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AN OVERVIEW OF E-COMMERCE IN SPAIN USING BBVA BIG DATA

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This paper, prepared by Javier Alonso Meseguer and Hicham Ganga, BBVA Research, presents preliminary evidence on e-commerce patterns in Spain based on BBVA Data & Analytics. The paper uses information on credit card payments by BBVA costumers to examine the characteristics of e-purchasers and e-sellers, the type of e-commerce transactions and the e-commerce flows across subnational regions and between Spain and other countries.

The Working Party is invited to discuss the findings of the paper and provide guidance on next steps.

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FOREWORD BY THE SECRETARIAT

This paper, prepared by Javier Alonso Meseguer and Hicham Ganga, BBVA Research, presents preliminary evidence on e-commerce patterns in Spain based on *BBVA Data & Analytics*. The paper uses information on credit card payments by BBVA customers to examine the characteristics of e-purchasers and e-sellers, the type of e-commerce transactions and the e-commerce flows across subnational regions and between Spain and other countries.

The relevance of the paper for MADE is twofold. First, it provides a useful contribution to the PWB 2017-18 in three areas: the determinants of e-commerce, the value of cross-border e-commerce and the measurement of consumers' trust. Second, the paper is an interesting experiment in the use of private source Big Data - BBVA database comprises up to 450 million transactions *daily* - to complement official statistics related to the digital economy.

While ICT use surveys have been successful to measure the diffusion of e-commerce among individuals and firms, collecting information on the value of e-commerce transactions and on the flows of cross-border e-commerce has proven more difficult. The reasons are well-known: individuals find it hard to recollect the value of their online expenditures and do not always know when they buy an item from a domestic or a foreign supplier; the accounting system of many businesses does not make it possible to split online and offline transactions, nor records the location of their customers and suppliers.

Private source Big Data, e.g. from banks, credit cards companies, etc. may help to improve measurement in e-commerce areas where official statistics tend to be less effective. It is important to recall, however, that the official statistics provide the overall background, particularly in terms of statistical representativeness, definitions, consistency, etc. that private source data, by their very nature, cannot not always achieve.

The present paper offers a few examples of the complementarity between official statistics and private source data. In the OECD definition, e-commerce is defined based on whether the order is placed online but independently of the means of payment (*OECD Guide to Measuring the Information Society 2011*). BBVA having information on payments but not on orders, the analysis of the paper focuses on online payments by credit cards. To what extent does the scope of the paper match the OECD definition of e-commerce? The answer comes from official statistics: according to the Spanish National Statistical Office (INE, 2014), 73% of all online transactions are paid through cards. Therefore, official statistics based on representative surveys provides an essential context to interpret the findings of private source data.

The same approach should be used to infer results for groups of individuals, by age, gender, income, etc. or firms, by size, industry etc. Also, while most B2C e-commerce transactions are likely to be paid through cards or digital portfolios, most B2B transaction are not.

At this stage, the findings of the paper are mainly descriptive but the analysis will be developed into two directions.

- An analysis of the characteristics that make individuals and firms engage more with e-commerce. The analysis would be carried out at the individual and at the firm-level in order to estimate the effects of personal characteristics (e.g. gender, age, household composition, occupation, educational background, income, etc.) and firm characteristics (e.g. size, industry, location, etc.) on the frequency and value of the payments they make and receive in relation to e-commerce.

- A mapping of e-commerce payment flows between Spain and countries over time and across industries, with a breakdown by B2B, B2C and C2C. The aim of the project is to identify what factors affect the size and the direction of these flows, e.g. being member of same currency area, the existence of trade barriers, sharing a common language, the diffusion of suitable means of payments, etc. Information about the frequency and value of chargebacks provided to consumers as well as on fraud related to e-commerce, e.g. unauthorised charges, online identity theft, etc., would also be considered. The same analysis could be repeated for other countries as the BBVA database develops beyond Spain.

The Working Party is invited to *discuss* the findings of the paper and *provide guidance* on next steps.

AN OVERVIEW OF E-COMMERCE IN SPAIN USING BBVA BIG DATA

Introduction

1. With the development of the digital economy over the last few decades, companies and public institutions have been interested by the economic and social value of the digital data they generate in the course of their activities. The realization of the existence of huge volumes of information that is available and had not had a practical use so far, have brought a revolution embodied in what is commonly known as BIG DATA. The use of this new source of information requires computational resources that can be significant depending on the size of the company. It also requires highly specialised qualifications that were not prevalent in the labour market.

2. The BBVA group took a strategic decision to develop digital banking and invested 925 million euros per year in technology up to 2013 and 700 million per year between then and 2016. At the same time, it also created an independent subsidiary specialising in Big Data called BBVA Data & Analytics that aims to attract talent, create solutions for the group and commercially exploit the anonymous and aggregated data handled.

3. The large volume of resources devoted to digital projects along with the Bank's size (15% market share in Spain and more than 450 million transactions processed on a busy day) mean that the information it has access to is very useful for studying different economic phenomena.

4. E-commerce is a business channel that has experienced rapid growth in most developed countries. However, public statistical information on e-commerce is relatively scarce, especially in relation to intra- and inter- border transactions. Therefore, the importance of the present project. Since, it can be extracted some interesting information from the bank database by implementing procedures of data mining.

5. The possibility of opening up new markets at a reduced cost is a revolution for small and medium-sized enterprises and offers great benefits for final consumers. We first began to exploit the bank's big data in this area by studying all the card transactions related to this phenomenon, including those used to make online payments¹. According to the National Statistical Office (INE, 2014), in Spain the preferred means of payment online is by card (credit or debit) which represents 73% of all transactions, followed by payments through digital portfolios (paypal, lupay, etc.) with 35%, reimbursements (20%) and bank transfers (15%). Therefore, studying card payments can provide significant information on the way this business channel operates.

6. The information available for this study consists of all the transactions BBVA customers have carried out using their cards or that have been made through a BBVA POS terminal. A transaction undertaken by one of the bank's customers provides more information than a transaction made through one of the bank's POS terminals where the customer's card belongs to another entity. For this type of study we will use one or the other based on the information they provide and on the type of analysis we are performing.

1. BBVA group card transactions were excluded because they significantly altered the system averages given their weight in total transactions.

7. Although there is information available dating back to 2012, for many variables the quality of the data is optimal only since 2015. Therefore, we will only use data from a period of time where the information provided is reliable.

8. Throughout the working paper we will especially focus on the refunds of purchases since there is not much information available on this area and it is an indicator of the level of consumer confidence in this business channel.

9. In Section 1 we will show the significant growth in e-commerce transactions. In Section 2 will study the types of customers who use e-commerce, characterising different socio-demographic variables such as age, sex, etc. In section 3 we will describe some characteristics of the companies involved in e-commerce. In Section 4 we will analyse the differences in B2C and B2B trade. In Section 5 we will analyse how intraregional and international transactions are carried out in Spain. Section 6 presents our conclusions.

1. The growth in e-commerce

10. Although the level of e-commerce in Spain may be lower than that achieved in other countries of the European Union, its growth has been very fast in recent years despite having experienced one of the worst economic crises in the last decades.

11. Table 1 shows the change in transactions carried out between 2012 and 2016, both for the total number of card transactions as well as for those made online.

Table 1. Change in transactions (total and online)

Year	Total transactions (in millions)	Total online (In millions)	Share online	Total amount (million euros)	Amount online (million euros)	Weight online	Average amount	Average amount online
2012	466.6	11.1	2.38%	31450.1	814.8	2.59%	67.4	73.33
2013	578.7	14.9	2.58%	37635.9	1115.3	2.96%	65.03	74.80
2014	730.8	34.8	4.77%	46677.1	2224.1	4.76%	63.86	63.86
2015	829.3	45.8	5.52%	51608.3	2844.4	5.51%	62.23	62.14
2016	986.7	75.8	7.69%	58450.9	4612.5	7.89%	59.23	60.82

12. The changes in the transaction data are highly relevant. The total number of card transactions has increased at a cumulative growth rate of 111% from 466.6 million in 2012 to 986 million in 2016. The value of these transactions went from 31.45 billion euros in 2012 to 58.45 billion euros in 2016, representing a cumulative growth rate of 85%. These figures contrast with the growth in private consumption in Spain, which only grew by 2% accumulatively between 2012 and 2015 due to the severe economic crisis.²

13. E-commerce has also grown significantly despite the period of economic crisis. In 2012, the number of transactions was 11.1 million, with a total value of 814.8 million euros. By 2016, the number of transactions had risen to 75.8 million with a value of 4.612 billion euros, which represents a cumulative rate for the period of 582% and 466% respectively. The number of card transactions in e-commerce has increased from 2.38% to 7.69% of total transactions and the economic value of the transactions has grown in a similar percentage.

2. Part of the increase in the volume of transactions is due to the increase in customers resulting from the incorporation of the bank Catalunya Caixa in 2015.

14. It is worth to note that the average values for total and e-commerce transactions have fallen in this period, perhaps because cards are now being used for increasingly smaller amounts. The fall in the average value of e-commerce transactions has been greater almost certainly conditioned by an increase in the purchase of low-cost digital products (Apps) for mobile phones.

2. E-commerce: The typology of the consumer

15. According to the theory of technology adoption postulated by Bass (1969) and Rogers (1962), the use of new technologies is taken up by small group within a population (typically around 10%) who are enthusiasts of any technological innovation that arises, in this case would be the purchase of goods and services through a digital medium. In this section, we will characterise this group of individuals, though as we shall see, the rapid growth in the use of e-commerce no longer allow us to consider it as "new".

16. As we can see, there seems to be an inverse correlation between the use of electronic commerce and the age of the individual. This relationship had already been observed by Alonso and Arellano (2015) using data from the INE (2016). This demographic pattern causes that, coupled with an increase in the number of e-commerce users as a means of purchase in each age group, the demise by death of cohorts related to older population is replaced by younger ones who have a higher adoption level. Both factors may explain the rapid increase in the use of e-commerce experienced in Spain in recent years.

17. According to table 2.1 the group of men who make the highest number of transactions on the Internet are young people between 26 and 35 years old with an average of 22.55 annual transactions per person, followed, with almost no difference by the age group between 36 and 45 year-olds with an average of annual transactions per person of 20.42. Last positions are those individuals over 55 year-olds with an average of 11.07 transactions per capita.

18. Tables 2.1 and 2.2 show the transactions carried out by men and women, respectively, depending on the type of transaction channel (online or non-online) and age.

Table 2.1. Customer transactions carried out by men according to age (per capita) in 2016

Age	Transactions per capita	Transactions online per capita	Share online	Amount per capita	Amount online per capita	Average amount	Average amount online
<=25	56.76	19.10	20%	2775.87	805.40	48.90	42.17
26-35	113.42	22.55	14%	6851.67	1217.96	60.40	54.01
36-45	110.10	20.42	12%	7409.07	1209.82	67.29	59.24
46-55	91.89	16.65	09%	6986.41	1099.43	76.03	66.03
>=56	68.03	11.07	05%	6145.49	815.67	90.33	73.67

19. Although we observe the same behaviour in total card transactions, the percentage represented by online transactions with respect to the rest decreases with age.

20. Nevertheless, when it comes to the amount spent by each group of men, the ranking changes a little especially for young people under 25 year-olds who occupy the last position surpassing the group of people over 55 year-olds. This change could be related to the purchasing power of people since the group of under 25 year-olds includes students and non-economically independent people and therefore they will have especial consumer behaviours which are differentiated from the rest.

21. Another note to highlight is that the average amount of transactions both online and the rest increases according to the age of the customer. For example, for online transactions, the average amount spent for men under 25 year-olds is 42.17 euros, while for those over 55 year-olds, it reaches 73 euros.

Table 2.2. Customer transactions carried out by women according to age (per capita) in 2016

Age	Transactions per capita	Transactions Online per capita	Share Online	Amount per capita	Amount Online per capita	Average amount	Average amount Online
<=25	111.49	15.18	15%	4874.93	632.95	43.72	41.70
26-35	106.25	18.13	12%	5586.22	968.28	52.57	53.40
36-45	101.32	16.19	9%	5724.45	929.05	56.50	57.39
46-55	80.14	12.49	7%	5262.83	792.48	65.66	63.42
>=56	54.64	8.25	4%	4431.01	561.64	81.08	68.06

22. In table 2.2 are calculated transactions as well as the amount spent per capita for women, according to age.

23. In the same way as men, it is observed that women between 26 and 35 year-olds are the ones that make the most transactions online and, therefore, those who spend the most, with an average of 18.13 transactions per person and 968.28 euros of annual expenditure.

24. In addition, there is an increase in the average amount of transactions according to age for both online and other transactions. However, when comparing men and women, the following observations are detected:

- Regardless of age, men perform more transactions than women, and spend more.
- The average amount of transactions performed by men is greater than the one of women.
- In terms of weight, young men and women are the ones who make the most transactions online.

25. On the other hand, we have divided the transactions into two types of operations. The first of these is "purchase", referring to purchases made with a credit card, while the second is "refund", which represents the operation performed to refund a bank card. This distinction between the two is key to understanding the rest of the project.

26. Tables 2.3 and 2.4 present data for transactions in relation to the transaction type (purchase or refund) and age.

Table 2.3. Customer purchase transactions by age (per capita) in 2016

Age	Transactions per capita	Transactions Online per capita	Weight Online	Amount per capita	Amount Online per capita	Average amount	Average amount Online
<=25	52.58	14.34	21%	1381.95	576.90	26.28	40.22
26-35	82.31	17.08	15%	2774.29	885.68	33.70	51.86
36-45	80.85	15.16	11%	3115.86	855.91	38.54	56.44
46-55	64.52	12.14	9%	2801.10	748.33	43.41	61.62
>=56	43.80	8.42	6%	2117.02	568.01	48.33	67.48

27. In table 2.3 we can detect that online card transactions represent 21% of the total number of transactions in the group under the age of 25 year-olds. This percentage decreases with age up to the oldest group where purchase transactions do not exceed 6% of transactions. On the other hand, just as when we distinguished between men and women, it is observed that young people between 26 and 35 year-olds are the ones who spend the most on online purchases and those who perform the highest number of operations.

28. E-commerce has the in-built handicap that the purchased product is not physically observed at the time of purchase, so there is some uncertainty about it. In Table 2.4 we can see that refunds represent a very significant percentage with respect to total transactions in online trade, both in terms of transaction's number and amount. We can also see that refunds are relatively more frequent for younger consumers.

29. While online refunds accounted for 63% of the number of all refunds in the under 25 year-olds, for those aged 56 and older they represented only 7% of the total. An interesting factor for further study is why the average value of refund transactions decreases with age while in the online medium this increases from 42.92 euros in the youngest to 70 euros in older population cohorts.

Table 2.4. Refund transactions by customers according to age (per capita) in 2016

Age	Transactions per capita	Transactions online per capita	Weight online	Amount per capita	Amount online per capita	Average amount	Average amount online
<=25	0.91	0.75	63%	29.89	32.00	33.00	42.92
26-35	1.83	0.89	34%	53.84	50.23	29.49	56.63
36-45	2.27	0.76	20%	52.03	43.56	22.91	57.41
46-55	1.89	0.49	13%	41.73	30.75	22.12	62.86
>=56	1.21	0.30	7%	25.69	21.18	21.26	70.00

30. Refund transactions represent between 2% and 3% of the total number of purchase transactions. In the case of e-commerce refunds represent 5% of purchases using this channel.

31. Another interesting feature extracted from data is that the mean of the average amount of returns in online transactions is much higher than the one observed in all card purchases. Specifically, in the case of older people the average amount in online transactions gets to multiply three times the one of non-online transactions. Also it is worth to highlight that, as well as for purchase, the average amount corresponding to e-commerce returns grow with age. However, the average refunds for all card transactions reach relatively similar levels among different age ranges

32. A segmentation of e-commerce use by level of studies has been done but the results have not been conclusive. The variable "Education" is not reliable and a deeper work is needed to be used with quality assurances. In future studies, other variables characterizing the individual's typology will be considered such as a civil status, occupation sector, employment situation and income level.

3. E-commerce: Merchant Analysis

33. Once the number and amount of purchase and refund transactions has been quantified, it is interesting to investigate the content of those operations. This will allow identifying the sectors or sub-sectors of activity where there is more online trade flows. For that, purchases and refunds have been classified according to the company's sub-sector of activity. The results are given in the following table.

34. In this table it can be seen that the greatest number of non-online purchase transactions corresponds to the food sector, followed by transport, fashion and hypermarkets ("hyper"), assuming total amount of more than 3.0, 1.8, 1.5 and 1.3 billion euros respectively. However, the average per transaction was higher in the fashion and hypermarkets sectors (with average values of 46 euros and 48 euros), while for food sector it was 32 euros and for transport sector 32 euros.

Table 3.1. Purchases and refunds made by individuals, using NON internet channel, according to the merchant sub-sector in 2016 (in millions)

Sector	PURCHASES			REFUNDS			% REFUND	
	Transactions	Amount	Average	Transactions	Amount	Average	% Refund by Tr	% Refund by Am
Food	95.50	3070.37	32.15	0.30	4.82	16.10	0.31%	0.16%
Transport	86.02	1842.62	21.42	2.20	32.53	14.77	2.56%	1.77%
Fashion	33.33	1545.07	46.35	1.90	54.42	28.59	5.71%	3.52%
Hyper	28.27	1370.26	48.47	0.95	40.41	42.68	3.35%	2.95%
Bars and restaurants	39.73	1206.72	30.37	0.01	0.60	54.13	0.03%	0.05%
Home	10.92	814.50	74.55	0.39	17.90	45.62	3.59%	2.20%
Health	15.44	745.73	48.30	0.05	2.95	62.05	0.31%	0.40%
Technology	6.65	578.89	87.04	0.15	12.81	88.21	2.18%	2.21%
Auto	3.90	569.58	146.16	0.03	3.12	99.67	0.80%	0.55%
Sports and toys	9.07	441.17	48.64	0.30	9.36	31.59	3.27%	2.12%
Wellness and beauty	10.59	429.40	40.54	0.02	0.86	40.89	0.20%	0.20%
Hotel services	3.10	398.76	128.74	0.06	8.42	130.44	2.08%	2.11%
Travel	0.86	267.02	311.14	0.03	7.32	251.18	3.40%	2.74%
Other services	2.62	192.62	73.59	0.02	1.86	90.84	0.78%	0.97%
Goods	5.06	143.54	28.36	0.01	0.42	30.89	0.27%	0.29%
Leisure	2.58	119.76	46.33	0.02	4.70	298.32	0.61%	3.93%
Veterinarian	1.95	94.69	48.57	0.00	0.17	44.17	0.19%	0.18%
Contents	2.61	93.08	35.63	0.01	0.38	29.63	0.49%	0.41%
Tax	1.09	79.53	73.27	0.00	0.20	59.89	0.31%	0.26%
Education	0.47	57.70	123.72	0.00	0.28	119.80	0.50%	0.49%
Insurance	0.44	55.62	126.40	0.01	0.94	113.03	1.88%	1.68%
Unknown	18.81	1005.76	53.47	0.42	35.59	85.75	2.21%	3.54%

35. The sectors that present the highest average transaction amounts are travel (311 euros), Autos (146 euros) y hotel services (128 euros).

36. The last sector classified as "unknown" represents companies with fiscal headquarters out of Spain and those whose area of activity is unknown. In this case, although the total number of transactions was not very high (18 million), they assumed a significant total amount, 1.0 billion euros.

37. As for non-online refund transactions, the greatest amount was reached by the fashion sector (54 million euros), followed by hypermarkets (40 million), transport (32 million) and home (17 million). On the other hand, the "unknown" sector represented a total amount that is highly relevant, with 35 million euros, whose average refund was over 85 euros. This sector also had the highest refund in relation to the amount spent in comparison with the other sectors. In other words, of the total money spent by buyers, 3.54% was refunded, equating to 2.21% of total transactions that were made.

38. In terms of the percentage returned per purchase transaction, it is also interesting to highlight the areas of fashion, which was the highest of all (5.71%), followed by home (3.59%) and supermarkets (3.35%).

Table 3.2. Purchases and refunds made by individuals, using internet channel, according to the merchant sub-sector in 2016 (in millions)

Sector	PURCHASES			REFUNDS			% REFUND	
	Transactions	Amount	Average	Transactions	Amount	Average	% Refund by Tr	% Refund by Am
Transportation	3.640	169.040	46.43	0.106	4.612	43.52	2.91%	2.73%
Travel	0.659	163.605	248.08	0.023	4.750	202.74	3.55%	2.90%
Other services	1.852	130.658	70.53	0.037	2.520	67.54	2.01%	1.93%
Technology	1.429	128.889	90.21	0.033	3.944	121.21	2.28%	3.06%
Leisure	2.698	120.794	44.76	0.024	2.243	92.32	0.90%	1.86%
Fashion	1.757	108.246	61.61	0.443	22.499	50.82	25.20%	20.79%
Tax	0.559	46.556	83.23	0.002	0.095	60.11	0.28%	0.20%
Hyper	0.216	31.039	143.94	0.005	0.069	15.2	2.09%	0.22%
Goods	0.507	30.136	59.42	0.044	2.177	48.94	8.77%	7.22%
Sports and toys	0.524	29.257	55.88	0.016	0.902	57.34	3.00%	3.08%
Insurance	0.189	26.016	137.36	0.002	0.464	187.15	1.31%	1.78%
Education	0.186	25.161	135.36	0.002	0.289	118.19	1.31%	1.15%
Home	0.182	24.240	133.05	0.009	0.904	106.23	4.67%	3.73%
Food	0.257	23.423	91.26	0.004	0.115	26.81	1.68%	0.49%
Wellness and beauty	0.217	20.606	94.91	0.003	0.118	41.03	1.32%	0.57%
Bars and restaurants	0.637	14.131	22.18	0.008	0.159	19.9	1.26%	1.13%
Contents	0.331	13.937	42.14	0.005	0.165	34.17	1.46%	1.18%
Hotel services	0.105	13.258	125.96	0.002	0.406	209.94	1.84%	3.06%
Health	0.168	11.503	68.53	0.004	0.162	36.32	2.65%	1.40%
Auto	0.108	9.157	85.04	0.003	0.267	88.9	2.79%	2.92%
Unknown	25.62	1177.341	45.938	1.116	67.047	60.094	4.35%	5.69%

39. From the table above it can be concluded that the behaviour is clearly different when it comes to online transactions. The sector with the greatest number of online purchase transactions was transport, with values well above the rest, 3.64 million, which represented an amount of 169 million euros. However, it is important to note that, while other sectors did not have a significant number of transactions, the total amounts were high. By way of example, the travel, other services and technology sectors only had 0.659, 1.852 and 1.429 million transactions, but accounted for a total of 163, 130 and 128 million euros respectively. The average transaction amount was highest in the travel sector (248 euros), followed by insurance (137 euros), education (135 euros) and home (133 euros). On the other hand, the technology and other services sectors only accounted for an average of 90 and 70 euros respectively.

40. In this case, the "unknown" sector, which represents the same case as in the previous table, is notable as it has the largest number of total transactions by far, with 25.62 million transactions, with a total amount of 1.177 billion euros and an average value of 45.93 euros.

41. The greatest number of online refund transactions was also for the "unknown" sector, with 1.11 million transactions, which accounted for a total of 67 million euros. On the other hand, it is interesting to highlight the fashion sector, which although it only had 0.443 million transactions, these accounted for a total amount of 22 million euros.

42. With regard to the average for refund transactions, sectors such as travel, hotels, technology, insurance and education are notable as they represent significant values of around 120-210 euros.

43. In terms of the percentage of refunds, generally, returns on purchases made using the Internet are more frequent than those made in the traditional physical way. In this regard, it is outstanding the case of fashion industry, with a significant percentage of 25%, compared with an average of 4.92% for all the previously calculated purchases. In addition, buyers received refunds for more than 20% of the total amount spent on purchases in this sector, which is equally important.

44. The high percentage of refunds in the fashion sector, in contrast to the rest of the sectors is due to the difficulty in ensuring that these products comply fully with the customer's requirements in terms of size, colours, touch, etc. when it is only possible to view the product on the internet.

45. Regarding this study, a special effort has been made to identify the "unknown" sectors that appear in the database. Usually these sectors are referred to companies domiciled in a foreign country.

46. As a result, 74.5% of purchase transactions (which represent 19 million total transactions or what is the same, a total amount of 670 million euros) correspond to a few companies (those in the table). These companies represent also 85.2% of the refund transactions. Although the number of refund transactions is not very high (0.95 million), they do represent a significant total amount, 41 million euros in total. In general, in percentage terms, the refunds of these companies do not reach important values, assuming only 4.97% of purchase transactions and 6.16% of the total amount spent.

Table 3.3. Details of the merchant's "unknown" sub-sector in e-commerce in 2016 (in millions).

Sector	PURCHASES			REFUNDS			% REFUND	
	Transaction s	Amount	Average	Transaction s	Amount	Average	% Refund by Tr	% Refund by Am
Online retail companies	11,9	453,28	38,09	0,6	27,74	46,23	5,04%	6,12%
Online Rent Cars	0,59	75,4	47,25	0,07	2,83	38,85	12,37%	3,75%
Music and technology	2,09	47,65	22,79	0,03	2,46	82	1,44%	5,16%
Airline companies	3,48	46,66	128,07	0,16	2,11	113,35	4,48%	4,51%
Online travelling agencies	0,84	39,79	250,05	0,07	2,83	219,84	8,65%	7,11%
Online Bets and Games	0,20	7,85	39,31	0,02	3,38	161,87	10,45%	43,04%
Total	19,10	670,63	35,10	0,95	41,33	43,50	4,97%	6,16%
Unknown	25,63	1177,34	45,938	1,12	67,05	60,094	4,35%	5,69%
% Explained	74,5%	57,0%		85,2%	61,6%			

47. In addition, as can be seen in the table, the ranking of transactions is led by Online retail companies, with a total of 11,9 million transactions (and a total amount of more than 453,28 million euros, with an average per transaction of almost 38 euros), although about 27,74 million euros of this value is usually refunded, or about 46 euros per purchase transaction). In percentage terms, these returns represent 5,04% per purchase transaction and 6,12% of the total amount spent.

48. Other companies that stand out are online rent cars companies with 0,59 million purchase transactions, corresponding to a total amount of 75,4 million euros and represent an average per transaction of 47,25 euros. In relation to the refunds transactions, these represent 0,07 million transactions and 2,83 million euros in total, with an average refund of 38,85 euros. In percentage terms, 12,37% of purchase transactions are returned, which is the same percentage as for total amount.

49. Finally, Airline companies stand out, with 3.48 million transactions, and approximately 46 million euros in total, assuming an average of 128 euros per transaction. In terms of refund transaction, these represented a total of 0.16 million transactions, a total amount of 2.11 million euros, and an average of 113 euros per transaction. In percentage terms, refunds accounted for 4.48% of total transactions and 4.51% of the total amount spent.

50. Another aspect that should be highlighted is that betting and online games companies refund more than 43% of the total amount of purchase transactions. In this special case, these refunds include the prizes that the customer wins when playing, which explains why the amount of these returns is so high.

4. E-commerce: B2B and B2C trade

51. As far as the type of client that carries out these transactions is concerned, they can be classified into two groups: individuals or enterprises. This classification is relevant due to the fact that needs and demands of both groups are different, which is reflected in their preferences when carrying out banking card transactions.

52. The results for both purchases and refunds made by the two groups of customers between the years 2015 and 2016 are included below. Tables 4.1 and 4.2 illustrate both the purchase and refund transactions according to customer type.

Table 4.1. Purchase transactions carried out by individuals between 2015 and 2016 number of transactions and amount in millions

		PURCHASES BY PRIVATE INDIVIDUALS (B2C sales)				
Year	Transaction channel	Transactions	Average of transactions	Median of transactions	Total amount	Average amount
2015	Rest of transactions	339.46	73	39	13154	38.74
	Online	29.29	12	5	1703	58.14
2016	Rest of transactions	407.31	75	39	15231	37.39
	Online	42.77	14	6	2316	54.17

53. Comparing the behaviour of purchases made by individuals and companies, we could say that companies use credit cards more intensively (15.7%) than online customers (12.42%). At the same time, the average amount spent by companies was 2616 euros on average per transaction with a median of 199.86 euros compared to 54 euros on average and 19 median for individuals³.

Table 4.2. Purchase transactions carried out by legal entities between 2015 and 2016 (millions)

		PURCHASES BY ENTERPRISES (B2B sales)					
Year	Transaction channel	Transactions	Average of transactions	Median of transactions	Total amount	Average amount	Median amount
2015	Other Transactions	11616	8.262	2	15.70	1351	25
	Online	1443	25.77	7	3.84	2667	266.22
2016	Other Transactions	9269	4.853	2	20.84	2249	64.96
	Online	1463	28.69	7	3.82	2616	199.86

54. An explanation of this data is that companies use credit cards mostly for staff needs (meals, hotels, restaurant, travel, etc). It is certain that most of the payments made by companies use other means such as transfers.

55. Table 4.3 lists the refund ratios by customer type in relation to total purchases, both for the transactions made via e-commerce and for those made using different channels than the internet.

Table 4.3 Refund percentage ratios by customer type and purchase channel

Year	Type of transactions	% Refunds for companies by transaction	% Refunds for individuals by transaction	% Refunds for companies by amount	% Refunds for individuals by amount
2015	Other Transactions	2.01%	1.69%	0.21%	1.57%
	Online	0.55%	4.17%	0.03%	4.51%
2016	Other Transactions	1.76%	1.69%	0.20%	1.58%
	Online	0.89%	4.42%	0.05%	4.92%

3. BBVA group card transactions were excluded because they significantly altered the system averages given their weight in total transactions.

56. Returns made by companies and individuals are relatively similar when considering the traditional sales channel. However, we do note a significant difference when e-commerce is considered. Companies show very low refund rates in terms of amount, only 0.03% in both 2015 and 2016, while the individuals returned 4.51% and 4.92% respectively.

57. As for individuals, the most notable finding is that there is a significant difference between the returns of purchases made online over the rest. In fact, while the refund ratio for purchases made by different channels other than the internet did not reach 2% in 2016, in the case of e-commerce, these amounted to almost 5% of the total.

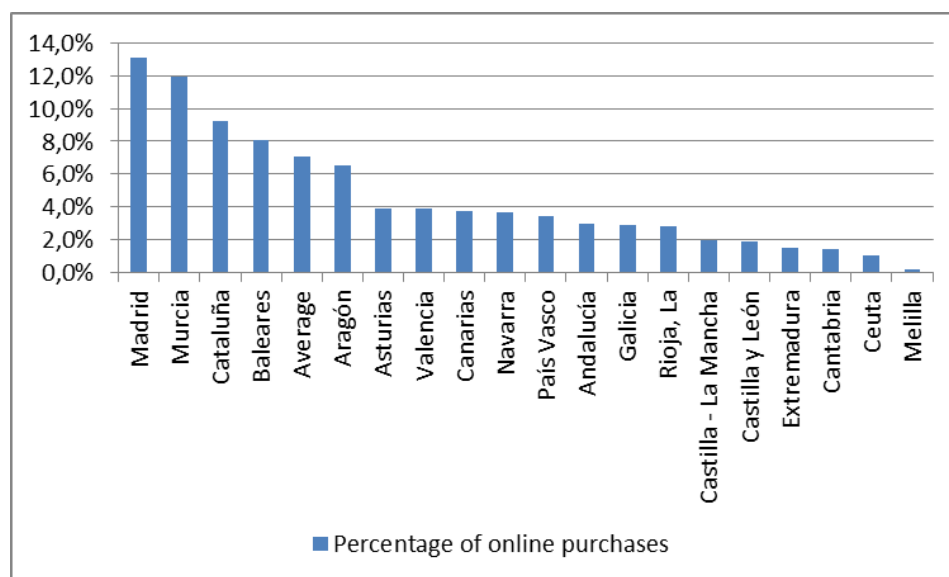
5. E-commerce: intraregional and international analysis

5.1 Intraregional transactions

58. As we have seen in point 1, in recent years we have experienced a spectacular increase in the Spanish electronic commerce which has multiplied by 7 the number of transactions in 5 years. However, this increase has not occurred homogeneously in all Spanish regions. As we can see in Graph 1, the value of purchases made through electronic commerce in 2016 presents notable discrepancies depending on the region (see Fig 5.1). The region where the value of e-commerce purchases is greater refers to Madrid (13.1%), which contrasts with the lower percentage of Cantabria (1,4%)⁴.

59. The other regions that are placed above average are Murcia, Catalonia and Balearic Islands. Aragón (6.6%) is below average, but there are a large number of regions that are between 2% and 4% considering the purchase value, such as Asturias, Valencia, Canarias, Navarra, País Vasco, Andalucía, Galicia and La Rioja. Below 2% stand the regions of Castilla la Mancha, Extremadura, and Cantabria.

Figure 5.1: Percentage of the value of e-commerce purchases related to the total value of card purchases in 2016.

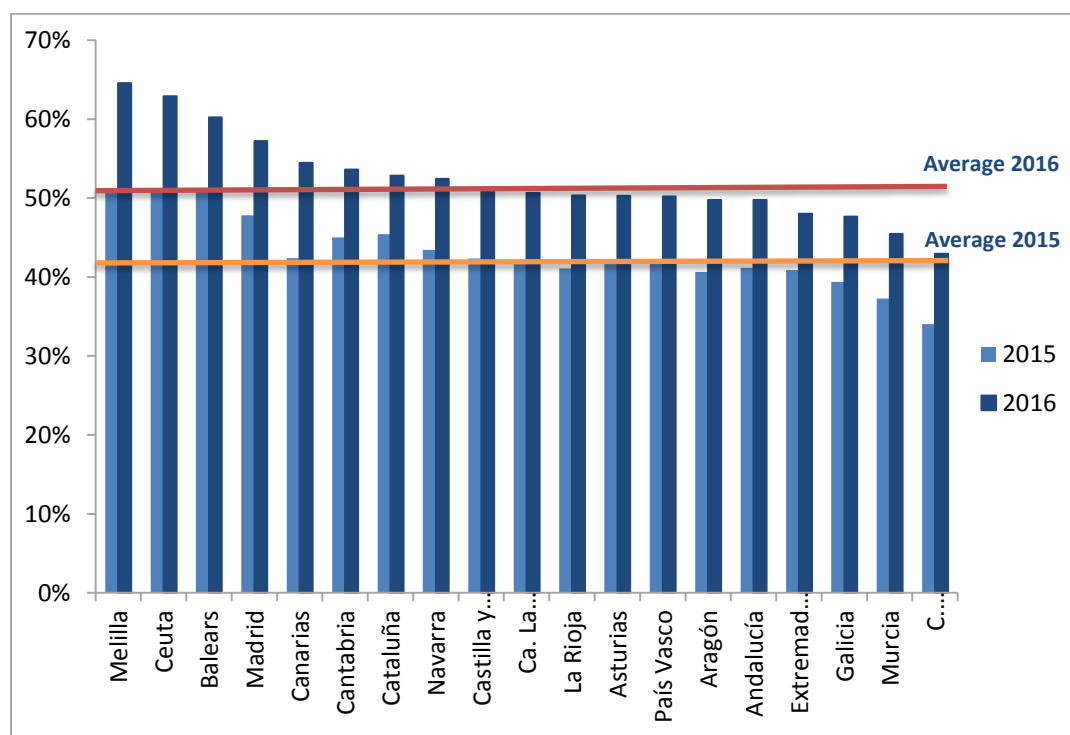


4. The particular cases of Ceuta and Melilla are still small but we do not consider them due to their low population representativeness.

60. One of the most interesting results of this study is that in 2016, more than 51% of BBVA's customers used e-commerce at least once, compared to 42% from last year. This reflects the interest and rapid growth of online commerce for customers.

61. In order to identify which regions use e-commerce more intensively (Fig 5.2) is elaborated, which represents the percentage of users of electronic commerce over the total number of clients for each autonomous region between 2015 and 2016.

Figure 5.2 . Percentage of users⁵ of electronic commerce over the total, according to autonomous region.



62. Although online purchases still do not represent very important volumes in value with respect to total card purchases, the adoption of e-commerce has advanced rapidly and more evenly among regions. As we can see in Graph 2 in the year 2015, 41% of BBVA bank customers had made at least one purchase through the Internet, while in the year 2016 this percentage increased up to 51%. The regions where the penetration of the use of e-commerce is superior are Baleares (60%), Madrid (57%) and Canary Islands (54%). The rest of regions are located around the average, although the cases of Murcia (45%) and Valencia (43) are the ones with the lowest level of e-commerce penetration.

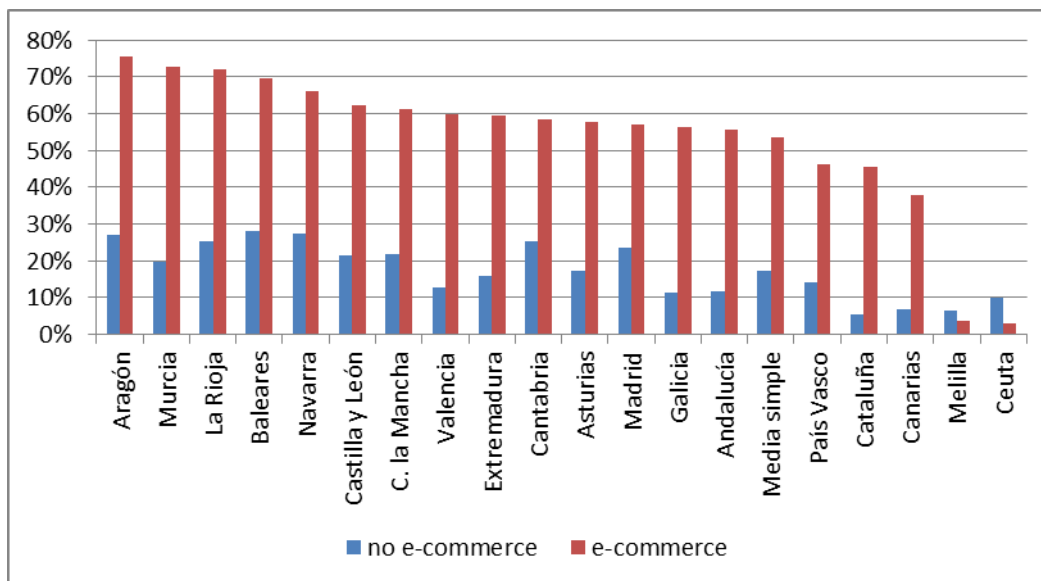
63. Traditional economic literature has been explaining commercial transactions through the so-called gravitational models (Reilly, 1931; Huff, 1964; Albadalejo Pina, 1995). In this type of models there are certain shopping malls or companies that establish a certain area of influence of a limited distance in which it can be observed the majority of the sales of their products. In this case, the proximity to the production or distribution center is the main factor that would explain the transactions of the majority purchase performed by the consumer. However, this pattern of behavior could change radically as e-commerce becomes more important in total transactions.

5. Users who at least made a purchase through e-commerce in 2016.

64. As can be seen in figure 5.3, purchases made outside the Autonomous Region when carried out through e-commerce are significantly higher than those observed when performed in a physical way. For example, in the case of Aragón, purchases made outside the autonomous region accounted for 75% of total purchases online. In the same region, purchases made in other Autonomous Regions represented only 27% of the total non-online purchases of the average consumer.

65. The average of e-commerce purchases outside the Autonomous Region accounted for 59% of total purchases⁶, while purchases made in other non-online regions accounted for 18%.

Figure 5.3: Percentage of purchases made outside the consumer's autonomous region.



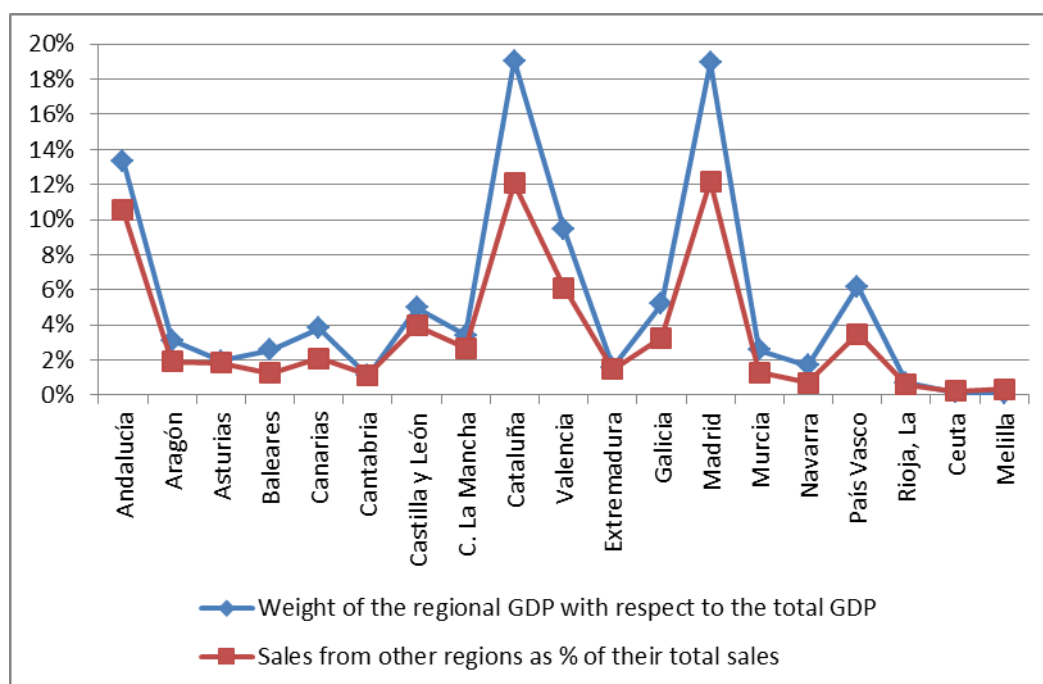
66. In international trade, some border elements may favor / hinder trade depending on trade barriers and ease of transportation. One might think that there is a possibility that the area of gravitational influence of the online market would move to neighboring regions given the absence of trade barriers and lower cost of transportation.

67. Tables A1 and A2 of Annex A show the region to which the sales of each Autonomous Region have been directed in both the physical and online transactions. Table A1 shows the large percentage of sales within the Autonomous Region itself, while in the case of the sales produced abroad there is no clear pattern due to the small amount that represents each of them. However, in Table A2 where Online purchases are presented, there is a strong reduction in sales of companies within the Autonomous Region itself. Nevertheless, we do not observe a pattern of increased sales to neighboring regions. Rather, what we observe is that the largest and most populated regions (Madrid, Catalonia and Andalucía) are the ones that collect the big majority of on-line sales, which in non-online commerce these sales are performed within the same region.

68. As we see in Graph 5.4, e-commerce sales to other regions are more correlated with their GDP's weight than with the distance to the Autonomous Region itself.

6. Not including Ceuta and Melilla

Figure 5.4: Online sales to other Autonomous Regions 2016



69. This evidence seems to indicate that in e-commerce channel, the traditional gravitational models are not as fulfilled as they were in traditional physical purchases, although a deeper exercise would be necessary to verify this hypothesis.

70. If this were to be effectively fulfilled, as e-commerce increases in global trade, some new interesting trends could take place in domestic markets. There would be a closer interrelation in the evolution of the domestic markets so that economic cycle variations would spread more rapidly among regions.

71. By expanding the area of influence of a company or business to the entire country, could be seen new economic opportunities in more isolated regions and with lower level of economic development as its potential market have been multiplied. If the least developed regions bet on the commercialization of products via electronic commerce, economic convergence among regions could be accelerated.

5.2 Cross-border e-commerce transactions

72. In the same way as we have observed a significant increase in e-commerce among Spanish regions, transactions with other countries also begin to register important volumes. Therefore, it results useful to analyze these transactions in order to identify their different patterns.

73. As can be seen in the following table, the main non-online transactions carried out by BBVA's customers were with merchants based in Spain, and these reached values much higher than those for other countries. More than 864 million transactions were carried out, with a total amount of more than 52.6 billion euros, and an average per transaction of 60 euros. France, Britain and Portugal came after Spain, although the number of transactions was between 4.13 and 1.54 million transactions, the value was between 233 and 100 million euros.

**Table 5. 1. Transactions made in 2016 according to the merchant's country and the transaction channel
(Transaction number and amount in millions)**

RANKING NON-ONLINE TRANSACTIONS BY MERCHANT COUNTRY				RANKING ONLINE TRANSACTIONS BY MERCHANT COUNTRY			
M. Country	Total Transactions	Total Amount	Average Amount	M. Country	Total Transactions	Total Amount	Average Amount
ES	864.86	52604.52	60.82	ES	46.01	3259.79	70.84
FR	4.13	233.94	56.70	GB	20.06	802.44	40.00
GB	2.49	171.03	68.72	IE	3.91	229.04	58.59
PT	1.54	100.23	65.23	NL	1.10	79.74	72.44
IE	1.54	99.81	64.74	NA#	2.42	57.95	23.96
US	1.13	97.91	86.41	FR	0.47	47.63	100.52
NA#	27.34	66.76	2.44	US	0.83	44.66	53.69
IT	0.83	60.45	72.96	IS	0.19	9.55	51.28
NL	1.80	59.06	32.89	IT	0.06	7.49	117.71
AD	0.61	43.87	72.24	MT	0.06	6.56	115.84
LU	0.31	24.81	79.57	LU	0.05	6.04	131.10
MX	0.20	17.56	88.49	BE	0.04	5.44	142.80
BE	0.33	15.76	47.72	SE	0.10	4.80	49.26
SE	0.28	10.64	38.65	HK	0.05	3.94	72.81
CH	0.12	9.18	79.77	CN	0.07	3.78	51.27
BR	0.15	8.69	58.38	CL	0.04	3.60	81.99
IS	0.80	8.68	10.82	CY	0.02	2.81	181.20
CO	0.10	8.17	79.57	TR	0.01	2.47	210.71
AE	0.07	7.81	116.72	PT	0.04	2.34	59.47
CN	0.08	7.71	99.99	GR	0.01	2.19	236.20
Others	2.12	164.34	77.48	Others	0.29	30.22	105.74

74. The most notable finding is that, despite the low number of transactions, the average amount per transaction was substantially higher in some occasions than those with Spanish merchants. Examples include Great Britain (€68.72 on average), Portugal (€65.63), the United States (€86.41), Italy (€72.96), China (€99.99), among others.

75. However, a very different scheme can be observed in the case of online transactions, where the number of transactions carried out with Spanish merchants is much lower than with the above mentioned countries, assuming 46 million transactions and reached a total value of nearly 3.3 billion euros. Yet, in this case it can be noted that the average amount per online transaction exceeded the non-online average, reaching an average amount per transaction of 70 euros, 10 euros more than average compared to the former.

76. On the other hand, in the case of Great Britain the total number of online transactions (20 million) beat the non-online ones (2.49 million). In addition the total amount spent was also much higher, 802 million euros for online, while non-online accounted for only 171 million euros. However, the average per transaction was lower compared to non-online (40 euros versus 68 euros).

77. Countries like Ireland and Holland follow after Great Britain, with the total number of transactions between 3.91 and 1.1 million, giving a total amount of 229 and 119 million euros. However, the average transaction is higher in the latter, 72 euros compared to 58 in Ireland.

78. When comparing the volume of transactions for merchant countries that are part of the ranking, it can be seen that the countries bordering Spain, that is, France and Portugal lead the list of non-online transactions. However, when it comes to online transactions, the position of the countries changes, and Ireland and Holland appear alongside Great Britain. This observation confirms the validity of the gravitational models theory in measuring trade between countries, and confirms that the closest countries are the ones that carry out the most trade transactions between them. However, in the case of e-commerce this theory seems to be inapplicable, since distance ceases to be an obstacle for the client. In fact, in this case it can be observed that Portugal, for example, falls to 18th place in the ranking of online transactions from fourth place for transactions carried out by channels other than the internet.

79. It should be noted that in the case of online transactions, Great Britain, Ireland and the Netherlands occupy the following positions of the ranking after Spain, being the preferred tax offices for companies, especially for those "giants" of e-commerce, as well as virtual companies like Amazon and Paypal, among others.

Table 5.2. The weight of online transactions in relation to transactions made by channels other than internet, according to the merchant's country in 2016

Country	Weight online
ES	6 %
GB	469 %
IE	229 %
NL	135 %
FR	20 %
US	46 %
PT	2 %

80. This table compares the top 6 merchant countries preferred by Spanish buyers. This table is very useful as it reveals the weight of online transactions compared to other transactions, and it can clearly be seen that for the bordering countries such as France and Portugal, electronic commerce is much lower in comparison to traditional commerce (only 2% and 20 % respectively). However, when the merchant is from Great Britain, Ireland or Holland, online purchases far exceed other purchases (469%, 229% and 135% respectively).

81. Therefore, we can conclude that cross-border e-commerce does not follow the behavioural patterns of gravitational models or the intraregional e-commerce pattern. The enormous concentration of transactions located in a single country (UK), and in a lesser extent, Ireland and the Netherlands, deserves a deeper study. For future studies it would be interesting to examine in more details the type of products exchanged with these countries in comparison with the rest. It would also be interesting to study the comparative advantages of these countries or whether there are anti-competitive practices. In this regard, the European Commission (2016) Report reveals the possible existence of business practices potentially

limiting competition in Europe in the online space such as contractual sales restrictions imposed on retailers and an extensive use of geo-blocking in the sale of goods. To the extent that e-commerce becomes more relevant in total transactions, the geographical location of digital companies will become more important both for fiscal issues and for issues involving growth and employment generation

Conclusions

82. In this study, we present the first results of the analysis of various aspects of e-commerce through BBVA's BIG DATA. Until 2016 the database counts with 3592 million card transactions (coming from bank's customers or indirectly from transactions done through POS terminals of the bank). The volume of electronic commerce has reached 182 million transactions.

83. In Spain during the last 5 years we have experienced a very important increase in credit card transactions with a cumulative growth rate of 111%. Transactions related to electronic commerce have increased by 582% in the same period. When we take into account the consumption, it has only increased by 2% during the same period, as consequence we can venture a process of important change in the buying patterns regarding the Spanish market.

84. More than 51% of the bank's clients used e-commerce in 2016. This figure will continue to grow at a high rate in the coming years. According to our result, we can infer that young people are the ones that make a greater number of purchases through the Internet, despite the average amount of these transactions being inferior to the one of older people. Moreover, we can conclude that males also perform somewhat more transactions per capita than females.

85. E-commerce has many advantages compared to the traditional channel; it reduces marketing costs and expands the area of commercial influence of the company. However, one challenge of electronic commerce is that it will have an additional cost for companies, in the form of returns. The percentage of refunds in e-commerce doubles that of traditional one, sometimes even 4 or 5 times higher depending on the sector (for example, this happens in the fashion sector).

86. E-commerce is changing the traditional evidence-based model represented by gravitational models, where distance was a key factor in explaining the area of influence of a trade or industry. The ability to offer online products (which reduces commercial costs) and the reduction of transport costs have produced that commercial flows are more determined by the volume of demand rather than the geographical situation.

87. In the case of cross-border e-commerce, there are a number of factors yet to be determined that cause the concentration in some countries such as United Kingdom, Netherlands and Ireland. This situation may be very relevant for the future due to fiscal and economic growth issues.

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ANNEX A: Online and no-online purchases by Autonomous Community

		A1 Percentage of sales NOT online																			
		Regions of the companies with sales NOT online (2016)																			
		Andalucía	Aragón	Asturias	Baleares	Canarias	Cantabria	Castilla y León	C. La Mancha	Cataluña	Valencia	Extremadura	Galicia	Madrid	Murcia	Navarra	País Vasco	Rioja, La	Ceuta	Melilla	
NON On-line client regions	Andalucía	88,4%	1,7%	1,3%	3,1%	1,0%	1,5%	1,9%	2,2%	0,7%	1,2%	3,6%	1,0%	4,2%	3,5%	1,9%	1,0%	0,9%	5,6%	2,6%	
	Aragón	0,2%	72,9%	0,2%	0,4%	0,1%	0,5%	0,4%	0,3%	0,4%	0,4%	0,2%	0,2%	0,6%	0,2%	2,2%	0,3%	1,1%	0,2%	0,2%	
	Asturias	0,2%	0,3%	82,8%	0,6%	0,2%	1,3%	1,1%	0,2%	0,1%	0,2%	0,3%	0,9%	0,7%	0,2%	0,5%	0,4%	0,5%	0,1%	0,1%	
	Baleares	0,2%	0,2%	0,2%	72,0%	0,4%	0,2%	0,2%	0,1%	0,3%	0,2%	0,2%	0,2%	0,4%	0,2%	0,2%	0,4%	0,2%	0,1%	0,2%	0,1%
	Canarias	0,5%	0,5%	0,5%	1,9%	93,3%	0,5%	0,5%	0,3%	0,3%	0,2%	0,3%	0,5%	1,6%	0,3%	0,7%	0,4%	0,3%	0,3%	0,3%	1,0%
	Cantabria	0,1%	0,3%	0,8%	0,2%	0,1%	74,6%	0,6%	0,1%	0,1%	0,1%	0,1%	0,2%	0,3%	0,1%	0,4%	1,7%	0,4%	0,0%	0,0%	
	Castilla y León	0,6%	1,4%	3,1%	1,1%	0,4%	3,8%	78,5%	0,8%	0,3%	0,7%	1,1%	1,5%	2,1%	0,5%	1,7%	1,7%	2,2%	0,3%	0,3%	
	C. La Mancha	0,6%	0,8%	0,6%	0,7%	0,2%	0,5%	0,7%	78,3%	0,2%	1,3%	0,8%	0,3%	3,1%	1,8%	0,6%	0,4%	0,4%	0,2%	0,2%	
	Cataluña	1,5%	8,6%	1,2%	6,8%	0,9%	1,7%	1,8%	1,6%	94,5%	2,2%	1,6%	1,6%	4,0%	1,5%	3,7%	1,8%	2,8%	0,4%	0,3%	
	Valencia	0,9%	3,0%	0,8%	2,7%	0,4%	1,0%	1,1%	2,6%	0,8%	87,1%	0,6%	0,6%	2,1%	5,9%	1,6%	1,2%	0,9%	0,4%	0,4%	
	Extremadura	0,8%	0,3%	0,2%	0,4%	0,1%	0,2%	0,6%	0,8%	0,1%	0,2%	84,2%	0,1%	0,7%	0,2%	0,3%	0,2%	0,2%	0,2%	0,1%	
	Galicia	0,4%	0,6%	1,6%	1,3%	0,6%	0,8%	1,6%	0,3%	0,4%	0,3%	0,4%	88,7%	1,3%	0,5%	0,8%	0,5%	0,6%	0,2%	0,2%	
	Madrid	3,4%	4,0%	4,9%	6,6%	1,5%	5,7%	7,7%	11,3%	1,1%	4,0%	5,2%	3,2%	75,5%	4,1%	2,8%	3,1%	2,8%	1,1%	0,7%	
	Murcia	0,3%	0,3%	0,1%	0,3%	0,1%	0,2%	0,2%	0,5%	0,1%	0,9%	0,1%	0,2%	0,5%	79,6%	0,3%	0,2%	0,1%	0,1%	0,2%	
	Navarra	0,1%	1,0%	0,2%	0,4%	0,0%	0,3%	0,2%	0,1%	0,1%	0,1%	0,1%	0,1%	0,3%	0,1%	71,9%	0,7%	4,3%	0,0%	0,0%	
	País Vasco	0,6%	3,0%	1,4%	1,5%	0,5%	7,0%	2,4%	0,4%	0,4%	1,0%	0,8%	1,3%	0,3%	6,2%	84,9%	7,5%	0,1%	0,1%		
	Rioja, La	0,1%	1,0%	0,1%	0,1%	0,0%	0,4%	0,2%	0,1%	0,1%	0,1%	0,1%	0,1%	0,2%	0,1%	3,5%	0,5%	74,5%	0,0%	0,0%	
Ceuta	0,6%	0,1%	0,0%	0,1%	0,0%	0,0%	0,1%	0,1%	0,0%	0,0%	0,1%	0,0%	0,1%	0,1%	0,0%	0,0%	0,0%	89,5%	0,2%		
Melilla	0,7%	0,1%	0,0%	0,0%	0,1%	0,0%	0,1%	0,1%	0,0%	0,1%	0,1%	0,0%	0,2%	0,2%	0,1%	0,0%	0,1%	0,5%	93,1%		

		A2 Percentage of sales online																			
		Regions de las empresas que venden on line (2016)																			
		Andalucía	Aragón	Asturias	Baleares	Canarias	Cantabria	Castilla y León	C. La Mancha	Cataluña	Valencia	Extremadura	Galicia	Madrid	Murcia	Navarra	País Vasco	Rioja, La	Ceuta	Melilla	
On-line client regions	Andalucía	44,5%	10,8%	11,1%	14,5%	7,2%	7,0%	11,5%	10,0%	11,0%	11,3%	13,4%	9,8%	15,2%	17,8%	9,3%	6,3%	9,7%	7,4%	6,6%	
	Aragón	1,6%	13,5%	0,9%	2,3%	0,7%	1,5%	2,5%	1,5%	1,5%	1,7%	7,7%	1,7%	2,2%	2,0%	2,4%	1,4%	2,4%	0,6%	0,2%	
	Asturias	1,6%	1,7%	31,0%	1,8%	0,8%	5,8%	3,3%	1,8%	1,6%	1,8%	1,7%	2,1%	1,7%	1,8%	1,7%	1,7%	2,0%	0,0%	0,0%	
	Baleares	1,2%	1,5%	0,6%	16,0%	2,4%	0,7%	0,8%	1,1%	2,2%	3,8%	1,2%	1,4%	1,5%	1,5%	0,8%	1,0%	0,8%	0,0%	0,0%	
	Canarias	2,3%	3,1%	5,0%	4,6%	54,9%	1,2%	1,3%	0,9%	3,6%	1,9%	0,6%	2,7%	3,4%	2,1%	2,2%	1,0%	1,6%	0,1%	0,3%	
	Cantabria	0,9%	1,7%	2,5%	0,8%	2,6%	34,5%	1,6%	0,8%	0,9%	0,9%	1,0%	1,5%	1,0%	1,1%	1,4%	2,4%	1,4%	0,0%	0,0%	
	Castilla y León	4,1%	5,2%	4,4%	4,1%	2,6%	5,9%	26,2%	3,9%	2,9%	3,9%	4,5%	5,2%	4,9%	4,0%	4,8%	4,4%	6,4%	0,1%	0,1%	
	C. La Mancha	3,5%	4,0%	2,6%	2,6%	1,5%	3,0%	3,2%	28,8%	2,1%	3,5%	4,3%	2,1%	3,8%	4,4%	2,6%	1,8%	3,1%	0,1%	0,1%	
	Cataluña	11,2%	20,4%	6,3%	18,1%	9,8%	8,9%	13,4%	12,8%	43,5%	16,8%	11,5%	10,5%	16,7%	19,4%	14,8%	10,7%	15,4%	0,3%	0,3%	
	Valencia	6,5%	8,3%	4,8%	8,3%	4,0%	5,1%	7,3%	8,3%	6,9%	28,9%	6,8%	7,1%	8,8%	10,5%	5,3%	4,9%	6,0%	0,1%	1,3%	
	Extremadura	2,3%	2,0%	1,5%	1,5%	0,7%	1,2%	1,7%	2,1%	1,2%	1,7%	27,1%	1,7%	1,6%	2,2%	1,1%	1,0%	3,1%	0,0%	0,0%	
	Galicia	3,1%	3,4%	4,0%	3,5%	2,6%	4,5%	3,6%	2,9%	3,4%	3,5%	4,1%	33,9%	3,9%	4,6%	4,0%	2,8%	3,6%	0,0%	1,1%	
	Madrid	11,2%	15,7%	19,1%	15,1%	8,0%	12,2%	15,9%	19,1%	12,8%	12,8%	11,3%	14,0%	27,2%	13,9%	13,4%	8,8%	15,5%	0,5%	0,1%	
	Murcia	1,5%	1,1%	1,6%	1,1%	0,8%	0,9%	1,1%	1,6%	1,2%	1,4%	1,2%	1,8%	1,8%	9,2%	1,6%	0,9%	1,3%	0,7%	0,3%	
	Navarra	0,4%	1,2%	0,7%	0,6%	0,2%	0,5%	0,7%	0,5%	0,5%	0,6%	0,4%	0,6%	0,8%	0,5%	24,2%	2,1%	2,5%	0,2%	0,0%	
	País Vasco	2,3%	4,9%	3,1%	3,5%	2,2%	6,2%	4,6%	3,0%	3,8%	3,3%	2,4%	3,2%	3,4%	3,1%	7,0%	46,7%	6,4%	0,1%	0,0%	
	Rioja, La	0,4%	1,1%	0,4%	0,5%	0,2%	0,6%	0,5%	0,4%	0,5%	0,4%	0,5%	0,4%	0,5%	0,7%	2,2%	1,4%	17,9%	0,0%	0,0%	
Ceuta	0,5%	0,3%	0,1%	0,4%	0,2%	0,1%	0,1%	0,1%	0,2%	0,5%	0,2%	0,2%	0,3%	0,2%	0,4%	0,1%	0,2%	89,4%	0,0%		
Melilla	0,7%	0,3%	0,2%	0,7%	0,8%	0,1%	0,5%	0,1%	0,2%	0,4%	0,1%	0,2%	0,5%	0,7%	0,3%	0,1%	0,2%	0,1%	89,6%		