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The Sophistication of Basque Exports

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The Sophistication of Basque Exports

Following the methodology developed by recent studies, we combine international trade data and exporter countries' GDP per capita to calculate the degree of sophistication of Basque exports and to analyse its evolution in the 1996-2005 period. Our results show that Basque exports are situated at the top quarter of the world's ranking, with a level of sophistication which is similar to Spain. Nevertheless, Basque exports' sophistication is still 20%-40% lower than the sophistication of the countries that occupy the first positions in the ranking. We also show that during the 1996-2005 period, Basque Country's exports sophistication command the highest rate of growth among Spanish regions. This rate of growth has also been higher than in most European Union-15 countries, leading to the reduction of the exports' sophistication gap between the Basque Country and those countries.

La sofisticación de las exportaciones vascas

Siguiendo la metodología desarrollada en estudios recientes, combinamos datos de comercio internacional y de PIB per cápita para calcular el grado de sofisticación de las exportaciones vascas y analizar su evolución en el periodo 1996-2005. Los resultados muestran que las exportaciones vascas se sitúan en el cuartil superior del ranking mundial, con un nivel de sofisticación similar al de España. Sin embargo la sofisticación de las exportaciones vascas es todavía entre un 20 y un 40 por ciento inferior que la de los países que ocupan las primeras posiciones en el ranking. Por otra parte, el estudio muestra que entre las regiones españolas, son las exportaciones vascas las que logran un mayor crecimiento de la sofisticación en el periodo 1996-2005. Además, este crecimiento ha sido superior al de la mayoría de los países de la UE-15, lo que ha permitido reducir la distancia en sofisticación entre el País Vasco y estos países.

Euskal Autonomia Erkidegoko esportazioen sofistikazioa

Orain dela gutxiko azterlanetan erabilitako metodologiari jarraituz, nazioarteko merkataritzako datuak eta biztanleko BPG-Barne Produktu Gordinaren datuak konbinatu ditugu EAEko esportazioen sofistikazio maila kalkulatzeko eta 1996-2005 aldeko bilakaera aztertzeko. Emaitzek erakusten digute EAEko esportazioak munduko ranking-ean goiko kuartilean daudela eta haien sofistikazioa Espainiako esportazioen sofistikazioaren parekoa dela. Baina, EAEko esportazioen sofistikazioa ranking-ean lehenengo tokietan dauden herrialdeetakoa baino %20-%40 txikiagoa da. Bestalde, azterlanak erakusten digu Espainiako eskualdeak kontuan hartuta, EAEko esportazioek izan dutela sofistikazioaren hazkunderik handiena 1996-2005 tartean. Gainera, hazkunde hori EB-15eko herrialde gehienena baino handiagoa izan da eta horrela, EAEren eta herrialde horien artean zegoen tartea murriztu ahal izan da.

1. INTRODUCTION[1]

The growth accounting literature concludes that improving income per capita is closely linked to generating and using more advanced technologies. Due to its central role in enhancing peoples' income, a large body of research has focused on analysing how much do countries invest in generating technology, how successful are in transforming those investments into new products and processes, and which elements facilitate a more rapid adoption of innovations.

A complementary method for analysing the evolution of a country's technological level is to study whether its production and trade structure is moving towards industries that generate and use more advanced technologies. In order to measure an industry's technological level most studies use an indicator developed by the OECD, which takes into account how much is spent by industries in R&D and the technology embodied in the intermediate and investment goods used by them (OECD, 2001). Based on those variables, the OECD classifies twenty different industries into four groups: high technology industries, medium-high technology industries, medium-low technology industries and low technology industries.

Despite its popularity in the literature, the OECD indicator has some limitations. As Lall et al. (2005) argue, the first shortcoming is its low industry-disaggregation level. As those authors note, there can be large differences in the technological level across products that belong to the same industry. For example, the telecommunications industry is considered a "high-tech" sector; however, it also includes products which are mature and have simple production processes. Hence, if the share of those mature telecommunications goods increased in a country's production structure, the OECD indicator would lead us to wrongly conclude that a technological improvement occurred in the country. The second shortcoming is that the OECD indicator does not take into account the quality differences that may exist, even, in the same product across

[1] I am grateful to Mari Jose Aranguren, Patricia Canto, Iñaki Erauskin and Mikel Navarro for many helpful suggestions. Any errors or omissions remain the author's own responsibility. The opinions expressed here are the author's and do not necessarily reflect those of the Basque Institute of Competitiveness.

countries. For example, the tyres that are used in the F1 championship embody much more research and development than those that are used in a wheelbarrow. If a country was able to jump from the production of wheelbarrow wheels to the production of F1 wheels the OECD indicator would not show any improvement. The third shortcoming of the indicator is that it does not take into account that a good's production process can be fragmented across countries, and that production stages may differ considerably in their technological level. For example, as Lall et al. (Ibíd.) explain, within electronics, components manufacture and design, which are located in rich countries, are the most technology intensive activities, whereas the assembly and the final test, which are located in poor countries, demand a lower technological level. If all production stages were assigned the same technological level, as is the case with the OECD indicator, rich countries' and poor countries' electronics industries would have the same ranking.

In order to overcome some of the aforementioned limitations, recent studies by Lall et al. (Ibíd.) and Hausmann et al. (2007) combine trade and GDP per capita statistics to build a new indicator that proxies countries' technological level: the income level associated to a country's exports. Those studies compute, firstly, the income level associated to each exported commodity as a weighted average of exporting countries' GDP per capita, where the weights are each exporting country's revealed comparative advantage in the commodity. Secondly, they calculate the income level associated to a country's exports as a weighted average of the income level associated to each exported commodity, where the weights are the shares of each product in the country's total exports[2].

According to Hausmann et al. (Ibíd.), the income level associated to a country's exports proxies its productivity level; hence, they denominate their indicator as the exports' productivity index. On their hand, Lall et al. (Ibíd.) consider that the income level associated to a country's exports proxies its sophistication level; hence, they denominate their indicator as the exports' sophistication index. According to the latter, sophistication would include aspects such as products'

[2] As Hausmann et al. (Ibíd.) note, Michaely (1984) was the first to develop those type of indicators.

technological level, design and branding. Needless to say, even though they have a different name, Hausmann et al.'s (Ibíd.) and Lall et al.'s (Ibíd.) indicators are identical[3]. In this study we will be using the sophistication denomination.

The sophistication index overcomes the first and, partly, the third shortcoming of the OECD's indicator. Since the sophistication index is built on highly disaggregated trade data it can more accurately identify the possible differences in the income level across products that belong to the same industry. A higher disaggregation level may also help, in some cases, to control for differences in the technological level across production stages. For example, following the example explained above, if trade statistics distinguish the electronic components from the electronic final good, it will be possible to distinguish each process' technological level.

However, as Hausmann et al. (Ibíd) recognise, the new index does not overcome the second shortcoming: the quality differences that may exist in the same product across countries. For example, as Rodrik (2006) shows, even at the Harmonised System (HS) 6 digits disaggregation level, there are large differences in products' export unit values, which proxy quality levels, across countries. In order to take into account quality differences when calculating countries' exports sophistication level we follow the procedure developed in Minondo (2007). Firstly, each product is transformed into three quality varieties: a low quality variety, a medium quality variety and a high quality variety; secondly, according to its unit value, each country's export is assigned to the low, medium or high variety. Following the procedure explained above, we calculate the income associated to each product's variety as a weighted average of exporting countries GDP per capita, where weights are each country's comparative advantage in the variety. Afterwards, countries quality-adjusted exports' sophistication level is calculated as a weighted average of the income associated to each variety, where the weights are the share of each variety in the country's total exports.

[3] In reality, we should say that they are almost identical, as will be explained in Section 2.

The aim of this paper is to use this quality-adjusted index to calculate Basque exports' sophistication and analyse its evolution in the 1996-2005 period. We compare Basque exports' sophistication level and evolution with other Spanish regions and countries. Our results show that Basque exports are situated at the top quartet of the world's ranking, with a level of sophistication similar to Spain's and 20%-40% lower than the countries that occupy the first positions in the ranking. We also show that during the 1996-2005 period, Basque exports' sophistication command the highest rate of growth among Spanish regions. However, the growth rate has not been constant during that period, with a large increase in the first half and a lower increase in the second half. This growth rate has been higher than in most European Union-15 countries, which has led to a reduction of the exports' sophistication gap between the Basque Country and those countries.

The rest of the study is organised as follows. Section 2 explains the calculation of the exports' sophistication indicator. Section 3 presents the data. Section 4 presents products and varieties' sophistication level and Section 5 presents Basque, other Spanish regions' and countries' exports sophistication. Section 6 analyses the evolution of Basque exports' sophistication. The final section summarizes the study's main findings.

2. THE CONSTRUCTION OF THE EXPORTS' SOPHISTICATION INDEX

Following Hausmann et al. (2007), to construct the income associated to a country's exports indicator (EXPY), that we denominate exports' sophistication index, two steps are followed. Firstly, we compute the income level associated to each exported commodity. This indicator, denominated PRODY, is calculated as follows:

$$PRODY_i = \sum_j \frac{x_{ij} / X_j}{\sum_j \left(x_{ij} / X_j \right)} * y_j \qquad (1)$$

where x_{ij} denotes country *j* exports of product *i*, X_j *j* country's total exports and y_j is *j* country's GDP per capita. The numerator of the weight, x_{ij}/X_j , is the share of product *i* in *j* country's total exports; the denominator of the weight, $\sum_j \frac{x_{ij}}{X_j}$, aggregates the shares of product *i* in total exports across countries. Hence, the weight reflects *j* country's revealed comparative advantage in product *i*. $PRODY_i$ is, therefore, the average of exporting countries GDP per capita, weighted by each country's revealed comparative advantage in product *i*.

Other studies, such as Lall et al. (2005), use the share of country *j*'s exports of product *i* in total world exports of product *i* as weight in the PRODY calculation. However, as noted by Hausmann et al. (Ibíd.), if this weight is used the PRODY indicator will be biased towards rich countries GDP per capita, because large countries export more than small countries. In order to overcome this limitation, the authors suggest the use of revealed comparative advantage as weight.

Secondly, the exports' sophistication index, EXPY, is calculated as a weighted average of each exported commodity's PRODY, where the weights are the shares of each product in the country's total exports. Algebraically,

$$EXPY_j = \sum_i PRODY_i * \left(x_{ij}/X_j \right) \qquad (2)$$

As explained in the introductory section, in order to incorporate quality differences into the PRODY and EXPY indicators, we follow the methodology developed by Minondo (2007). For each product, we calculate each country's exports unit value. Then, we sort unit values from the lowest to the highest value. In order to minimise the impact of measurement errors, we remove unit values which are below or equal to the first percentile as well as unit values that are equal or above to the 99th percentile. From the remaining unit values, we

select the 33rd percentile unit value and the 66th percentile unit value. Exports whose unit value falls between the minimum unit value and the 33rd percentile are considered as low quality varieties; those exports whose unit value falls between the 33rd percentile and 66th percentile are considered as medium quality varieties, and finally, those exports whose unit value falls between the 66th percentile and the maximum unit value are considered as high quality varieties. We only calculate varieties PRODY if we have, at least, five unit value observations per each product.

Once we establish, for each product, the unit value ranges for each quality level, we calculate the PRODY value associated to each variety:

$$PRODY_{qi} = \sum_j \frac{\left(x_{qi,j} \middle/ X_j \right)}{\sum_j \left(x_{qi,j} \middle/ X_j \right)} * y_j \qquad (3)$$

where $x_{qi,j}$ denotes country *j* exports of product *i*'s *q* variety, where *q* can be low, medium or high. As before, X_j denotes *j* country's total exports and y_j is *j* country's GDP per capita. Now, the numerator of the weight, $x_{qi,j} / X_j$, is the share of product *i*'s *q* variety in total exports; the denominator of the weight, $\sum_j \frac{x_{qi,j}}{X_j}$, aggregates the shares of product *i*'s *q* variety in total exports across countries. Hence, the weight reflects *j* country's revealed comparative advantage in product *i*'s *q* variety. $PRODY_{qi}$ is, therefore, the average of exporting countries GDP per capita, weighted by each country's revealed comparative advantage in product *i*'s *q* variety.

The EXPY indicator will now be calculated as follows:

$$EXPY_j = \sum_i \sum_{q=low,medium,high} \left(\frac{x_{qi,j}}{X_j} \right) PRODY_{qi} \qquad (4)$$

which is a weighted average of each variety's *PRODY*, where the weights are the shares of each variety in total exports.

3. DATA AND DATA TREATMENT TO CALCULATE THE QUALITY-ADJUSTED PRODY AND EXPY INDICATORS

In order to calculate varieties' PRODY we use a sample of countries that reported exports and GDP per capita in PPP constant dollars in 2002, 2003 and 2004. Following Hausmann et al. (2007), in order to attenuate the biases generated by observations driven by year specific circumstances, we use three different years to calculate products' and varieties' PRODY. Exports' data are total country's exports at the HS 6 digit disaggregation; these data are obtained from the UN Comtrade database; GDP per capita in PPP constant dollars are obtained from the World Bank's World Development Indicators database. In order to reduce measurement errors we drop from the analysis those observations where the value of exports is below 10000$.

For the period 2002-2004, the Comtrade database offers export data in the HS classification's 1992 Revision, 1996 Revision and 2002 Revision. For reasons that will be explained later, we calculate products' and varieties' PRODY values for HS Revision 1996 and HS Revision 2002. In the HS 1996 Revision the sample is composed by 120 countries and their exports represent 90 per cent of total world merchandise exports in the 2002-2004 period. In the HS 2002 Revision the sample is reduced to 77 countries and their exports represent 85 per cent of total world merchandise exports in the 2002-2004 period[4].

In order to obtain average values for the 2002-2004 period, we have to transform current exports' values into constant exports' values. To perform this operation, ideally, we would like to have exports' price indexes for each country and each HS product included in the sample. Since we do not have those data,

[4] We decide to drop Luxembourg from the samples due to its artificially high GDP per capita.

we decide to use the US Harmonised System import price index in order to proxy the evolution of export prices in the world; data were obtained from the Bureau of Labour Statistics. For each country and HS product, we add up the 2002, 2003 and 2004 (constant) exports and quantity data. With this procedure we only allow each country to have one variety per product. Not all exports' observations provide a quantity measure that allows the calculation of the unit value; for example, in the HS 1996 Revision's sample such observations account for 7.3 per cent of total exports (7.2 per cent in HS 2002 Revision). The Comtrade database offers export observations that, in most cases, report a net weight figure, which allows a $ per kilogram unit value calculation. In other cases, a supplementary quantity figure is reported as well. In order to compare a product's unit value across years and countries, all unit values should be calculated with the same quantity unit. For each commodity we analyse which is the quantity unit (kilograms, items, litres,...) that maximises the number of observations. In the majority of cases the weight in kilograms is the quantity unit chosen. This procedure obliges us to remove from the sample some observations that allow the calculation of a unit value but do not use the quantity measure that has been chosen for the product. In the HS 1996 Revision, the removal of these observations raises the percentage of exports for which a valid unit value cannot be computed to 18.5 per cent of total sample's exports (19.2 per cent in the HS 2002 Revision). Finally, as was previously explained, in order to minimise measurement errors, we remove observations where the unit value is below or equal to the 1st percentile and equal or above the 99th percentile. The removal of those observations further raises the number of excluded exports to 19.7 per cent of total exports in the HS 1996 Revision sample (20.6 per cent in HS 2002 Revision)[5].

In order to calculate the EXPY indicator we assign each HS 6 digit export observation to the low, medium or high variety, depending on which quality range the unit value falls. It is important to note that we only calculate the EXPY of those countries that were included in the sample to compute the PRODY values. In order to overcome the effect of the evolution of prices and exchange

[5] These figure also includes those exports that are dropped from the analysis because there were not enough unit value observations per product to calculate varieties' PRODY.

rates on the calculation of unit values, as explained before, we use the US import price index to transform current values into 2000 constant values. Secondly, each country's exports are valued at the 2002-2004 average exchange rates.

A decision we had to adopt in the EXPY calculation was how to treat the observations that lack a valid unit value[6]. Some countries have a large percentage of export observations without a valid unit value and, hence, depending on how we value them we can introduce a bias into the EXPY calculations. There are different options to treat those exports. Firstly, since we do not know the quality range in which the product falls, we could multiply the share of exports on total exports by the product's PRODY. Secondly, we might decide to drop these observations from the analysis and calculate each region's and each country's EXPY with the observations that have a valid unit value. Thirdly, we may decide to drop from the quality-adjusted EXPY analysis those regions and countries that command a large percentage of exports without a valid unit value. The procedure we follow is a mix of some of these procedures. We decide not to calculate the quality-adjusted EXPY for those regions and countries where the percentage of exports without a valid unit value is larger than 10 per cent; for the regions and countries that remain in the sample, the observations without a valid unit value are valued with the non quality-adjusted PRODY. For example, in the year 2004, in the HS 2002 Revision, there are two Spanish regions, Castille la Manche and La Rioja, and 20 countries[7] that are above the 10% limit and, hence, we do not calculate their quality-adjusted EXPY.

Finally, for those observations with a valid unit value, if the unit value is below the minimum unit value established in the varieties' PRODY calculation we apply the low quality variety's PRODY; on the other hand, if the unit value is

[6] As explained before, an export observation may lack a valid unit value if it does not report a quantity measure or because the quantity measure it reports is not the same as the one used to calculate varieties' PRODY.

[7] Algeria, Australia, Bahrain, Canada, Hong-Kong, Israel, Japan, Jordan, Kenya, Malaysia, Malta, Mauritius, Netherlands, New Zealand, Portugal, Samoa, Sri Lanka, Switzerland, Uganda and the US.

above the maximum unit value established in the PRODY analysis we apply the high-quality variety's PRODY.

Basque Country's, and other Spanish regions', exports data are obtained from the *Agencia Tributaria*'s database. The database offers annual data on international trade, disaggregated by Spanish provinces and in the Common Nomenclature (CN) classification. The CN is an 8 digit extension of the HS classification used by European Union countries. Hence, there are no difficulties, at first hand, to transform NC products into HS products. However, the *Agencia Tributaria* reports trade data in the NC classification's revision, and hence in the HS classification's revision, that is in use in each year. This fact may introduce some limitations to analyse the evolution of regions' and countries' EXPY. When we calculate the most recent Basque Country's, and other Spanish regions', EXPY we use the PRODY values calculated with the latest HS revision: 2002. The shortcoming of this revision is the short length of its time series: 2002-2005. In order to enlarge the time-series we have to use the HS 1996 Revision; however, there is a shortcoming, as well, with that revision. In order to avoid biases in the EXPY calculation, we can only use those products whose HS classification has not changed in the HS 2002 Revision. As is detailed below, this procedure leads to a reduction in the percentage of exports that participate in the EXPY calculation. Finally, in the calculation of Spanish regions' EXPY we do not include some products with a high PRODY, such as sailboats and motorboats, that have a second-hand export market. In most of the cases those products are not produced in Spain; however, as some of them are sold as second-hand products in foreign countries, their inclusion in the EXPY calculation could bias some provinces' sophistication index[8]. We also exclude natural gas exports from Extremadura's EXPY calculation. Extremadura does not produce natural gas; however, natural gas exports are assigned to it, because it is the last Spanish region that the gas pipeline crosses in its way to Portugal.

[8] Following the same reasoning, in the case of Balearic Islands, we also exclude aircraft exports.

4. PRODUCTS' AND VARIETIES' SOPHISTICATION LEVEL (PRODY)

Table 1 presents the descriptive statistics for products' and varieties' PRODY values for the HS 1996 and the HS 2002 revisions. As can be seen in the table, there are more products and varieties in the HS 2002 Revision than in the HS 1996 Revision. It is important to note that in both revisions the number of varieties is lower than the number of products multiplied by the quality ranges: 3 (low, medium and high). This happens because, for some products, the absence of valid unit values or the small number of unit value observations does not allow the calculation of varieties' PRODY. We can see, as well, that the mean of varieties' PRODY is substantially higher in the HS 2002 Revision than in the HS 1996 Revision. This difference might be related with the smaller sample of countries that is used to calculate the HS 2002 Revision varieties' and products' PRODY; some developing countries that report exports in the HS 1996 Revisions do not report them in the 2002 Revision and, hence, the sample's average GDP per capita increases. The table shows, as well, that the division of products in varieties increases the spread of PRODY values, which is reflected in the higher standard deviation for varieties' PRODY.

Table 1. PRODY descriptive statistics (2000 US $ PPP)

	Number	Mean	Std. Deviation	Min	Max
HS 1996 Revision					
Varieties' PRODY	15159	14707	7449	678	35183
Products PRODY	5121	14231	6263	594	33244
Products PRODY (2)	5053	14330	6196	733	33244
HS 2002 Revision					
Varieties' PRODY	15591	17220	7046	788	35468
Products PRODY	5223	16710	5858	819	35430
Products PRODY (2)	5197	16688	5843	819	34841

(2): Only those products whose varieties' PRODY values can be calculated.
Source: author's calculations based on Comtrade data.

We expect low income countries to specialise in low quality varieties and high income countries to specialise in high quality varieties; hence, we expect a smaller minimum value and a larger maximum value in varieties' PRODY than in products' PRODY. Paradoxically, this does not happen in the HS 1996 Revision's minimum value. This strange result occurs because, as was mentioned above, we cannot compute varieties' PRODY for all products. If we only consider those products whose varieties' PRODY can be calculated, as expected, we find that varieties' minimum value is lower than products' minimum value.

Tables 2a-2b present the five varieties and products with the lowest and the highest PRODY in the HS 1996 and 2002 revisions. In the HS 1996 Revision the largest PRODY value is for the high quality variety of Piperidine and its salts and in the HS 2002 Revision for the medium quality variety of Glutethimide. On its hand, the lowest PRODY value in the HS 1996 Revisions is for the high quality variety of Raw furskins pieces and in the HS 2002 Revision for the high quality variety of Vanilla beans. With respect to products, the highest PRODY value in the HS 1996 revisions is for Colloidal precious metals and in the HS 2002 revision for Leaded gasoline sludges. On its hand, the lowest PRODY value in the HS 1996 Revision, as in varieties, is for Raw musk-rat furskins; in the HS 2002 revision, as in varieties as well, is for Vanilla beans.

As mentioned before, we expect high GDP per capita countries to export high quality varieties and low GDP per capita countries to export low quality varieties. Hence, for each product we expect the low quality varieties' PRODY (PRODY low) to be smaller than the medium quality varieties' PRODY (PRODY medium), and even smaller than the high quality varieties' PRODY (PRODY high). In Tables 2a-2b we can see that this is not always the case. For example, it is high quality variety of Raw furskins pieces which commands the lowest PRODY value in the HS 1996 Revision; on the other hand, we find some low quality and medium quality varieties within the top five PRODY rankings.

Table 2a. Largest and smallest PRODY values (2000 US$ PPP); HS 1996 Revision

	Varieties' PRODY			Products' PRODY		
	HS code	Product name and *variety*	PRODY	HS Code	Product	PRODY
Smallest	430190	Raw furskins pieces (e.g. heads, tails, paws); *High quality*	678	430150	Raw musk-rat furskins, whole	594
	010120	Asses, mules and hinnies, live; *Low quality*	725	010120	Asses, mules and hinnies, live	733
	261210	Uranium ores and concentrates; *High quality*	725	090500	Vanilla beans	823
	080131	Cashew nuts, in shell; *Medium quality*	737	080131	Cashew nuts, in shell	897
	551634	Woven fabric <85% artificial staple+wool/hair, printed; *Low quality*	784	530410	Sisal and Agave, raw	953
Largest	293332	Piperidine and its salts; *High quality*	35183	284310	Colloidal precious metals	33244
	710210	Diamonds, unsorted; *Low quality*	35183	252930	Leucite, nepheline and nepheline syenite	32827
	902150	Pacemakers for stimulating heart muscles; *Medium quality*	35139	292111	Methylamine, di- or trimethylamine, salts	32515
	520635	Cotton yarn <85% multiple uncombed <125 dtex.; *High quality*	35071	293490	Heterocyclic compounds, nes	31782
	291431	Phenylacetone; *Low quality*	35056	293430	Heterocyclic compounds containing a phenothiazine ring	31206

Source: author's calculations based on Comtrade data.

In order to check the pervasiveness of these odd results we analyse, for the whole sample, whether low quality varieties have a smaller PRODY than medium quality varieties, and whether these latter varieties have a smaller PRODY than high quality varieties. As can be seen in Table 3, this happens in 46%-49% of the products. The percentages are higher when we compare quality levels one by one: in 75%-78% of the products PRODY low is smaller than PRODY medium, and in 82%-83% of the products PRODY low is smaller than PRODY high. On the other hand, in 65%-66% of the products PRODY medium is smaller than PRODY high.

Table 2b. Largest and smallest PRODY values (2000 US$ PPP); HS 2002 Revision

	Varieties' PRODY			Products' PRODY		
	HS code	Product name and *variety*	PRODY	HS Code	Product	PRODY
Smallest	090500	Vanilla beans; *High quality*	788	090500	Vanilla beans	819
	140190	Vegetable mats. other than bamboos & rattans; *High quality*	849	080131	Cashew nuts, in shell	1021
	252530	Mica waste; *Low quality*	889	081290	Fruits (excl. cherries) & nuts, provisionally presvd.	1039
	081290	Fruits (excl. cherries) & nuts, provisionally presvd.; *Low quality*	940	090700	Cloves (whole fruit, cloves and stems)	1140
	810590	Cobalt and arts. thereof; *Low quality*	968	230611	Oil-cake & oth. solid residues	1187
Largest	292512	Glutethimide; *Medium quality*	35468	262021	Leaded gasoline sludges; leaded anti-knock compound sludges	35430
	293731	Epinephrine; *Medium quality*	35468	293355	Loprazomal (INN), mecloqualone (INN), methaqualone (INN) & zipeprol (INN)	34841
	811212	Berylium, unwrought; *High quality*	35358	293341	Levorphanol (INN) & its salts	34687
	470500	Wood pulp obt. by a combination of mech. & chem. pulping processes; *Medium quality*	35336	292111	Methylamine, di- or trimethylamine, salts	33899
	280480	Arsenic; *Medium quality*	35334	293391	Alprazolam, camazepan, chlordiazepoxide, clonazepam, clorazepate and delorazepate	33707

Source: author's calculations based on Comtrade data.

We also make the analysis only for manufactures[9] (Table 3, third column). It can be argued that for natural resources differences in quality might not be related with the GDP per capita of the country in which the natural resource is found. This fact may explain why, for some products, there is not a smooth relationship between quality levels and varieties' PRODY values. However, as can be seen in the table, in all cases the percentages are only mildly higher for

[9] We have considered as manufactures the products classified between Chapters 11 and 24 (both included) and Chapters 28 and 96 (both included) at the Harmonised System.

Table 3. Comparison of PRODY by varieties

Percentage of products for which	All products	Manufactures
HS 1996 Revision		
PRODY low < PRODY medium < PRODY high	49%	50%
PRODY low <PRODY medium	78%	79%
PRODY low <PRODY high	83%	84%
PRODY medium <PRODY high	65%	67%
HS 2002 Revision		
PRODY low < PRODY medium < PRODY high	46%	48%
PRODY low <PRODY medium	75%	76%
PRODY low <PRODY high	82%	83%
PRODY medium <PRODY high	66%	67%

Source: author's calculation based on Comtrade data.

manufactures. Although only between 48%-50% of manufactures have a smooth relationship between the quality level and the PRODY value, this share is similar to that found by Schott (2004), when he analysed the share of manufactures exhibiting a positive and significant correlation between the unit value and the exporter GDP per capita.

Table 4 presents the median varieties' PRODY ratios. As can be seen in the table, medium quality varieties incorporate 53%-72% more income than low quality varieties; on the other hand, high quality varieties command 85%-118% more income than the low quality varieties. Finally, high quality varieties only incorporate 21%-26% more income than medium quality varieties. Percentages are similar for manufactures.

As was mentioned in the introductory section, one of the likely shortcomings of the OECD's technology indicator is its high aggregation level, which obscures

Table 4. Median varieties' PRODY ratios

	All products	Manufactures
HS 1996 Revision		
PRODY medium/PRODY low	1.72	1.73
PRODY high/PRODY low	2.18	2.19
PRODY high/PRODY medium	1.26	1.27
HS 2002 Revision		
PRODY medium/PRODY low	1.53	1.53
PRODY high/PRODY low	1.85	1.87
PRODY high/PRODY medium	1.21	1.22

Source: author's calculations based on Comtrade data.

the technology level differences across the products that belong to the same industry. In order to test the validity of this statement, we analyse the differences between the OECD's technology ranking and the sophistication ranking used in this study. In order to do that, and following the OECD's four technological level ranking, we sort all varieties' by PRODY and calculate the 25th percentile PRODY value, the 50th PRODY value and the 75th percentile PRODY value. Varieties whose PRODY falls between the minimum PRODY and the 25th percentile PRODY are considered as Low quality varieties; varieties whose PRODY is above the 25th percentile PRODY and below or equal to the 50th percentile PRODY are considered as Medium-Low quality varieties; varieties whose PRODY is above the 50th percentile PRODY and below or equal to the 75th percentile PRODY are considered as Medium-High quality varieties; the rest of varieties are considered as High-quality varieties. Using correspondence tables, we assign each 6 digit HS 1996 Revision variety to one of the ISIC Rev. 3 industries that are included in the OECD ranking and calculate the percentage of varieties that fall in each quality level. As can be seen in Table 5, all industries have varieties that fall in the four different quality

Table 5. A comparison between industries' technology level and industries varieties' quality level distribution (HS 1996 Revision)

Industry	OECD's Technological level	% of varieties in High	% of varieties in Medium-High	% of varieties in Medium-Low	% of varieties in Low
Aircraft and spacecraft	High	21	20	27	32
Medical, precision and optical instruments	High	35	32	20	13
Office, accounting and computing machinery	High	31	37	22	11
Pharmaceuticals	High	48	18	17	16
Radio, television and communications equipment	High	22	34	30	15
Chemicals, excluding pharmaceuticals	Medium-High	38	25	23	15
Electrical machinery and apparatus, n.e.c.	Medium-High	21	35	27	17
Machinery and equipment, n.e.c.	Medium-High	31	28	24	17
Motor vehicles, trailers and semi-trailers	Medium-High	16	32	33	19
Railroad equipment and transport equipment	Medium-High	22	22	26	31
Basic metals	Medium-Low	32	22	26	20
Building and repairing of ships and boats	Medium-Low	19	27	35	19
Coke, refined petroleum products and nuclear fuels	Medium-Low	23	12	51	14
Fabricated metal products, exc. mach. and equip.	Medium-Low	28	28	26	18
Other non-metallic mineral products	Medium-Low	21	31	27	21
Rubber and plastic products	Medium-Low	28	29	26	18
Food products, beverages and tobacco	Low	20	22	24	34
Manufacturing, n.e.c. and recycling	Low	19	30	31	21
Textile, textile products, leather and footwear	Low	12	21	27	39
Wood, pulp, paper, paper products, printing and publishing	Low	24	28	26	22

Source: author's calculations based on Comtrade data.

levels. For example, the Aircraft and spacecraft industry, which is considered as high-tech in the OECD ranking, has high quality varieties (21%), Medium-High quality varieties (20%), Medium-Low quality varieties (27%) and Low quality varieties (32%). These results show that all industries have products and varieties with different sophistication levels, which confirms the limitation of using aggregated technological indicators. As an additional analysis, we study whether industries have the highest share of varieties in the quality level that corresponds to the industry's technology level. This is only the case for eight industries; in the remaining twelve industries the highest percentage of varieties is found in a quality level which does not correspond to the industry's technology level.

5. THE SOPHISTICATION OF BASQUE EXPORTS

Table 6a presents the sophistication level of Basque exports for 2005 and compares it with other Spanish regions. It is important to note that, in order to maximise the percentage of exports that are included in the EXPY analysis, for the year 2005 we use the PRODY values calculated with the HS 2002 Revision. We present the EXPY figure calculated using varieties' PRODY (quality-adjusted EXPY) and the EXPY figure calculated with products' PRODY (non quality-adjusted EXPY).

As can be seen in the table, Basque exports' quality-adjusted EXPY in 2005 was 18377$ (2000 constant PPP adjusted international dollars). This situates the Basque Country in the fourth position in the quality adjusted EXPY ranking of Spanish regions[10]. The first position is occupied by the Madrid with a quality-adjusted EXPY that reaches 19355$; it is followed by Catalonia (19036$) and the Community of Valencia (18695$). The lowest positions are occupied by the Canary Islands (13864$), Extremadura (15060) and Galicia (15542$). The quality-adjusted EXPY of the region that occupies the first position in the ranking, Madrid, is 5% higher than the Basque Country's EXPY, and 40%

[10] We do not calculate Castille La Manche and La Rioja's quality-adjusted EXPY because in both regions the share of exports without a valid unit value exceeds the 10% limit.

Table 6a. Spanish regions' EXPY, 2005 (2000 constant international dollars); HS 2002 Revision

Ranking	Region	Quality-adjusted EXPY	Ranking	Region	Non-quality-adjusted EXPY
1	Madrid	19355	1	Madrid	18769
2	Catalonia	19036	2	Castille-León	18229
3	Com. of Valencia	18695	3	Navarre	18047
4	**Basque Country**	**18377**	4	Catalonia	18042
5	Aragón	18200	5	Aragón	17922
6	Balearic Islands	17914	**6**	**Basque Country**	**17881**
7	Cantabria	17861	7	Castille la Manche	17209
8	Asturias	17853	8	Cantabria	16844
9	Castille-León	17801	9	Balearic Islands	16408
10	Murcia	17760	10	Galicia	16382
11	Andalusia	17461	11	Rioja	16062
12	Navarre	17334	12	Com. of Valencia	15862
13	Galicia	15542	13	Asturias	15261
14	Extremadura	15060	14	Andalusia	15234
15	Canary Islands	13864	15	Murcia	15122
			16	Extremadura	14219
			17	Canary Islands	12114
	Spain	18254		Spain	17265

Source: author's calculations based on Comtrade and Agencia Tributaria data.

higher than the EXPY of last region in the ranking: the Canary Islands. Spain's EXPY is situated at 18254$, close to the Basque Country's EXPY.

When we do not adjust for differences in quality within products, the Basque Country drops to the sixth position in the EXPY ranking of the Spanish regions. Madrid maintains the first position in the ranking (18769$), followed by Castille-León (18229$), Navarre (18047$) and Catalonia (18042$). The lowest positions

in the ranking are occupied by the Canary Islands (12114$), Extremadura (14219$) and Murcia (15122$). The Spanish EXPY sets at 17265$. It is interesting to note that for all regions, except for Castille-León, Galicia and Navarre the quality-adjusted EXPY is higher than the non-quality adjusted EXPY; this means that most Spanish regions export products with a quality level which is above the world average.

Table 6b presents Spanish regions' manufactured exports EXPY. As manufactures command a higher PRODY than other products, the EXPY value raises in all Spanish regions, except in Asturias, the Community of Valencia and Extremadura. In the manufactures' quality-adjusted EXPY ranking, the Basque Country climbs to the fourth position. Madrid remains in the first position of the ranking, followed by Madrid and the Balearic Islands[11]; the last positions are occupied by Extremadura, Galicia and the Canary Islands. In the non quality-adjusted EXPY ranking the Basque Country further climbs to the 3rd position.

Table 7a presents the quality adjusted and the non-quality adjusted EXPY values for the three provinces that make up the Basque Country: Álava, Guipúzcoa and Vizcaya, and compares them with the EXPY values of the rest of the Spanish provinces[12]. As can be seen in the table, Álava, which occupies the 6th position in the ranking, is the Basque province with the highest quality-adjusted EXPY: 19401$. Guipúzcoa (18987$) occupies the 13th position in the ranking; the last Basque Country's province, Vizcaya (16867$), occupies a much lower position in the ranking: 36th. The first positions in the ranking are occupied by Salamanca (21918$), Huelva (20323$), Granada (20001$), Lugo (19780$) and Huesca (19467$); the final positions of the ranking are occupied by Cáceres (13305$), Tenerife (13824$), Las Palmas (13893$), Ávila (13984$) and Pontevedra (14960$). Disaggregating data by provinces increases the differences in EXPY between the top and the bottom of the ranking; now, Salamanca has a quality-adjusted EXPY which is 65 per cent higher than

[11] We take with care the third position occupied by the Balearic Islands. Exports of turbo-jets, which command a large PRODY, have a large bearing in Balearic Islands manufactures' quality-adjusted EXPY. However, those exports can be second-hand exports, as we have not found evidence about turbo-jets manufacturing in this Spanish region in the INE's Encuesta Industrial de Productos Database.

[12] We do not calculate Albacete's, Ciudad Real's, Cuenca's and La Rioja's quality-adjusted EXPY because in those provinces the share of exports without a valid unit value is larger than 10 per cent.

Table 6b. Manufactures: Spanish regions' EXPY, 2005 (2000 constant international dollars); HS 2002 Revision

Ranking	Region	Quality-adjusted EXPY	Ranking	Region	Non-quality-adjusted EXPY
1	Madrid	19765	1	Madrid	19382
2	Catalonia	19197	2	Castille-León	18241
3	Balearic Islands	18986	**3**	**Basque Country**	**18178**
4	**Basque Country**	**18683**	4	Navarre	18176
5	Com. of Valencia	18349	5	Catalonia	18157
6	Aragón	18218	6	Aragón	17909
7	Murcia	18083	7	Balearic Islands	17357
8	Cantabria	18032	8	Castille la Manche	17233
9	Andalusia	17992	9	Cantabria	16920
10	Castille-León	17873	10	Com. of Valencia	16750
11	Asturias	17718	11	Galicia	16713
12	Navarre	17390	12	Murcia	16561
13	Canary Islands	16803	13	Andalusia	16436
14	Galicia	15855	14	Canary Islands	16185
15	Extremadura	15276	15	Rioja	16157
			16	Asturias	15336
			17	Extremadura	14377
	Spain	18480		Spain	17772

Source: author's calculations based on Comtrade and Agencia Tributaria data.

Cáceres' quality-adjusted EXPY. We also present the EXPY values when quality differences within products are not taken into account. Guipúzcoa and, particularly, Vizcaya improve their situation in the ranking, climbing to the 8th and 18th positions respectively; by contrast, Álava drops to the 15th position. We should highlight that, contrary to most provinces, Vizcaya presents a larger EXPY for non quality-adjusted products than for quality-adjusted products.

Table 7a. Spanish provinces' EXPY, 2005 (2000 constant international dollars); HS 2002 Revision

Ranking	Province	Quality-adjusted EXPY	Ranking	Province	Non quality-adjusted EXPY
1	Salamanca	21918	1	Lugo	20294
2	Huelva	20323	2	León	19739
3	Granada	20001	3	Girona	19016
4	Lugo	19780	4	Palencia	18853
5	Huesca	19467	5	Madrid	18769
6	**Álava**	**19401**	6	Guadalajara	18694
7	Madrid	19355	7	Salamanca	18517
8	Guadalajara	19289	**8**	**Guipúzcoa**	**18261**
9	Castellón	19257	9	Barcelona	18211
10	Ourense	19137	10	Soria	18136
11	Tarragona	19104	11	Navarre	18047
12	Barcelona	19093	12	Ourense	18041
13	**Guipúzcoa**	**18987**	13	Zaragoza	18018
14	Málaga	18870	14	Burgos	17990
15	Alicante	18647	**15**	**Álava**	**17934**
16	Girona	18540	16	Valladolid	17907
17	Segovia	18518	17	Pontevedra	17648
18	Sevilla	18480	**18**	**Vizcaya**	**17482**
19	Valencia	18479	19	Huesca	17289
20	Soria	18395	20	Segovia	17210
21	Lleida	18260	21	Ciudad Real	16968
22	Palencia	18243	22	Cantabria	16844
23	Zaragoza	18116	23	Jaén	16841
24	León	17969	24	Toledo	16828
25	Balearic Islands	17914	25	Valencia	16770
26	Cantabria	17861	26	Lleida	16483
27	Asturias	17853	27	Balearic Islands	16408

Table 7a (cont.)

Ranking	Province	Quality-adjusted EXPY	Ranking	Province	Non quality-adjusted EXPY
28	Murcia	17760	28	Tarragona	16362
29	Burgos	17655	29	Ávila	16327
30	Toledo	17610	30	Málaga	16307
31	Navarre	17334	31	Albacete	16282
32	Valladolid	17264	32	Cuenca	16223
33	Almería	17016	33	Cádiz	16142
34	Córdoba	16962	34	Rioja	16062
35	**Vizcaya**	**16867**	35	Teruel	15739
36	Teruel	16049	36	Huelva	15627
37	Badajoz	15851	37	Zamora	15498
38	A Coruña	15713	38	Sevilla	15391
39	Jaén	15614	39	Asturias	15261
40	Cádiz	15361	40	Murcia	15122
41	Zamora	15265	41	Castellón	14825
42.	Pontevedra	14960	42	Alicante	14563
43.	Ávila	13984	43	Badajoz	14471
44.	Las Palmas	13893	44	Granada	14463
45.	Tenerife	13824	45	A Coruña	14251
46.	Cáceres	13305	46	Cáceres	13664
47.			47	Córdoba	13307
48.			48	Tenerife	12857
49.			49	Almería	12045
			50	Las Palmas	11441
	Spain	18254		Spain	17265

Source: author's calculations based on Comtrade and Agencia Tributaria data.

As above, we also present Spanish provinces manufactured exports EXPY (Table 7b). Note from the table that Álava drops to the 9th position and Guipúzcoa to the 14th position; on its hand, Vizcaya climbs to the 31st position. The first positions of the ranking are still occupied by Salamanca, Huelva and Lugo. In the non quality-adjusted EXPY we should highlight the large improvement in Vizcaya's position in the ranking: it climbs to the 10th position; as was the case before, this improvement is explained by the larger value that Vizcaya commands in the non quality-adjusted ranking than in the quality-adjusted ranking. Guipúzcoa situates itself in the 6th position and Álava in the 17th position.

Table 8a presents the Basque Country's position in relation to other countries. In order to increase the number of countries in the sample we calculate the EXPY values for the year 2004. The table shows that the Basque Country's quality adjusted EXPY falls in the middle of the 14th country in the ranking, Saudi Arabia, and the 15th country in the ranking, Spain[13]. The first positions of the ranking are occupied by Ireland (25076$), Iceland (22353$), Norway (22211$), Germany (21762$) and Denmark (21608$). According to this ranking the level of income associated with the exports of the top country, Ireland, is 40 per cent higher than the level of income associated to Basque exports. With respect to other European Union countries, such as Austria, Belgium, Denmark, Finland, France, Germany, Italy, Sweden and the United Kingdom, the gap is around 20%. However, we should treat this comparison with care; if we were able to compare the Basque Country with other regions across the world the differences could be even higher.

If we used the non quality-adjusted EXPY indicator the Basque Country would drop its position in the ranking and would situate itself between the Rep. of Korea (18th position; 17908$) and Slovenia (19th position; 17765$). If we only calculate manufactured exports EXPY (Table 8b) there are no substantial changes in the Basque Country's position in the ranking.

[13] We should note that Spain's EXPY is calculated from Comtrade's data and not from Agencia Tributaria's data, as was the case in previous tables. The EXPY may differ because the Agencia's Tributaria's data we use in this study is disaggregated by the province where the export originated and does not include exports for which the province of origin cannot be established.

Table 7b. Manufactures: Spanish provinces' EXPY, 2005

(2000 constant international dollars); HS 2002 Revision

Ranking	Province	Quality-adjusted EXPY	Ranking	Province	Non quality-adjusted EXPY
1	Salamanca	23039	1	Lugo	20781
2	Huelva	21015	2	León	20224
3	Lugo	20638	3	Madrid	19382
4	Tarragona	20079	4	Guadalajara	19086
5	Granada	19783	5	Palencia	18850
6	Madrid	19765	**6**	**Guipúzcoa**	**18304**
7	Guadalajara	19564	7	Barcelona	18266
8	Ourense	19496	8	Pontevedra	18266
9	**Álava**	**19402**	9	Girona	18258
10	Huesca	19334	**10**	**Vizcaya**	**18252**
11	Lleida	19279	11	Navarre	18176
12	Barcelona	19160	12	Soria	18125
13	Alicante	19058	13	Zaragoza	18038
14	**Guipúzcoa**	**19033**	14	Burgos	18003
15	Balearic Islands	18986	15	Valladolid	17962
16	Castellón	18888	16	Ourense	17960
17	Málaga	18847	**17**	**Álava**	**17938**
18	Sevilla	18693	18	Cádiz	17801
19	Girona	18408	19	Salamanca	17766
20	Soria	18283	20	Valencia	17701
21	Segovia	18227	21	Tarragona	17407
22	Palencia	18225	22	Balearic Islands	17357
23	Zaragoza	18165	23	Cantabria	16920
24	Murcia	18083	24	Jaén	16911
25	León	18055	25	Tenerife	16829
26	Cantabria	18032	26	Málaga	16749
27	Valencia	17893	27	Toledo	16736

Table 7b (cont.)

Ranking	Province	Quality-adjusted EXPY	Ranking	Province	Non quality-adjusted EXPY
28	Burgos	17783	28	Ciudad Real	16718
29	Tenerife	17774	29	Granada	16605
30	Asturias	17718	30	Murcia	16561
31	**Vizcaya**	**17587**	31	Huesca	16552
32	Almería	17446	32	Lleida	16530
33	Toledo	17401	33	Segovia	16446
34	Navarre	17390	34	Ávila	16424
35	Valladolid	17356	35	Albacete	16317
36	Cádiz	16996	36	Teruel	16209
37	Córdoba	16909	37	Rioja	16157
38	Las Palmas	16423	38	Las Palmas	15939
39	Badajoz	16237	39	Almería	15920
40	A Coruña	16047	40	Sevilla	15749
41	Teruel	15857	41	Cuenca	15734
42	Jaén	15604	42	Huelva	15581
43	Pontevedra	15203	43	Alicante	15523
44	Ávila	13769	44	Castellón	15476
45	Cáceres	13251	45	Asturias	15336
			46	Zamora	15318
			47	Badajoz	14725
			48	A Coruña	14258
			49	Cáceres	13647
			50	Córdoba	13274
	Spain	18480		Spain	17772

Source: author's calculations based on Comtrade and Agencia Tributaria data.

Table 8a. Countries' EXPY, 2004 (2000 constant international dollars); HS 2002 Revision

Ranking	Country	Quality adjusted EXPY	Ranking	Country	Non-quality-adjusted EXPY
1	Ireland	25076	1	Ireland	23610
2	Iceland	22353	2	Switzerland	22108
3	Norway	22211	3	Iceland	20853
4	Germany	21762	4	Japan	19907
5	Denmark	21680	5	Finland	19503
6	Sweden	21297	6	Germany	19453
7	Finland	21207	7	USA	19322
8	United Kingdom	20699	8	Sweden	19270
9	France	20459	9	Singapore	19124
10	Austria	20456	10	Israel	19093
11	Belgium	20189	11	United Kingdom	18891
12	Italy	19333	12	France	18797
13	Singapore	18324	13	Denmark	18794
14	Saudi Arabia	17977	14	Austria	18683
	Basque Country	**17910**	15	Belgium	18502
15	Spain	17891	16	Netherlands	18370
16	Slovenia	17815	17	Canada	17968
17	Cyprus	17547	18	Rep. of Korea	17908
18	Rep. of Korea	17374		**Basque Country**	**17787**
19	Hungary	17284	19	Slovenia	17765
20	Czech Rep.	16972	20	Hong Kong SAR	17602
21	Greece	15644	21	Italy	17589
22	Slovakia	15352	22	Hungary	17539
23	Mexico	15228	23	Cyprus	17509
24	China	15216	24	Czech Rep.	17338
25	Uruguay	15165	25	Spain	17274

Table 8a. (cont.)

Ranking	Country	Quality adjusted EXPY	Ranking	Country	Non-quality-adjusted EXPY
26	Bolivia	14972	26	New Zealand	17182
27	Thailand	14925	27	Malta	17121
28	Poland	14626	28	Australia	16421
29	Estonia	14151	29	Mexico	16252
30	Croatia	14086	30	Malaysia	16251
31	South Africa	13345	31	Slovakia	16109
32	Latvia	13233	32	China	16017
33	Colombia	12861	33	Portugal	15937
34	Lithuania	12341	34	Poland	15627
35	Romania	12182	35	Estonia	15555
36	Argentina	11995	36	Norway	15380
37	Chile	11971	37	Thailand	15198
38	Brazil	11961	38	Greece	15127
39	Turkey	11509	39	South Africa	15111
40	Belarus	11442	40	Croatia	14853
41	Bulgaria	10865	41	Bahrain	14726
42	Tunisia	10776	42	Lithuania	14152
43	Russian Federation	10742	43	Latvia	14134
44	Guatemala	10458	44	Brazil	14068
45	Mongolia	10218	45	Russian Federation	13915
46	Lebanon	10204	46	Saudi Arabia	13480
47	Oman	9982	47	Turkey	13472
48	TFYR of Macedonia	9268	48	Belarus	13454
49	Morocco	9133	49	Uruguay	13278
50	Peru	8633	50	Romania	13224
51	Fiji	7611	51	Argentina	13040
52	Ecuador	7607	52	Oman	12943

Table 8a. (cont.)

Ranking	Country	Quality adjusted EXPY	Ranking	Country	Non-quality-adjusted EXPY
53	Madagascar	5642	53	Bulgaria	12790
54	Zambia	5130	54	Algeria	12616
55	Burkina Faso	3347	55	Colombia	12032
56	Benin	3174	56	Lebanon	11803
			57	Tunisia	11523
			58	TFYR of Macedonia	11356
			59	Jordan	10890
			60	Ecuador	10450
			61	Mauritius	10377
			62	Guatemala	10349
			63	Chile	9968
			64	Morocco	9677
			65	Bolivia	9604
			66	Sri Lanka	8803
			67	Peru	8574
			68	Kenya	8357
			69	Fiji	8209
			70	Samoa	7644
			71	Uganda	7222
			72	Mongolia	6092
			73	Zambia	5131
			74	Madagascar	4437
			75	Burkina Faso	3887
			77	Benin	3514

Source: author's calculations based on Comtrade and Agencia Tributaria data.

Table 8b. Manufactures: Countries' EXPY, 2004 (2000 constant international dollars);

HS 2002 Revision

Ranking	Country	Quality-adjusted EXPY	Ranking	Country	Non-quality-adjusted EXPY
1	Ireland	25368	1	Ireland	23962
2	Denmark	22211	2	Switzerland	22140
3	Germany	21933	3	Iceland	21759
4	Norway	21726	4	Japan	19957
5	Sweden	21668	5	Singapore	19924
6	Finland	21460	6	Finland	19791
7	United Kingdom	21049	7	USA	19677
8	France	20718	8	Germany	19589
9	Austria	20584	9	Sweden	19565
10	Iceland	20576	10	United Kingdom	19465
11	Italy	19513	11	Israel	19329
12	Singapore	18971	12	Netherlands	19274
13	Cyprus	18338	13	Norway	19264
	Basque Country	**18246**	14	Denmark	19138
14	Spain	18103	15	France	19103
15	Slovenia	17854	16	Canada	19096
16	Rep. of Korea	17598	17	Belgium	19050
17	Hungary	17396	18	Austria	18824
18	Czech Rep.	17029	19	Cyprus	18488
19	Greece	16028	20	Rep. of Korea	18175
20	Mexico	15939		**Basque Country**	**18065**
21	Thailand	15454	21	Slovenia	17808
22	Slovakia	15446	22	Spain	17767
23	Bahrain	15363	23	Italy	17755
24	China	15303	24	Hungary	17722

Table 8b (cont.)

Ranking	Country	Quality-adjusted EXPY	Ranking	Country	Non-quality-adjusted EXPY
25	Saudi Arabia	15273	25	Hong Kong	17621
26	Uruguay	14870	26	New Zealand	17560
27	Poland	14618	27	Australia	17552
28	Croatia	14257	28	Czech Rep.	17458
29	Estonia	14039	29	Malta	17451
30	Oman	13869	30	Mexico	16975
31	South Africa	13293	31	Malaysia	16849
32	Russian Federation	13143	32	Slovakia	16337
33	Colombia	13027	33	Saudi Arabia	16233
34	Latvia	12991	34	China	16163
35	Algeria	12545	35	Portugal	16124
36	Lithuania	12514	36	Poland	15884
37	Brazil	12344	37	Thailand	15769
38	Romania	12343	38	Estonia	15643
39	Argentina	12313	39	Greece	15485
40	Chile	12193	40	Russian Federation	15433
41	Turkey	11539	41	South Africa	15400
42	Mongolia	11534	42	Bahrain	15369
43	Belarus	11531	43	Croatia	15176
44	Bulgaria	10868	44	Brazil	14392
45	Lebanon	10356	45	Lithuania	14297
46	Guatemala	10275	46	Latvia	14130
47	Tunisia	10189	47	Oman	14075
48	Bolivia	9889	48	Belarus	13814
49	Morocco	9473	49	Turkey	13709
50	TFYR of Macedonia	9138	50	Romania	13278
51	Ecuador	9086	51	Uruguay	13131

Table 8b (cont.)

Ranking	Country	Quality-adjusted EXPY	Ranking	Country	Non-quality-adjusted EXPY
52	Peru	8710	52	Argentina	13086
53	Madagascar	7199	53	Colombia	12876
54	Fiji	7149	54	Bulgaria	12738
55	Zambia	4790	55	Guatemala	12357
56	Benin	3003	56	Algeria	12275
57	Burkina Faso	2949	57	Lebanon	11985
			58	Tunisia	11504
			59	TFYR of Macedonia	11322
			60	Jordan	11212
			61	Kenya	11043
			62	Ecuador	10526
			63	Mauritius	10317
			64	Chile	10209
			65	Sri Lanka	9923
			66	Morocco	9864
			67	Peru	9084
			68	Bolivia	8585
			69	Fiji	8237
			70	Samoa	7630
			71	Uganda	7532
			72	Madagascar	7020
			73	Mongolia	6610
			74	Zambia	4769
			75	Benin	3553
			76	Burkina Faso	3365

Source: author's calculations based on Comtrade and Agencia Tributaria data.

Finally, Table 9 presents the five products that contribute most to each Spanish region's quality-adjusted EXPY[14]. Along with each HS 6 digit code and product description, we show the percentage it represents in the regional total quality-adjusted EXPY. As can be seen in Table 9, except for Taps, cocks and valves, the top five contributors to the Basque Country's quality-adjusted EXPY belong to the transport industry: Vehicles for the transport of persons, Vehicles for the transport of goods, Railway/tramway passenger coaches and Part and accessories for motor vehicles.

Table 9. Products' contribution to regional quality-adjusted EXPY, 2005 (% of total quality-adjusted EXPY). HS 2002 Revision

Spanish region	HS commodity code	Commodity description	Contribution (%)
Basque Country	870332	Vehicles princ. designed for the tpt. of persons (excl. of 87.02 & 8703.10	6.91
	870421	Motor vehicles for the tpt. of gds. (excl. of 8704.10), with C-I int. comb.	4.67
	870899	Parts & accessories of the motor vehicles of 87.01-87.05, n.e.s. in 87.06	4.66
	860500	Railway/tramway passenger coaches, not self-propelled; luggage vans	2.39
	848180	Taps, cocks, valves & sim. appls. for pipes/boiler shells/tanks/vats	1.61
Andalusia	150910	Olive oil, virgin	8.62
	081010	Strawberries, fresh	4.16
	880330	Parts of aeroplanes/helicopters, other than propellers, rotors.	3.33
	200570	Olives, presvd./presvd. othw. than by vinegar/acetic acid, not frozen	3.31
	890190	Vessels for the tpt. of gds. & for the tpt. of both persons & gds.	3.00
Aragón	870323	Vehicles (excl. of 87.02 & 8703.10) princ. designed for the tpt. of persons	15.81
	870322	Vehicles (excl. of 87.02 & 8703.10) princ. designed for the tpt. of persons	15.66
	870332	Vehicles princ. designed for the tpt. of persons (excl. of 87.02 & 8703.10	7.44
	870331	Vehicles princ. designed for the tpt. of persons (excl. of 87.02 & 8703.10	4.66
	870899	Parts & accessories of the motor vehicles of 87.01-87.05, n.e.s. in 87.06	4.27

[14] Annex Table A1 presents data for Spanish provinces.

Table 9 (cont.)

Spanish region	HS commodity code	Commodity description	Contribution (%)
Asturias	790111	Zinc, not alloyed, unwrought	15.81
	470329	Chemical wood pulp, soda/sulphate, other than dissolving grades	6.16
	721391	Bars & rods, hot-rolled, in irregularly wound coils, of iron/non-alloy steel	4.68
	300490	Medicaments (excl. of 30.02/30.05/30.06) consisting of mixed/unmixed prods.	4.00
	040510	Butter	3.35
Balearic Islands	841112	Turbo-jets, of a thrust >25 kN	11.92
	640399	Footwear (excl. waterproof) with outer soles of rubber/plastics/composition	10.13
	870322	Vehicles (excl. of 87.02 & 8703.10) princ. designed for the tpt. of persons	8.31
	870323	Vehicles (excl. of 87.02 & 8703.10) princ. designed for the tpt. of persons	8.24
	880330	Parts of aeroplanes/helicopters, other than propellers	7.19
Canary Islands	271019	Petroleum oils & oils obt. from bituminous mins. (excl. crude)	36.19
	070200	Tomatoes, fresh/chilled	16.16
	210500	Ice cream & oth. edible ice, whether or not cont. cocoa	6.31
	271011	Light petroleum oils & preps.	6.11
	060290	Live plants, n.e.s., incl. their roots; mushroom spawn	4.14
Cantabria	851150	Generators other than starter motors & dual purp. starter generators	14.21
	870600	Chassis fitted with engines, for the motor vehicles of 87.01-87.05	4.96
	851140	Starter motors & dual purp. starter-generators	4.80
	870831	Mounted brake linings for the motor vehicles of 87.01-87.05	3.49
	721391	Bars & rods, hot-rolled, in irregularly wound coils, of iron/non-alloy steel	3.43
Castille-León	870331	Vehicles princ. designed for the tpt. of persons (excl. of 87.02 & 8703.10	15.82
	840820	Compression-ignition int. comb. piston engines (diesel/semi-diesel engines)	11.20
	870323	Vehicles (excl. of 87.02 & 8703.10) princ. designed for the tpt. of persons	8.40
	870322	Vehicles (excl. of 87.02 & 8703.10) princ. designed for the tpt. of persons	6.84
	300490	Medicaments (excl. of 30.02/30.05/30.06) consisting of mixed/unmixed prods.	5.90

Table 9 (cont.)

Spanish region	HS commodity code	Commodity description	Contribution (%)
Catalonia	870332	Vehicles princ. designed for the tpt. of persons (excl. of 87.02 & 8703.10.	6.43
	300490	Medicaments (excl. of 30.02/30.05/30.06) consisting of mixed/unmixed prods.	5.61
	852812	Reception app. for television, whether or not incorp. radio-broadcast receiver	3.91
	870899	Parts & accessories of the motor vehicles of 87.01-87.05, n.e.s. in 87.06	2.62
	870421	Motor vehicles for the tpt. of gds. (excl. of 8704.10), with C-I int. comb.	2.57
Com. of Valencia	690890	Glazed ceramic flags & paving/hearth/wall tiles (excl. of 6908.10); glazed	10.45
	080520	Mandarins, incl. tangerines & satsumas; clementines, wilkings & sim. citrus	8.91
	870323	Vehicles (excl. of 87.02 & 8703.10) princ. designed for the tpt. of persons	7.28
	870332	Vehicles princ. designed for the tpt. of persons (excl. of 87.02 & 8703.10	5.02
	080510	Oranges, fresh/dried	4.84
Extremadura	200290	Tomatoes, prepd./presvd. othw. than by vinegar/acetic acid	11.87
	840999	Parts suit. for use solely/princ. with the engines of 84.07/84.08	10.77
	210320	Tomato ketchup & oth. tomato sauces	8.12
	150910	Olive oil, virgin	4.64
	450110	Natural cork, raw/simply prepared	4.37
Galicia	870332	Vehicles princ. designed for the tpt. of persons (excl. of 87.02 & 8703	10.06
	890110	Cruise ships, excursion boats & sim. vessels	9.94
	870899	Parts & accessories of the motor vehicles of 87.01-87.05, n.e.s. in 87.06	8.06
	870323	Vehicles (excl. of 87.02 & 8703.10) princ. designed for the tpt. of persons	4.17
	870421	Motor vehicles for the tpt. of gds. (excl. of 8704.10), with C-I int. comb.	3.73
Madrid	300490	Medicaments (excl. of 30.02/30.05/30.06) consisting of mixed/unmixed prods.	11.48
	870423	Motor vehicles for the tpt. of gds. (excl. of 8704.10), with C-I int. comb.	4.59
	880330	Parts of aeroplanes/helicopters, other than propellers, rotors	4.36
	271011	Light petroleum oils & preps.	1.96
	841191	Parts and accessories of the motor vehicles 0f 87.01-87.05	1.80

Table 9 (cont.)

Spanish region	HS commodity code	Commodity description	Contribution (%)
Murcia	390740	Polycarbonates, in primary forms	12.09
	070511	Cabbage lettuce (head lettuce), fresh/chilled	6.54
	080550	Lemons (Citrus limon/limonum) & limes (Citrus aurantifolia/latifolia), fresh	5.98
	074110	Cauliflowers & headed broccoli, fresh/chilled	4.34
	390799	Polyesters (excl. of 3907.10 -3907.91)	3.86
Navarre	870322	Vehicles (excl. of 87.02 & 8703.10) princ. designed for the tpt. of persons	19.65
	870331	Vehicles princ. designed for the tpt. of persons (excl. of 87.02 & 8703.10	6.27
	870899	Parts & accessories of the motor vehicles of 87.01-87.05, n.e.s. in 87.06-	6.20
	870831	Mounted brake linings for the motor vehicles of 87.01-87.05	3.86
	850231	Wind-powered elec. generating sets	3.31
Spain	870332	Vehicles princ. designed for the tpt. of persons (excl. of 87.02 & 8703.10)	4.76
	300490	Medicaments (excl. of 30.02/30.05/30.06) consisting of mixed/unmixed prods.	3.68
	870323	Vehicles (excl. of 87.02 & 8703.10) princ. designed for the tpt. of persons	3.26
	870899	Parts & accessories of the motor vehicles of 87.01-87.05, n.e.s. in 87.06	3.06
	870322	Vehicles (excl. of 87.02 & 8703.10) princ. designed for the tpt. of persons.	3.03

Source: author's calculations based on Comtrade and Agencia Tributaria data.

The transport industry goods, and particularly vehicles, along with medicines, contribute importantly as well to Spain's quality-adjusted EXPY. It is interesting to note that vehicles are the most important contributors to quality-adjusted EXPY in six Spanish regions: Aragón, Basque Country, Castille-León, Catalonia, Galicia and Navarre. In Andalusia Olive oil is the most important contributor to quality-adjusted EXPY, Zinc in Asturias, Turbo-jets in the Balearic Islands[15], Petroleum oil in the Canary Islands, Generators in Cantabria, Glazed ceramic flags in the Community of Valencia, Tomatoes in Extremadura, Medicines in Madrid and Polycarbonates in Murcia. We should note that there are only three regions: Andalusia, the Basque Country and Catalonia where the

[15] However, see footnote 10.

percentage of the product with the highest contribution to quality-adjusted EXPY is less than 10 per cent.

6. THE EVOLUTION OF BASQUE EXPORTS' SOPHISTICATION

In this section we analyse the evolution of Basque exports' sophistication in the 1996-2005 period. To enlarge the time-series the Basque Country's EXPY is calculated using the PRODY values computed with the HS 1996 Revision data. In order not to introduce biases in the analysis we calculate the Basque Country's EXPY with those products whose HS code does not change in the HS 2002 Revision. These products represent 93% of Basque Country's exports during the 1996-2005 period (94% for Spain)[16]. It is important to note that in this evolution analysis varieties' and products' PRODY values are fixed; hence any change in regions' export sophistication can only arise from changes in each product's or variety's share in total exports.

Table 10a presents the evolution of the Basque Country's quality-adjusted EXPY in the 1996-2005 period and compares it with other Spanish regions. It is interesting to note that the Spanish regions' quality-adjusted EXPY figures calculated with the HS 1996 Revision's PRODY values are lower than those calculated with the HS 2002 Revision's PRODY values. As was explained before, the HS 1996 Revision sample incorporates more developing countries which leads to a reduction of PRODY values and, hence, to a reduction in EXPY figures.

As can be seen in the table, Basque exports' quality-adjusted EXPY has experienced an annual average increase of 1.70 per cent. The Basque Country is the Spanish region that experiences the largest increase in quality-adjusted EXPY. However, we should note that this rate of growth has not been even

[16] The HS 1992 Revision would allow us to have a larger time series. However, in this case we could only use those products whose HS code does not change neither in the 1996 nor in the 2002 revisions, a limitation that reduces the share of exports that participate in the EXPY calculation to 86%. On the other hand, the US imports' price index series starts in 1993. Hence, as we could only enlarge the time-series in three years (1993, 1994 and 1995) with a less representative EXPY indicator, we opted to circumscribe the evolution analysis to the 1996-2005 period.

Table 10a. The evolution of Spanish regions' quality-adjusted EXPY, 1996-2005 (2000 constant international dollars); HS 1996 Revision

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Average annual growth (%)
Andalusia	14348	14261	13177	13755	15691	15238	14977	14890	14837	14214	-0.10
Aragón	17975	17916	17641	17398	17345	17477	18004	17707	16775	16905	-0.68
Asturias	14412	18045	18276	17051	17913	18560	17780	16422	13815	16152	1.27
Balearic Islands	17929	17985	17281	17638	18291	17103		18095	17894	18144	0.13
Basque Country	14863	16213	16503	16321	16849	17015	16979	17078	17092	17298	1.70
Canary Islands	15057	10039	15921	13446	17046	16993	14603	9820	9401	8789	-5.81
Cantabria	15618	16698	16344	16190	16170	17763	17086	17336	16703	16416	0.55
Castille-León	17084	16521	16988	16631	16929	16602	16324	16017	15939	15893	-0.80
Catalonia	15829	16174	16406	16395	16995	16958	17015	17032	17429	17662	1.23
Com. of Valencia	15056	14735	14792	15371	16297	16247		16852	16739	16506	1.03
Extremadura	12259	12379	11702	12007	12187	12137	12553	12348	13455	13098	0.47
Galicia	14289	13823	13878	14419	15057	15052	15029	14587	14439	15258	0.73
Madrid	16414	16728	16274	16794	17580	18067	18076	18212	18127	18352	1.25
Murcia	14966	14097	14522	14962	16573	15521	16830	15531	14911	15494	0.39
Navarre	17047	16783	16945	16890	17894	16952	16990	17714	17354	17186	0.09
Spain	15622	15806	15799	15941	16693	16621	16769	16620	16574	16762	0.76

Source: author's calculations based on Comtrade and Agencia Tributaria data.

throughout the period. There is a large increase in Basque exports' quality-adjusted EXPY between 1996 and 1998, followed by a decrease in 1999. There's a new increase in 2000, followed by very small changes until 2004; the period ends with a new substantial increase in EXPY.

After the Basque Country, the regions with the highest growth in quality-adjusted EXPY are Asturias (1.27%), Madrid (1.25%), Catalonia (1.23%) and the Community of Valencia (1.03%)[17]. There are four Spanish regions that present a negative evolution in the quality-adjusted EXPY: the Canary Islands (-5.81%), Castille-León (-0.80%), Aragón (-0.68%) and Andalusia (-0.10%). The Canary Islands follow a very strange evolution: during some years its EXPY is very low (2005: 8789$), whereas in others it is very high (2000: 17046$). This strange evolution is explained by the unit value of the Canary Islands main export: tomatoes. The high quality variety of tomatoes in the HS 1996 Revision commands 20979$, whereas the medium quality variety only commands 4581$; some years the Canary Islands tomatoes exports' unit value falls in the high quality range and, hence, the EXPY rises substantially; however, in other years the unit value falls in the medium quality range and the EXPY is reduced dramatically.

If we analyse the evolution of the non quality-adjusted EXPY the conclusions are different (Table 10b). Although the Basque Country has a 0.32% annual average growth, its growth rate is below Spain's (0.33%). Now, the regions with the highest growth rates are Canary Islands (1.32%), Murcia (1.02%), Andalusia (0.75%) and Balearic Islands (0.61%). There are two regions that experience a decline in the non quality-adjusted EXPY: Castille-León (-0.11%) and Navarre (-0.03%).

Table 10c presents the evolution of manufactured exports quality-adjusted EXPY. The Basque Country has almost the same rate of growth as with all products: 1.71%. However, there are now two Spanish regions that obtain a higher rate of growth: Murcia (2.44%) and the Canary Islands (2.04%). With

[17] In 2002 we do not report figures for Balearic Islands and the Community of Valencia, because they do not comply with the 10% limit of exports without a valid unit value.

Table 10b. The evolution of Spanish regions' non quality-adjusted EXPY, 1996-2005 (2000 constant international dollars); HS 1996 Revision

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Average annual growth (%)
Andalusia	12670	12892	12904	13339	13570	13385	13102	13250	13747	13545	0.75
Aragón	16181	16081	15948	16100	16025	16202	16327	16821	16963	16671	0.33
Asturias	12760	13333	13922	13821	13800	13987	13243	13211	13094	13181	0.36
Balearic Islands	14617	15117	15043	15176	15159	15018	15686	15492	15037	15441	0.61
Basque Country	**15819**	**16167**	**16149**	**16208**	**16082**	**16141**	**15938**	**16117**	**16277**	**16279**	**0.32**
Canary Islands	8118	8505	8189	8416	8932	9123	9522	9515	9572	9135	1.32
Cantabria	14859	14820	14923	15136	15002	15132	15239	15021	14988	15088	0.17
Castille la Manche	13348	13364	13702	13352	13511	13562	13476	13459	13732	13789	0.36
Castille-León	17197	16987	17169	17290	17295	17254	17246	17257	17071	17024	-0.11
Catalonia	15989	15926	15963	15939	16100	16172	16248	16178	16273	16392	0.28
Community of Valencia	13965	13696	13689	14011	13996	13982	14035	14249	14522	14435	0.37
Extremadura	11333	11688	11677	11632	11780	11715	11568	11523	11666	11678	0.33
Galicia	14418	14105	14051	14304	15066	15238	15324	14923	14750	14884	0.35
Madrid	16745	16556	16569	16601	16908	16947	16914	17058	16807	17179	0.28
Murcia	12288	12418	12738	12980	13514	13370	13542	13470	13507	13463	1.02
Navarre	16686	16652	16596	16472	16552	16432	16525	16689	16487	16636	-0.03
Rioja	12042	12172	12143	12345	12533	12420	12377	12274	12389	12465	0.38
Spain	15218	15159	15240	15362	15521	15535	15522	15575	15624	15678	0.33

Source: author's calculations based on Comtrade and Agencia Tributaria data.

Table 10c. Manufactures. The evolution of Spanish regions' quality-adjusted EXPY, 1996-2005 (2000 constant international dollars); HS 1996 Revision

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Average annual growth (%)
Andalusia	14419	14382	13441	14355	16118	16033	15498	15495	15740	14631	0.16
Aragón	17957	17902	17634	17475	17415	17486	18000	17760	16815	16971	-0.63
Asturias	14167	18242	18399	17325	18677	19255	18651	17343	13853	16154	1.47
Balearic Islands	18018	17942	17512	17903	18491	18083		18308	18164	18323	0.19
Basque Country	**14904**	**16274**	**16578**	**16407**	**16965**	**17155**	**17055**	**17164**	**17180**	**17363**	**1.71**
Canary Islands	12124	13865	12812	13690	14583	14151	15125	15893	14110	14537	2.04
Cantabria	15623	16831	16543	16288	16341	17922	17188	17526	16875	16643	0.71
Castille-León	17027	16452	16945	16619	16922	16588	16291	16021	15987	15956	-0.72
Catalonia	15886	16201	16379	16446	16990	16969	17105	17093	17544	17816	1.28
Com. of Valencia	14833	15514	15565	16320	16476	16517		17074	16930	16564	1.23
Extremadura	12074	12537			12234	12137	12860	12198	13394	13380	1.15
Galicia	14633	13771	13915	14839	15339	15375	15273	14985	14837	15776	0.84
Madrid	16620	17034	16345	16941	17725	18235	18217	18395	18480	18588	1.25
Murcia	13433	14841	15155	16348	17514	17293	17333	16033	15360	16691	2.44
Navarre	17147	16799	17044	17015	18011	17053	17103	17854	17544	17338	0.12
Spain	15711	16052	16047	16289	16862	16877	16807	16897	16886	17023	0.89

Source: author's calculations based on Comtrade and Agencia Tributaria data.

Table 10d. Manufactures. The evolution of Spanish regions' non quality-adjusted EXPY, 1996-2005 (2000 constant international dollars); HS 1996 Revision

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Average annual growth (%)
Andalusia	13907	13989	14292	14768	15186	15031	14703	14825	15039	14652	0.58
Aragón	16261	16204	16147	16295	16245	16319	16408	16957	17057	16751	0.33
Asturias	12735	13400	14000	14061	14235	14282	13650	13646	13451	13245	0.44
Balearic Islands	14848	15351	15218	15360	15300	15112	15780	15612	15103	15518	0.49
Basque Country	**15930**	**16253**	**16217**	**16298**	**16199**	**16264**	**16030**	**16219**	**16376**	**16364**	**0.30**
Canary Islands	13136	13494	11988	12478	12184	12214	13033	13187	12986	12455	-0.59
Cantabria	15099	15053	15119	15336	15177	15266	15368	15184	15139	15291	0.14
Castille la Manche	13404	13395	13813	13373	13481	13550	13501	13549	13710	13739	0.27
Castille-León	17280	17087	17281	17424	17413	17364	17358	17397	17195	17162	-0.08
Catalonia	16175	16113	16125	16073	16211	16263	16341	16282	16319	16454	0.19
Com. of Valencia	14821	14530	14458	14805	14775	14762	14890	15164	15439	15394	0.42
Extremadura	11541	12050	12126	12072	12178	12116	11946	11785	11861	11941	0.38
Galicia	14902	14679	14550	14882	15642	15799	15841	15341	15160	15255	0.26
Madrid	16951	16856	16791	16836	17121	17172	17137	17332	17241	17560	0.39
Murcia	13653	14028	14430	14721	15373	15115	15209	15115	14995	14968	1.03
Navarre	16800	16766	16720	16601	16669	16564	16680	16832	16650	16807	0.00
Rioja	12129	12243	12204	12264	12552	12386	12351	12315	12463	12494	0.33
Spain	15743	15693	15754	15867	16008	16020	16013	16080	16083	16119	0.26

Source: author's calculations based on Comtrade and Agencia Tributaria data.

respect to non quality-adjusted EXPY, Table 10d, the Basque Country's rate of growth, 0.30%, is above Spain's, 0.26%. We have to highlight the strong growth in Murcia (1.03%), Andalusia (0.58%) and the Balearic Islands (0.49%).

Tables 11a-11d present the EXPY evolution for Spanish provinces. With respect to quality-adjusted EXPY (Table 11a), we can see that Vizcaya is the Basque Country's province with the highest growth in quality-adjusted EXPY: 1.72%, Guipúzcoa is the second province (1.69%) and Álava the third (1.55%). In the three provinces the annual average rate of growth is above Spain's. The rates of growth are much lower when quality differences are not taken into account (Table 11b). Álava becomes the Basque Country's province with the highest rate of growth (0.53%), followed by Guipúzcoa (0.32%) and Vizcaya (0.15%). Álava is the only Basque Country's province with a rate of growth which is over Spain's rate of growth. The results for manufactured exports EXPY are very similar (Tables 11c-11d).

Finally, Tables 12a-12b compare the evolution of the Basque Country's EXPY with other countries. We have to note that the sample of countries is small, because few of them reported trade data in the HS 1996 Revision in the year 1996. As can be seen in Table 12a, the Basque Country's quality-adjusted EXPY annual average growth in the 1996-2004 period, 1.76%, is higher than European Union 15 (EU-15) countries' rate of growth, except of Greece and Ireland. We should note that the countries that join the European Union (EU) in 2004 (Czech Republic, Hungary, Poland and Slovenia) present very high rates of growth. Most of less developed countries also show high rates of growth.

With respect to non-quality adjusted EXPY the Basque Country's rate of growth, 0.36%, is in the average of the EU-15 countries: there are seven countries that present higher rates of growth (Finland, France, Greece, Ireland, Netherlands, Portugal and the UK) and six countries that present lower rates of growth (Austria, Denmark, Germany, Italy, Spain and Sweden). As was the case before, the countries that joined recently the European Union, except Bulgaria, present much higher rates of growth. Big emerging countries, such as China and India, also present high rates of growth.

Table 11a. The evolution of Spanish provinces' quality-adjusted EXPY, 1996-2005 (2000 constant international dollars); HS 1996 Revision

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Average annual growth (%)
A Coruña	14182	14080	13323	13595	13847	13253		13229	12888	15444	0.95
Álava	**15605**	**16797**	**17316**	**17563**	**17632**	**17693**	**17311**	**17070**	**17884**	**17917**	**1.55**
Alicante	12698	12128	12489	14894	15249	15294		15927	16075	16230	2.76
Almería	14237	13358	10173	9916	14542	12295	12529	11068	10114	9275	-4.65
Asturias	14412	18045	18276	17051	17913	18560	17780	16422	13815	16152	1.27
Ávila	11201	11068	17233	17697	17665	18084	18532	17787	15976	17798	5.28
Badajoz	12013	11762					12616	12472	13913	13635	1.42
Balearic Islands	17929	17985	17281	17638	18291	17103		18095	17894	18144	0.13
Barcelona	15912	16222	16557	16537	16941	17003	17012	17078	17398	17741	1.22
Burgos	16075	16239	15630	15814	16611	17509	16255	16425	16572	15223	-0.60
Cáceres	13603	13762	12653	13442	13500	12933	12414	12086	12398	11944	-1.43
Cantabria	15618	16698	16344	16190	16170	17763	17086	17336	16703	16416	0.55
Castellón	17106	15265	15412	15869	17040	16979	17117	17301	16962	17020	-0.06
Córdoba	12778	13570	12598	13977	13422	13864	14642	14215	14677	13511	0.62
Girona	16014	16228	16007	16554	16901	16872	18007	17619	18168	17987	1.30
Granada	14619	9706	12503	15348	14864	14922	13982	17020	14788	14422	-0.15
Guadalajara	15768	15795	16062	15869	16194	15734	15800	15967	15179	15039	-0.53
Guipúzcoa	**14765**	**16278**	**16037**	**15912**	**16395**	**17206**	**16902**	**16977**	**16734**	**17173**	**1.69**
Huelva	15012	15623	16395	16153	18034	18199	19207	17673	18650	18652	2.44
Huesca	17494	18250	17988	17523	17960	18064	18551	18500	17521	17588	0.06
Jaén	16206	15690	13265	15379	14651	14067	13210	15985	16146	16239	0.02
Las Palmas	14206	7022	14852	15819	17264	17323	16507	9666	8878	8306	-5.79
León	19018	17065	16072	18318	19715	19977	19052	18917	14980	15018	-2.59
Lleida	15097	14461	14236	13962	14298	14764	15213	14916	15311	15039	-0.04
Lugo	12045	12004	16813	15966	16646	20103	15662	14598	11880	12798	0.68
Madrid	16414	16728	16274	16794	17580	18067	18076	18212	18127	18352	1.25
Málaga	15349	14268	14764	15560	16313	15441	15591	16848	15008	16451	0.77
Murcia	14966	14097	14522	14962	16573	15521	16830	15531	14911	15494	0.39
Navarre	17047	16783	16945	16890	17894	16952	16990	17714	17354	17186	0.09
Ourense	18651	18976	18937	18229	18886	18073	18213	18439	18322	18024	-0.38

Table 11a (cont.)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Average annual growth (%)
Palencia	18997	18700	19004	15742	15743	15856	15600	15052	15826	16619	-1.48
Pontevedra	14160	13476	13427	14284	15105	15155	15471	14867	14917	15055	0.68
Salamanca	17961	14744	18373	16407	17848	16576	16696	16206	15244	15090	-1.92
Segovia	17841	16540	16624	16419	16460	16757	17151	16988	16905	16408	-0.93
Sevilla	13081	12101	11518	12496	13163	13014	13118	12900	14511	14074	0.82
Soria	16534	16740	16480	16178	16786	17491	17744	17816	17503	18548	1.28
Tarragona	15093	16151	15703	15448	18206	17076	16815	16756	17602	17365	1.57
Tenerife	17592	14954	17741	8653	16675	16471	10914	10135	10237	9961	-6.12
Teruel	16628	16729	16415	18520	15986	15995	15650	16129	15924	15470	-0.80
Toledo	13400	14046	13782	15238	14463	14424	13856	14342	13927	14213	0.66
Valencia	15334	15675	15612	15381	16439	16354	16735	17012	16866	16390	0.74
Valladolid	14284	15542	16364	17276	17343	16045	16183	15946	15811	15780	1.11
Vizcaya	**14484**	**15651**	**16160**	**15579**	**16574**	**16245**	**16817**	**17194**	**16748**	**16880**	**1.72**
Zamora	12518	11647	11467	14118	13823	13294	13703	14134	12759	12428	-0.08
Zaragoza	18032	17897	17625	17361	17299	17445	17996	17648	16731	16867	-0.74
Spain	15622	15806	15799	15941	16693	16621	16769	16620	16574	16762	0.76

Source: author's calculations based on Comtrade and Agencia Tributaria data.

Table 11b. The evolution of Spanish provinces' non quality-adjusted EXPY, 1996-2005 (2000 constant international dollars); HS 1996 Revision

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Average annual growth (%)
A Coruña	10951	10915	10471	10491	10623	10311	10278	10021	9842	12512	1.49
Álava	**15518**	**16053**	**16304**	**16488**	**16239**	**15961**	**15825**	**15837**	**16413**	**16270**	**0.53**
Albacete	11980	11691	11924	12093	12266	12685	12639	12440	13078	13195	1.08
Alicante	11887	11739	11761	11882	11988	12180	12255	12472	12352	12513	0.57
Almería	8618	8829	8826	8954	9045	9111	9151	9100	9404	9165	0.69
Asturias	12760	13333	13922	13821	13800	13987	13243	13211	13094	13181	0.36
Ávila	15717	15521	15232	15324	15521	15545	15698	15350	15094	15174	-0.39
Badajoz	11665	11887	11951	11878	12060	12204	12036	12017	11966	12048	0.36
Balearic Islands	14617	15117	15043	15176	15159	15018	15686	15492	15037	15441	0.61
Barcelona	16201	16155	16161	16123	16304	16369	16436	16361	16389	16562	0.25
Burgos	15229	15479	15271	15234	15696	15909	16207	16413	16241	16221	0.70
Cáceres	14859	14820	14923	15136	15002	15132	15239	15021	14988	15088	0.17
Cádiz	13550	13606	13609	13845	13763	13802	13839	13934	13949	13903	0.29
Cantabria	13695	13114	12749	12550	13587	13417	13465	13041	13524	13273	-0.35
Castellón	12089	11791	11921	11924	11835	12149	11668	11449	12873	14239	1.84
Ciudad Real	10702	11289	11037	11059	11046	10641	10542	10494	10966	10883	0.19
Córdoba	15110	15120	15773	15634	16273	15798	15103	15072	15784	15346	0.17
Cuenca	10700	11621	11455	11497	11818	11534	11822	11990	12098	11982	1.26
Girona	15282	15209	15338	15472	15878	16200	16351	16503	17318	17395	1.45
Granada	10839	11226	11076	10761	11136	11661	11906	12320	12205	11975	1.11
Guadalajara	15150	15934	15772	15378	15173	14784	14670	15186	14967	15224	0.05
Guipúzcoa	**16154**	**16691**	**16319**	**16199**	**16253**	**16374**	**16450**	**16395**	**16376**	**16620**	**0.32**
Huelva	13082	13010	13904	14044	14651	14819	15662	15187	15418	14548	1.19
Huesca	12599	12442	12057	12820	13047	13525	14131	14723	14270	14434	1.52
Jaén	14605	14777	14695	15888	15825	15140	14934	15320	15533	15944	0.98
Las Palmas	7372	7704	7451	8039	8408	8555	8798	9001	8580	8585	1.71
León	16806	15298	15643	15748	16334	16610	16338	16345	16200	15812	-0.67
Lleida	13549	13450	13130	13096	13499	13671	13884	14127	14481	14574	0.81
Lugo	12856	12859	13286	13878	14347	13399	14420	13228	12703	12498	-0.31
Madrid	16745	16556	16569	16601	16908	16947	16914	17058	16807	17179	0.28

Table 11b (cont.)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Average annual growth (%)
Málaga	13768	13134	13301	13902	14876	14612	14219	14355	14528	14862	0.85
Murcia	12288	12418	12738	12980	13514	13370	13542	13470	13507	13463	1.02
Navarre	16686	16652	16596	16472	16552	16432	16525	16689	16487	16636	-0.03
Ourense	16473	16357	16130	15466	15730	15490	15590	16045	16330	16546	0.05
Palencia	18455	18438	18399	18444	18448	18544	18353	18022	18220	18373	-0.05
Pontevedra	15630	15059	15174	15625	16480	16688	16912	16789	16714	16542	0.63
Rioja	12042	12172	12143	12345	12533	12420	12377	12274	12389	12465	0.38
Salamanca	15473	15115	15277	15179	15415	16151	14510	16303	16276	16699	0.85
Segovia	15828	14756	15019	15378	16593	16154	15405	15078	15313	14510	-0.96
Sevilla	12315	11751	12007	12252	12355	12571	12558	13275	13117	13201	0.77
Soria	16725	16810	16727	16544	16101	16633	16781	16540	17020	16902	0.12
Tarragona	14950	14866	15049	15028	14824	14712	14844	14940	14970	14788	-0.12
Tenerife	10233	10022	9489	9179	9818	10021	10926	10530	11149	10396	0.18
Teruel	13669	14109	13867	14665	14320	14142	14172	14184	14382	13900	0.19
Toledo	13253	13659	14642	13911	13657	13755	13548	13575	13625	13526	0.23
Valencia	14948	14609	14606	14958	14933	14838	14819	15019	15421	15327	0.28
Valladolid	17337	17545	17741	17916	17877	17721	17748	17668	17225	17147	-0.12
Vizcaya	**15705**	**15749**	**15842**	**15959**	**15783**	**16055**	**15522**	**16038**	**16063**	**15919**	**0.15**
Zamora	8877	9365	10393	11498	12264	13236	12533	13161	12199	12468	3.85
Zaragoza	16536	16505	16403	16460	16430	16546	16633	17095	17214	16920	0.26
Spain	15218	15159	15240	15362	15521	15535	15522	15575	15624	15678	0.33

Source: author's calculations based on Comtrade and Agencia Tributaria data.

Table 11c. Manufactures. The evolution of Spanish provinces' quality-adjusted EXPY, 1996-2005 (2000 constant international dollars); HS 1996 Classification

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Average annual growth (%)
A Coruña	14114	13828	13231	13496	13734	13130		13086	12851	15679	1.18
Álava	**15612**	**16794**	**17326**	**17579**	**17640**	**17722**	**17320**	**17082**	**17891**	**17920**	**1.54**
Alicante	12390	12377	12856	16092	16264	16388		16905	16922	17007	3.58
Almería	17298	17464	17336	17355	15768	15084	14621	12519	14515	12544	-3.51
Asturias	14167	18242	18399	17325	18677	19255	18651	17343	13853	16154	1.47
Ávila	10811	11087	17472	17721	17953	18126	18471	18310	15936	17792	5.69
Badajoz	11632						13032	12318		14194	2.24
Balearic Islands	18018	17942	17512	17903	18491	18083		18308	18164	18323	0.19
Barcelona	15947	16205	16548	16544	16928	17036	17059	17107	17477	17821	1.24
Burgos	15898	16028	15414	15783	16555	17557	16297	16443	16646	15278	-0.44
Cáceres	12979	14009	12543	13764	13682	12900	12469	11964	12135	11736	-1.11
Cantabria	15623	16831	16543	16288	16341	17922	17188	17526	16875	16643	0.71
Castellón	16702	16387	16469	16883	16694	16775	16925	17032	16725	16618	-0.06
Córdoba	12516	13594	12418	14087	13380	13741	14728	14118	14832	13477	0.83
Girona	15199	15392	15049	15572	16190	15848	17374	17342	17836	17632	1.66
Granada	14854	9731	10677	15176	13476	13626	12710	16973	15712	15278	0.31
Guadalajara	16574	16606	16867	16822	17178	17374	16953	17383	16033	15771	-0.55
Guipúzcoa	**14750**	**16289**	**16086**	**15973**	**16422**	**17269**	**16936**	**17019**	**16792**	**17215**	**1.73**
Huelva	12603	13500	13777	14046	17874	18328	18770	16341	18098	18170	4.15
Huesca	16635	17420	17100	17387	17937	17874	18257	18373	17257	17696	0.69
Jaén	16218	15680	13235	15405	14682	14158	13084	15983	16199	16389	0.12
Las Palmas	10804	11796	10354	13657	15384	15112	14754	16376	13955	14425	3.26
León	19202	16865	15552	18445	20244	20308	19367	19333	14561	14996	-2.71
Lleida	14442	14483	14251	14088	14422	15035	15512	15699	15933	15935	1.10
Lugo	9342	9779	16392	15450	16034	20486	15381	14545	11428	12569	3.35
Madrid	16620	17034	16345	16941	17725	18235	18217	18395	18480	18588	1.25
Málaga	16414	14706	15346	16289	16815	15658	15918	16764	15590	15928	-0.33
Murcia	13433	14841	15155	16348	17514	17293	17333	16033	15360	16691	2.44
Navarre	17147	16799	17044	17015	18011	17053	17103	17854	17544	17338	0.12
Ourense	19392	19352	19332	18868	19074	18472	18591	19154	18798	18413	-0.57

Table 11c (cont.)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Average annual growth (%)
Palencia	18979	18670	18999	15763	15733	15846	15575	15034	15835	16606	-1.47
Pontevedra	14841	13576	13516	14951	15575	15632	15883	15505	15539	15805	0.70
Salamanca	18599	12731	17928	14555	16434	15763	15118	16051	15485	15201	-2.22
Segovia	16207	16049	16699	16744	16676	16778	16922	16825	17353	16703	0.34
Sevilla	13252	12626	11486	12913	12844	12890	13085	12869	14737	13980	0.60
Soria	16934	16867	16688	16512	17035	17721	17933	18067	17590	18631	1.07
Tarragona	15842	16971	15623	16241	18591	17217	17747	17048	18242	18208	1.56
Tenerife	13785	15670	15000	13740	13435	12928	15713	14779	14283	14808	0.80
Teruel	16952	17641	17265	19205	16243	15907	15910	16317	15810	15513	-0.98
Toledo	12882	13639	13268	14551	13505	13691		13939		14017	0.94
Valencia	15254	16643	16488	16196	16477	16462	16946	17153	17008	16392	0.80
Valladolid	14145	15504	16344	17301	17353	16025	16191	15983	15863	15839	1.27
Vizcaya	**14584**	**15799**	**16300**	**15715**	**16854**	**16534**	**16973**	**17390**	**16921**	**17015**	**1.73**
Zaragoza	18063	17946	17682	17448	17390	17484	18020	17727	16802	16939	-0.71
Spain	15711	16052	16047	16289	16862	16877	16807	16897	16886	17023	0.89

Source: author's calculations based on Comtrade and Agencia Tributaria data.

Table 11d. Manufactures. The evolution of Spanish provinces' non quality-adjusted EXPY, 1996-2005 (2000 constant international dollars); HS 1996 Revision

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Average annual growth (%)
A Coruña	10682	10585	10180	10281	10435	10065	10067	9820	9621	12577	1.83
Álava	**15539**	**16062**	**16316**	**16503**	**16264**	**15986**	**15837**	**15850**	**16423**	**16275**	**0.52**
Albacete	11794	11449	11779	11967	12171	12634	12681	12460	13127	13206	1.26
Alicante	12501	12368	12347	12504	12647	12830	12937	13213	13109	13369	0.75
Almería	14523	14185	14853	14510	14841	14422	14444	13813	13958	13731	-0.62
Asturias	12735	13400	14000	14061	14235	14282	13650	13646	13451	13245	0.44
Ávila	15925	15622	15405	15505	15605	15630	15766	15623	15207	15347	-0.41
Badajoz	11918	12255	12428	12255	12461	12667	12418	12393	12149	12380	0.42
Balearic Islands	14848	15351	15218	15360	15300	15112	15780	15612	15103	15518	0.49
Barcelona	16299	16237	16243	16200	16371	16432	16503	16426	16426	16592	0.20
Burgos	15136	15380	15251	15277	15725	15907	16183	16414	16302	16299	0.83
Cáceres	10793	11620	11398	11618	11426	10883	10890	10641	11205	11058	0.27
Cádiz	15739	15636	16662	16257	17122	16625	16111	15692	16265	15744	0.00
Cantabria	15099	15053	15119	15336	15177	15266	15368	15184	15139	15291	0.14
Castellón	14314	14264	14206	14445	14329	14388	14440	14606	14590	14552	0.18
Ceuta	16357	15327	17028	16666	19137	17944	17186	14758	17769	16293	-0.04
Ciudad Real	13377	12851	12622	12215	13433	13276	13319	12937	13282	12919	-0.39
Córdoba	10648	11724	11623	11669	11950	11594	11935	12083	12221	12100	1.43
Cuenca	12139	11926	12103	12132	12145	12944	12361	11940	12061	12692	0.50
Girona	14931	14853	14931	14949	15178	15267	15525	15668	16387	16281	0.97
Granada	12788	13299	13636	14303	14287	14663	14390	15217	14726	14263	1.22
Guadalajara	15768	16637	16410	16113	15921	15693	15468	16142	15656	15878	0.08
Guipúzcoa	**16284**	**16776**	**16400**	**16271**	**16306**	**16439**	**16520**	**16462**	**16450**	**16676**	**0.26**
Huelva	12439	12191	13267	13797	15309	15941	17009	15979	16375	14496	1.71
Huesca	12497	12422	12499	13125	13350	13135	13981	14964	13993	14261	1.48
Jaén	14662	14813	14749	15940	15893	15223	14940	15301	15541	16063	1.02
Las Palmas	12289	12260	10929	12354	11621	11692	12086	12693	11540	11849	-0.40
León	16789	15295	15601	15773	16329	16401	16272	16342	16342	15990	-0.54
Lleida	13344	13626	13552	13326	13375	13684	13888	14406	14618	14498	0.93

Table 11d (cont.)

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Average annual growth (%)
Lugo	12208	12136	12584	13430	13961	12747	13714	12928	12339	12126	-0.07
Madrid	16951	16856	16791	16836	17121	17172	17137	17332	17241	17560	0.39
Málaga	14696	13794	13841	14310	15303	14854	14434	14728	14747	14903	0.16
Melilla	15747	15611	5770	12645	17342	12746	14659	12646	10133	12800	-2.28
Murcia	13653	14028	14430	14721	15373	15115	15209	15115	14995	14968	1.03
Navarre	16800	16766	16720	16601	16669	16564	16680	16832	16650	16807	0.00
Ourense	17023	16693	16477	15771	15954	15777	15987	16457	16598	16738	-0.19
Palencia	18481	18493	18423	18504	18485	18581	18418	18065	18258	18430	-0.03
Pontevedra	16545	16075	16093	16685	17417	17561	17732	17551	17496	17350	0.53
Rioja	12129	12243	12204	12264	12552	12386	12351	12315	12463	12494	0.33
Salamanca	16023	14983	15730	15917	16431	16943	14967	17538	16712	16925	0.61
Segovia	13844	13802	14890	14370	15392	15256	14722	14326	14914	14163	0.25
Sevilla	13140	12603	12696	13219	13274	13731	13617	14366	13790	13678	0.45
Soria	17192	17430	17100	16910	16351	16855	17013	16753	17123	16954	-0.15
Tarragona	15968	15969	15937	15761	15495	15359	15473	15648	15623	15695	-0.19
Tenerife	14244	14567	12925	12658	12990	12884	14529	14333	14627	13954	-0.23
Teruel	14883	14981	14761	15143	14567	14364	14432	14361	14400	14355	-0.40
Toledo	13223	13569	14708	13808	13216	13220	13128	13286	13349	13380	0.13
Valencia	15951	15623	15547	15906	15853	15768	15869	16108	16476	16433	0.33
Valladolid	17440	17630	17822	17989	17945	17805	17827	17816	17332	17271	-0.11
Vizcaya	**15862**	**15911**	**15951**	**16130**	**16038**	**16328**	**15692**	**16254**	**16260**	**16103**	**0.17**
Zamora	7066	8263	9790	10548	10822	13272	11406	11391	11451	12275	6.33
Zaragoza	16568	16550	16462	16567	16552	16642	16682	17175	17279	16960	0.26
Spain	15743	15693	15754	15867	16008	16020	16013	16080	16083	16119	0.26

Source: author's calculations based on Comtrade and Agencia Tributaria data.

Table 12a. The evolution of countries' EXPY, 1996-2004 (2000 constant international dollars); HS 1996 Revision

Quality-adjusted EXPY				Non-quality adjusted EXPY			
Country	1996	2004	Average annual growth (%)	Country	1996	2004	Average annual growth (%)
Argentina	7735	9501	2.60	Albania	8232	7709	-0.82
Austria	18438	19010	0.38	Algeria	9896	9592	-0.39
Bulgaria	8006	9375	1.99	Argentina	10469	10523	0.06
Colombia	6926	10176	4.93	Australia	12544	12795	0.25
Czech Rep.	12995	15847	2.51	Austria	16650	16681	0.02
Denmark	18599	19534	0.61	Bulgaria	10979	10701	-0.32
Ecuador	7914	5889	-3.63	Canada	15859	15890	0.02
Finland	19117	19787	0.43	China	12292	14005	1.64
France	17282	18762	1.03	Colombia	8725	9756	1.41
Gambia	5346	10672	9.03	Cyprus	11878	15783	3.62
Germany	19557	20404	0.53	Czech Rep.	14541	15795	1.04
Greece	10474	13509	3.23	Denmark	16757	16797	0.03
Hungary	11019	16045	4.81	Ecuador	7034	7816	1.33
Indonesia	6881	8886	3.25	Estonia	12745	13948	1.13
Ireland	20091	23816	2.15	Finland	17055	17699	0.46
Italy	16672	18195	1.10	France	15898	16674	0.60
Madagascar	4418	3292	-3.61	Gambia	5649	2908	-7.97
Malawi	2602	3536	3.91	Germany	17298	17795	0.35
Mexico	10325	13941	3.82	Greece	11027	13003	2.08
Norway	14735	13954	-0.68	Hong Kong	14623	15355	0.61
Poland	9987	13719	4.05	Hungary	13408	16193	2.39
Rep. of Korea	12058	16398	3.92	India	9744	11071	1.61
Senegal	5341	7105	3.63	Indonesia	9153	10262	1.44

Table 12a (cont.)

Quality-adjusted EXPY				Non-quality adjusted EXPY			
Country	1996	2004	Average annual growth (%)	Country	1996	2004	Average annual growth (%)
Slovenia	12887	16347	3.02	Ireland	18486	20438	1.26
Spain	15492	16629	0.89	Israel	14451	15073	0.53
Sweden	19165	19879	0.46	Italy	15407	15834	0.34
Macedonia	7385	7639	0.42	Japan	17786	18211	0.30
Turkey	7099	11237	5.91	Madagascar	4329	3367	-3.09
				Malawi	3370	3517	0.53
Basque Country	**14863**	**17092**	**1.76**	Malta	13705	16252	2.15
				Mexico	13744	14393	0.58
				Netherlands	15814	16455	0.50
				New Zealand	14455	14916	0.39
				Norway	12634	12256	-0.38
				Poland	12459	14087	1.55
				Portugal	12776	13975	1.13
				Rep. of Korea	14511	16230	1.41
				Senegal	5879	7252	2.66
				Slovenia	15039	16041	0.81
				Spain	15252	15669	0.34
				Sweden	17441	17762	0.23
				Switzerland	19168	20120	0.61
				Macedonia	9657	9388	-0.35
				Turkey	9679	11748	2.45
				USA	16488	17196	0.53
				Uganda	5820	5441	-0.84
				United Kingdom	16410	16979	0.43
				Venezuela	9538	9046	-0.66
				Basque Country	**15819**	**16277**	**0.36**

Source: author's calculations based on Comtrade and Agencia Tributaria data.

Table 12b. Manufactures. The evolution of countries' EXPY, 1996-2004 (2000 constant international dollars); HS 1996 Revision

Quality-adjusted EXPY				Non-quality adjusted EXPY			
Country	1996	2004	Average annual growth (%)	Country	1996	2004	Average annual growth (%)
Algeria	13145	9940	-3.43	Albania	8219	7674	-0.85
Argentina	8070	10095	2.84	Algeria	15147	10411	-4.58
Austria	18594	19279	0.45	Argentina	11080	11071	-0.01
Bulgaria	8025	9413	2.01	Australia	13143	13697	0.52
Colombia	7874	11485	4.83	Austria	16791	16991	0.15
Czech Rep.	12954	15968	2.65	Bulgaria	11194	10742	-0.51
Denmark	18663	20136	0.95	Canada	16879	17146	0.20
Ecuador	8727	7683	-1.58	China	12523	14150	1.54
Finland	19214	19903	0.44	Colombia	10894	10943	0.06
France	17693	19115	0.97	Cyprus	11846	16396	4.15
Gambia	5167	10878	9.75	Czech Rep.	14813	15978	0.95
Germany	19732	20543	0.50	Denmark	16710	17147	0.32
Greece	10500	13741	3.42	Ecuador	8510	8825	0.46
Hungary	10565	16184	5.48	Estonia	12846	14046	1.12
Indonesia	6779	8823	3.35	Finland	17142	17782	0.46
Ireland	20411	24203	2.15	France	16339	17052	0.54
Italy	16738	18246	1.08	Gambia	5749	2788	-8.65
Madagascar	6266	5810	-0.94	Germany	17440	17896	0.32
Malawi	2620	3916	5.15	Greece	11302	13331	2.09
Mexico	11576	14888	3.20	Hong Kong	14675	15378	0.59
Norway	17335	18531	0.84	Hungary	13424	16352	2.50
Poland	9796	13749	4.33	India	10305	11504	1.39
Rep. of Korea	12009	16417	3.99	Indonesia	9590	10682	1.36
Senegal	5497	6708	2.52	Ireland	18908	20815	1.21
Slovenia	12923	16463	3.07	Israel	14721	15258	0.45

Table 12b (cont.)

Quality-adjusted EXPY				Non-quality adjusted EXPY			
Country	1996	2004	Average annual growth (%)	Country	1996	2004	Average annual growth (%)
Spain	15564	16998	1.11	Italy	15490	15921	0.34
Sweden	19330	20016	0.44	Japan	17828	18242	0.29
Macedonia	7404	7592	0.31	Madagascar	6248	5519	-1.54
Turkey	7284	11352	5.70	Malawi	3361	3662	1.08
Venezuela	8671	15045	7.13	Malta	13695	16330	2.22
				Mexico	14900	15494	0.49
Basque Country	**14904**	**17180**	1.79	Netherlands	16307	17078	0.58
				New Zealand	14980	15309	0.27
				Norway	16297	16414	0.09
				Poland	12783	14429	1.53
				Portugal	12891	14119	1.14
				Rep. of Korea	14546	16281	1.42
				Senegal	6138	7462	2.47
				Slovenia	15112	16176	0.85
				Spain	15778	16143	0.29
				Sweden	17555	17878	0.23
				Switzerland	19173	20139	0.62
				TFYR of Macedonia	9701	9400	-0.39
				Turkey	9953	12039	2.41
				Uganda	9320	5359	-6.68
				United Kingdom	16932	17578	0.47
				USA	16962	17545	0.42
				Venezuela	12655	11574	-1.11
				Basque Country	**15930**	**16376**	**0.35**

Source: author's calculations based on Comtrade and Agencia Tributaria data.

As was the case for all products, the rate of growth of manufactured exports' EXPY has been larger in the Basque Country than in most of the more advanced EU-15 countries, but smaller than in the majority of less developed countries. With respect to non-quality adjusted EXPY, half of EU-15 countries have a larger rate of growth than the Basque Country and the other half have a smaller or equal rate of growth.

7. CONCLUSIONS

In this study we use highly disaggregated trade data and countries' GDP per capita to calculate Basque exports' sophistication level. Our results show that Basque exports are situated at the top quartet of the world's ranking. Basque exports' sophistication is similar to Spain's. There is still a notable 40% gap between the sophistication of its exports and sophistication level of the country that occupies the first position in the ranking: Ireland. The gap is reduced to around 20% when we compare the Basque Country with other European Union countries, such as France, Finland, Germany or Sweden.

If we disaggregate our analysis by provinces, we find that Álava is the Basque Country's province with the highest quality-adjusted export sophistication. Guipúzcoa occupies the second position; on its hand, Vizcaya occupies the third position, very far from Álava's and Guipúzcoa's values.

Finally, our study shows that the rate of growth of Basque Country's exports sophistication during the 1996-2005 period is the highest among Spanish regions. However, the rate of growth has not been constant during that period, with a large increase in the first half and a lower increase in the second half. Basque exports' sophistication rate of growth has also been higher than in most European Union-15 countries, leading to the reduction of the exports' sophistication gap between the Basque Country and those countries.

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Table A1. Products' contribution to provinces' quality-adjusted EXPY, 2005 (% of total quality-adjusted EXPY). HS 2002 Revision

Spanish province	HS commodity code	Commodity description	Contribution (%)
A Coruña	890110	Cruise ships, excursion boats & sim. vessels	25.02
	890190	Vessels for the tpt. of gds. & for the tpt. of both persons & gds.	6.36
	271011	Light petroleum oils & preps.	3.08
	854511	Carbon electrodes, of a kind used for furnaces	2.91
	611030	Jerseys, pullovers, cardigans, waist-coats & sim. arts., knitted or crocheted	2.87
Álava	870332	Vehicles princ. designed for the tpt. of persons (excl. of 87.02 & 8703.10	22.75
	870421	Motor vehicles for the tpt. of gds. (excl. of 8704.10), with C-I int. comb.	15.52
	850610	Primary cells & primary batteries, manganese dioxide	3.71
	730441	Tubes, pipes & hollow profiles (excl. of 7304.10-7304.39), seamless	2.09
	220421	Wine other than sparkling wine of fresh grapes	2.21
Alicante	640399	Footwear (excl. waterproof) with outer soles of rubber/plastics/composition	14.04
	640359	Footwear (excl. waterproof) with outer soles & uppers of leather	7.34
	080212	Almonds, shelled	4.23
	300490	Medicaments (excl. of 30.02/30.05/30.06) consisting of mixed/unmixed prods.	3.31
	251512	Marble & travertine, merely cut, by sawing/othw., into blocks/slabs	2.74
Almería	70960	Fruits of the genera Capsicum/Pimenta, fresh/chilled	20.23
	70700	Cucumbers & gherkins, fresh/chilled	14.59
	70200	Tomatoes, fresh/chilled	10.98
	80719	Melons (excl. watermelons), fresh	9.26
	80711	Watermelons, fresh	7.22
Asturias	790111	Zinc, not alloyed, unwrought	15.81
	470329	Chemical wood pulp, soda/sulphate, other than dissolving grades	6.16
	721391	Bars & rods, hot-rolled, in irregularly wound coils, of iron/non-alloy steel	4.68
	300490	Medicaments (excl. of 30.02/30.05/30.06) consisting of mixed/unmixed prods.	4.00
	040510	Butter	3.35

Table A1 (cont.)

Spanish province	HS commodity code	Commodity description	Contribution (%)
Ávila	870421	Motor vehicles for the tpt. of gds. (excl. of 8704.10), with C-I int. comb.	45.57
	230910	Dog/cat food, put up for RS	25.97
	870422	Motor vehicles for the tpt. of gds. (excl. of 8704.10), with C-I int. comb.	7.16
	854430	Ignition wiring sets & oth. wiring sets of a kind used in vehicles/aircraft	3.20
	051191	Products of fish/crustaceans, molluscs/oth. aquatic invertebrates; dead animals	2.41
Badajoz	200290	Tomatoes, prepd./presvd. othw. than by vinegar/acetic acid	15.74
	840999	Parts suit. for use solely/princ. with the engines of 84.07/84.08	14.85
	450110	Natural cork, raw/simply prepd.	5.54
	080930	Peaches, incl. nectarines, fresh	3.82
	080940	Plums&sloes, fresh	3.10
Balearic Islands	841112	Turbo-jets, of a thrust >25 kN	11.92
	640399	Footwear (excl. waterproof) with outer soles of rubber/plastics/composition	10.13
	870322	Vehicles (excl. of 87.02 & 8703.10) princ. designed for the tpt. of persons	8.31
	870323	Vehicles (excl. of 87.02 & 8703.10) princ. designed for the tpt. of persons	8.24
	880330	Parts of aeroplanes/helicopters, other than propellers	7.19
Barcelona	870332	Vehicles princ. designed for the tpt. of persons (excl. of 87.02 & 8703.10	7.18
	300490	Medicaments (excl. of 30.02/30.05/30.06) consisting of mixed/unmixed prods.	6.50
	852812	Reception app. for television, whether or not incorp. radio-broadcast receiver	4.79
	870421	Motor vehicles for the tpt. of gds. (excl. of 8704.10), with C-I int. comb. ...	3.12
	870323	Vehicles (excl. of 87.02 & 8703.10) princ. designed for the tpt. of persons	2.63
Burgos	300490	Medicaments (excl. of 30.02/30.05/30.06) consisting of mixed/unmixed prods.	31.04
	870899	Parts & accessories of the motor vehicles of 87.01-87.05	8.56
	401120	New pneumatic tyres, of rubber, of a kind used on buses/lorries	5.08
	330590	Preparations for use on the hair (excl. of 3305.10-3305.30)	4.53
	401110	New pneumatic tyres, of rubber, of a kind used on motor cars	3.87

Table A1 (cont.)

Spanish province	HS commodity code	Commodity description	Contribution (%)
Cáceres	210320	Tomato ketchup & oth. tomato sauces	28.14
	150910	Olive oil, virgin	12.45
	200570	Olives, presvd./presvd. othw. than by vinegar/acetic acid, not frozen	7.20
	080920	Cherries, fresh	6.62
	401693	Gaskets, washers & oth. seals of vulcanised rubber other than hard rubber	6.52
Cádiz	890190	Vessels for the tpt. of gds. & for the tpt. of both persons	11.31
	880330	Parts of aeroplanes/helicopters, other than propellers, rotors	8.12
	271019	Petroleum oils & oils obt. from bituminous mins. (excl. crude)	7.15
	271011	Light petroleum oils & preps.	5.47
	890590	Light-vessels, fire-floats, floating cranes	4.97
Cantabria	851150	Generators other than starter motors & dual purp. starter generators	14.21
	870600	Chassis fitted with engines, for the motor vehicles of 87.01-87.05	4.96
	851140	Starter motors & dual purp. starter-generators	4.80
	870831	Mounted brake linings for the motor vehicles of 87.01-87.05	3.49
	721391	Bars & rods, hot-rolled, in irregularly wound coils, of iron/non-alloy steel	3.43
Castellón	690890	Glazed ceramic flags & paving/hearth/wall tiles (excl. of 6908.10)	42.82
	080520	Mandarins, incl. tangerines & satsumas; clementines, wilkings & sim. citrus	15.43
	320740	Glass frit & oth. glass, in the form of powder/granules/flakes	7.11
	080510	Oranges, fresh/dried	3.78
	320710	Prepared pigments, prepd. opacifiers, prepd. colours & sim. preps.	2.89
Córdoba	150910	Olive oil, virgin	34.63
	150990	Olive oil (excl. crude & virgin) & fractions thereof	6.47
	711319	Articles of jewellery & parts thereof , of oth. precious metal	5.82
	740811	Copper wire	4.76
	741210	Copper tube/pipe fittings (e.g., couplings, elbows, sleeves)	3.17
Girona	870332	Vehicles princ. designed for the tpt. of persons (excl. of 87.02 & 8703.10	8.30
	020319	Meat of swine (excl. carcasses/half-carcasses/hams/shoulders & cuts thereof)	4.85
	540233	Textured yarn other than sewing thread	4.05
	870899	Parts & accessories of the motor vehicles of 87.01-87.05	3.65
	020312	Hams, shoulders & cuts thereof	3.12

Table A1 (cont.)

Spanish province	HS commodity code	Commodity description	Contribution (%)
Granada	150910	Olive oil, virgin	27.54
	070200	Tomatoes, fresh/chilled	14.51
	070700	Cucumbers & gherkins, fresh/chilled	10.54
	481013	Paper & paperboard of a kind used for writing/printing/oth. graphic purps.	5.05
	190110	Preparations for infant use, put up for RS	5.03
Guadalajara	854221	Monolithic integrated circuits, digital	29.57
	870899	Parts & accessories of the motor vehicles of 87.01-87.05	10.38
	847130	Portable digital auto. data processing machines, weighing not >10kg	4.25
	847170	Storage units (of auto. data processing machines)	3.46
	850710	Electric accumulators	3.32
Guipúzcoa	870899	Parts & accessories of the motor vehicles of 87.01-87.05	6.37
	860500	Railway/tramway passenger coaches, not self-propelled; luggage vans	6.23
	848180	Taps, cocks, valves & sim. appls. for pipes/boiler shells/tanks/vats	3.73
	860799	Parts of railway/tramway rolling stock	2.85
	480255	Paper & paperboard, not cont. fibres obt. by a mech./chemi-mech. process	2.13
Huelva	081010	Strawberries, fresh	25.74
	290711	Phenol (hydroxybenzene) & its salts	14.75
	740200	Unrefined copper; copper anodes for electrolytic refining	8.00
	262099	Ash & residues (excl. from the mfr. of iron/steel), n.e.s. in Ch.26	6.14
	470329	Chemical wood pulp, soda/sulphate, other than dissolving grades	5.89
Huesca	390760	Poly(ethylene terephthalate), in primary forms	13.78
	190531	Sweet biscuits	7.61
	020110	Carcasses/half-carcasses of bovine animals, fresh/chilled	5.58
	760711	Aluminium foil, whether or not printed, not backed, of a thkns. not >0.2mm	5.05
	020311	Carcasses/half-carcasses of swine, fresh/chilled	3.52
Jaén	150910	Olive oil, virgin	25.93
	851220	Lighting/visual signalling equip. of a kind used for cycles	18.51
	851230	Sound signalling equip. of a kind used for cycles/motor vehicles	7.55
	870322	Vehicles (excl. of 87.02 & 8703.10) princ. designed for the tpt. of persons	6.14
	870332	Vehicles princ. designed for the tpt. of persons	3.95

Table A1 (cont.)

Spanish province	HS commodity code	Commodity description	Contribution (%)
Las Palmas	271019	Petroleum oils & oils obt. from bituminous mins. (excl. crude)	31.19
	070200	Tomatoes, fresh/chilled	19.27
	210500	Ice cream & oth. edible ice, whether or not cont. cocoa	11.04
	030759	Octopus (Octopus spp.), other than live/fresh/chilled	5.79
	070700	Cucumbers & gherkins, fresh/chilled	5.75
León	722100	Bars & rods, hot-rolled, in irregularly wound coils, of stainless steel	16.43
	680300	Worked slate & arts. of slate/agglom. slate	16.12
	722220	Bars & rods of stainless steel, not further worked than cold-formed	11.14
	850300	Parts suit. for use solely/princ. with the machines of 85.01/85.02	3.92
	294110	Penicillins & their derivs. with a penicillanic acid structure	3.51
Lleida	150910	Olive oil, virgin	13.77
	300490	Medicaments (excl. of 30.02/30.05/30.06) consisting of mixed/unmixed prods.	9.50
	080930	Peaches, incl. nectarines, fresh	6.82
	080820	Pears & quinces, fresh	6.14
	870899	Parts & accessories of the motor vehicles of 87.01-87.05	3.64
Lugo	281820	Aluminium oxide (excl. art. corundum)	32.10
	281830	Aluminium hydroxide	13.64
	680300	Worked slate & arts. of slate/agglom. slate	8.43
	850300	Parts suit. for use solely/princ. with the machines of 85.01/85.02	7.15
	760120	Aluminium alloys, unwrought	6.82
Madrid	300490	Medicaments (excl. of 30.02/30.05/30.06) consisting of mixed/unmixed prods.	11.48
	870423	Motor vehicles for the tpt. of gds. (excl. of 8704.10), with C-I int. comb.	4.59
	880330	Parts of aeroplanes/helicopters, other than propellers, rotors	4.36
	271011	Light petroleum oils & preps.	1.96
	841191	Parts and accessories of the motor vehicles 0f 87.01-87.05	1.80
Málaga	150910	Olive oil, virgin	10.80
	852520	Transmission app. for radio-telephony/radio-telegraphy/radio-broadcasting	9.02
	080440	Avocados, fresh/dried	6.55
	853225	Fixed electrical capacitors, other than those of 8532.10	6.10
	854140	Photosensitive semiconductor devices	4.55

Table A1 (cont.)

Spanish province	HS commodity code	Commodity description	Contribution (%)
Murcia	390740	Polycarbonates, in primary forms	12.09
	070511	Cabbage lettuce (head lettuce), fresh/chilled	6.54
	080550	Lemons (Citrus limon/limonum) & limes (Citrus aurantifolia/latifolia), fresh	5.98
	074110	Cauliflowers & headed broccoli, fresh/chilled	4.34
	390799	Polyesters (excl. of 3907.10 -3907.91)	3.86
Navarre	870322	Vehicles (excl. of 87.02 & 8703.10) princ. designed for the tpt. of persons	19.65
	870331	Vehicles princ. designed for the tpt. of persons (excl. of 87.02 & 8703.10	6.27
	870899	Parts & accessories of the motor vehicles of 87.01-87.05, n.e.s. in 87.06-	6.20
	870831	Mounted brake linings for the motor vehicles of 87.01-87.05	3.86
	850231	Wind-powered elec. generating sets	3.31
Ourense	680300	Worked slate & arts. of slate/agglom. slate	49.42
	382490	Other chem. prods. & preps. of the chem./allied industries	4.16
	870790	Bodies (incl. cabs), for the motor vehicles of 87.01, 87.02, 87.04 & 87.05	3.14
	870829	Parts & accessories of bodies (incl. cabs) of the motor vehicles	3.07
	848310	Transmission shafts (incl. cam shafts & crank shafts) & cranks	2.78
Palencia	870331	Vehicles princ. designed for the tpt. of persons (excl. of 87.02 & 8703.10)	38.53
	870323	Vehicles (excl. of 87.02 & 8703.10) princ. designed for the tpt. of persons	23.86
	870332	Vehicles princ. designed for the tpt. of persons (excl. of 87.02 & 8703.10)	22.26
	870322	Vehicles (excl. of 87.02 & 8703.10) princ. designed for the tpt. of persons	6.06
	870421	Motor vehicles for the tpt. of gds. (excl. of 8704.10), with C-I int. comb.	1.54
Pontevedra	870332	Vehicles princ. designed for the tpt. of persons (excl. of 87.02 & 8703.10)	19.25
	870899	Parts & accessories of the motor vehicles of 87.01-87.05	15.36
	870323	Vehicles (excl. of 87.02 & 8703.10) princ. designed for the tpt. of persons	7.96
	870421	Motor vehicles for the tpt. of gds. (excl. of 8704.10), with C-I int. comb.	7.15
	870322	Vehicles (excl. of 87.02 & 8703.10) princ. designed for the tpt. of persons	6.50

Table A1 (cont.)

Spanish province	HS commodity code	Commodity description	Contribution (%)
Salamanca	840130	Fuel elements (cartridges), non-irradiated	61.12
	401110	New pneumatic tyres, of rubber, of a kind used on motor cars	4.11
	020110	Carcasses/half-carcasses of bovine animals, fresh/chilled	3.81
	020120	Meat of bovine animals, fresh/chilled (excl. of 0201.10)	2.36
	300290	Human blood; animal blood prepd. for therapeutic/prophylactic/diagnostic	2.23
Segovia	481840	Sanitary towels & tampons, napkins & napkin liners for babies	20.13
	230990	Preparations of a kind used in animal feeding other than dog/cat food	9.14
	230910	Dog/cat food, put up for RS	8.14
	060290	Live plants, n.e.s., incl. their roots; mushroom spawn	7.77
	380630	Ester gums	7.14
Sevilla	200570	Olives, presvd./presvd. othw. than by vinegar/acetic acid, not frozen	15.92
	150910	Olive oil, virgin	12.61
	870899	Parts & accessories of the motor vehicles of 87.01-87.05	7.49
	880230	Aeroplanes & oth. aircraft, of an unladen wt. >2000 kg but not >15000kg	5.97
	880330	Parts of aeroplanes/helicopters, other than propellers, rotors	5.96
Soria	870831	Mounted brake linings for the motor vehicles of 87.01-87.05	19.14
	401699	Articles of vulcanised rubber other than hard rubber	18.23
	830120	Locks of a kind used for motor vehicles, of base metal	15.20
	700910	Rear-view mirrors for vehicles	10.84
	870899	Parts & accessories of the motor vehicles of 87.01-87.05	9.01
Tarragona	390210	Polypropylene, in primary forms	7.26
	380820	Fungicides, put up in forms or packings-RS/as preps./arts.	6.64
	854441	Electric conductors (excl. of 8544.11-8544.30), for a voltage not >80V	4.92
	390190	Polymers of ethylene, in primary forms (excl. of 3901.10-3901.30)	3.88
	390110	Polyethylene having a sp.gr. of <0.94, in primary forms	3.82

Table A1 (cont.)

Spanish province	HS commodity code	Commodity description	Contribution (%)
Tenerife	271019	Petroleum oils & oils obt. from bituminous mins. (excl. crude)	42.85
	271011	Light petroleum oils & preps.	14.24
	070200	Tomatoes, fresh/chilled	12.02
	060290	Live plants, n.e.s., incl. their roots; mushroom spawn	9.42
	890190	Vessels for the tpt. of gds. & for the tpt. of both persons & gds.	2.62
Teruel	843149	Parts suit. for use solely/princ. with the mach. of 84.26/84.29/84.30	26.76
	870870	Road wheels & parts & accessories thereof for the motor vehicles	26.06
	080212	Almonds, shelled	5.85
	250700	Kaolin & oth. kaolinic clays, whether or not calcined	3.52
	441032	Particle board other than oriented strand board & waferboard, of wood	3.13
Toledo	854221	Monolithic integrated circuits, digital	14.83
	852812	Reception app. for television, whether or not incorp. radio-broadcast receiver	4.06
	200912	Orange juice, not frozen, of a Brix value not >20, unfermented	4.05
	150910	Olive oil, virgin	3.01
	940360	Wooden furniture (excl. of 94.01 & 9403.30-9403.50)	2.96
Valencia	870323	Vehicles (excl. of 87.02 & 8703.10) princ. designed for the tpt. of persons	12.85
	080520	Mandarins, incl. tangerines & satsumas; clementines, wilkings & sim. citrus	9.02
	870332	Vehicles princ. designed for the tpt. of persons	8.58
	080510	Oranges, fresh/dried	6.51
	870322	Vehicles (excl. of 87.02 & 8703.10) princ. designed for the tpt. of persons	5.26
Valladolid	840820	Compression-ignition int. comb. piston engines (diesel/semi-diesel engines)	28.82
	870331	Vehicles princ. designed for the tpt. of persons	16.27
	870322	Vehicles (excl. of 87.02 & 8703.10) princ. designed for the tpt. of persons	13.74
	870421	Motor vehicles for the tpt. of gds. (excl. of 8704.10), with C-I int. comb.	10.78
	870323	Vehicles (excl. of 87.02 & 8703.10) princ. designed for the tpt. of persons	6.47

Table A1 (cont.)

Spanish province	HS commodity code	Commodity description	Contribution (%)
Vizcaya	870899	Parts & accessories of the motor vehicles of 87.01-87.05	5.24
	271011	Light petroleum oils & preps.	4.59
	401120	New pneumatic tyres, of rubber, of a kind used on buses/lorries	3.65
	760711	Aluminium foil, whether or not printed, not backed, of a thkns. not >0.2mm	3.32
	820730	Tools for pressing/stamping/punching, for hand tools	1.93
Zamora	680300	Worked slate & arts. of slate/agglom. slate	14.68
	220421	Wine other than sparkling wine of fresh grapes, incl. fortified	8.47
	441121	Fibreboard of wood/oth. ligneous mats., whether or not bonded with resins	7.31
	240120	Tobacco, partly/wholly stemmed/stripped	5.29
	843890	Parts of the mach. of 84.38	4.69
Zaragoza	870323	Vehicles (excl. of 87.02 & 8703.10) princ. designed for the tpt. of persons	17.53
	870322	Vehicles (excl. of 87.02 & 8703.10) princ. designed for the tpt. of persons	17.34
	870332	Vehicles princ. designed for the tpt. of persons	8.11
	870331	Vehicles princ. designed for the tpt. of persons	5.10
	870899	Parts & accessories of the motor vehicles of 87.01-87.05	4.73

Source: author's calculations based on Comtrade and Agencia Tributaria data.

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