reports coefficients on homeshopping. Treatment and control groups are based on an index that shows evaluation of the pre-UCPD consumer protection level. These evaluation levels reach from one to five where one is the worst and five the best pre-UCPD consumer protection index. The index is therefore equivalent to: 1 - “very low”, 2 - “low”, 3 - “middle”, 4 - “high”, 5 - “very high” consumer protection standards before the introduction of the UCPD. Here, the treatment group states the lowest pre-UCPD consumer protection evaluation while higher pre-UCPD consumer protection evaluation level are the summarized control group. Bootstrapped standard errors obtained by 200 replications in parentheses. Significance: \* significant at the 10% level, \*\* significant at the 5% level, \*\*\* significant at the 1% level.

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