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International Specialization of Major Trading Countries in Global Trade of Sports Goods

Madeleine Andreff [†] and Wladimir Andreff[††]

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Abstract

The analysis of international trade in sports goods is still in its infancy. Only four articles dealing with the topic have appeared in economic literature so far. In order to alleviate the sports economists ignorance about international specialisation in sports goods trade, we started to build up an entirely new dataset based on extracting data available in Comtrade (the UN word trade data basis) at the most disaggregated level (6 digits). After resolving a number of classification and statistical tricks, we have built up a country and sports goods dataset (41 countries, 36 goods), which gathers 94-96% of sports goods global trade every sampled year (1994, 1997, 1999, 2002 and 2004). Our country sample is divided into five regional areas of the world economy: NAFTA, EU + Switzerland, Eastern Europe, Asia, other emerging countries.

As a first step, our dataset enables us to precisely describe the major flows of sports goods global trade. Major trading areas are Asia, Europe and NAFTA while major exporters are China, Hong Kong, the US and France, and major importers are the US, Japan, Germany, France, the UK and Italy. A major market share in sports goods global trade is for sportswear, anoraks, and gymnastic equipment. Asia, Eastern Europe and emerging countries have an excess balance in sports goods trade whereas NAFTA and Europe are in deficit. Different assessments, including one of revealed comparative advantages and disadvantages and a competitiveness index, depict the following international specialisation: NAFTA and Europe are specialised in 'equipment intensive' sports goods whereas Asia, Eastern Europe and emerging countries are specialised in 'trite' sports goods and some less equipment intensive sports goods. NAFTA is

[†]Assistant Professor at the University Marne-la-Vallée, research team OEP: Organisation et Efficacité de la Production.

[††]Professor at the University Paris 1 Panthéon Sorbonne, research team CES: Centre d'Economie de la Sorbonne, Honorary President of the International Association of Sport Economists, Vice-President of the French Economic Association.

competitive in not any sport good, Europe is competitive in skis, emerging countries and Eastern Europe in sportswear and anoraks, and Asia in sportswear, anoraks, rackets, balls, skates, and gymnastic equipment.

A principal component analysis often groups ‘trite’ sports goods together as opposed to intensive-equipment sports goods in global trade. A hierarchical ascendant classification methodology shows that China is a quite specific (dominant) trade partner in the global market for sports goods trade, Indonesia and Pakistan are platform for (Nike’s) outward-processing trade, international specialisation differentiates countries where sports goods production was relocated from trade partners with big domestic markets for sports goods. \

JEL Classification Codes: L83, Z19, F01, F14

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1. Introduction

Last year, most sport economists participated in a vibrant celebration of the fiftieth anniversary of the first article that had been founding their scientific discipline, the famous article published by Simon Rottenberg (1956). Now, let us imagine, more than fifty years later, that someone attending a scientific conference in sports economics asked: "look, with overall economic globalisation, I am interested in how much does sports goods trade represent in global trade, please, could you provide me with a data"? We really guess that a silent wind of panic would spread throughout the scientific audience. In the best case, one of the scientists will venture as far as to suggest that the requested figure is in the range of $2.5 billion (in 2004), a figure often publicised in (sport) business and commercial journals. Since global trade was $ 8,933 billion in 2004, it means that global trade of sports goods would be 0.03% of overall international trade in the world. Peanuts! Is such estimation correct? Nobody exactly knows so far. Our paper will show that it is a dramatic underestimation.

To make short a long story, all international trade issues have been entirely unheeded in sports economics for nearly fifty years. We mean such issues as: what is the share of sport goods in global trade? What the importance of sports goods in a country's foreign trade? Is a country a net importer or a net exporter of sports goods? What is a country's trade specialisation in sports goods, which are the main sports goods that is it importing and exporting? And so on and so forth.

In the face of our deep (collective) ignorance, we made up our mind to start building up an entirely new dataset about global sports goods trade. The major excuse for this paper is to present this new dataset and the first results we have found within a rather short span of time. A number of companion papers, with more sophisticated statistical and econometric treatment, are in prospect. However, we can already publish detailed data by sports goods groups regarding countries' trade balance, their export/import ratios, their shares in global sports goods trade, their shares in a global trade of each specific sports goods group, and some other specialisation indexes such as the contribution of a sport good to trade balance and the global market position of a country in each sport good global trade.

The paper is organised as follows. We start with a (very brief) survey of the literature on this topic (**2**). Then we spend some space on describing how a new dataset has been built up (**3**). First, we adopt a descriptive statistics approach of major trends on the global sports goods market, between 1994 and 2004 (**4**). From the calculation process that we have recently

started to run, we can already derive a quantitative analysis of regions' and countries' specialisation in global sports goods trade (**5**). A first data treatment has been dealt with for the year 2004 (**6**) whose results call for further detailed and econometric companion papers.

2. A still unheeded issue in the sports economics literature

The sports economists' lack of interest for their countries' international trade in sports goods is all the more amazing that usually customs data are in easy access to anyone. The first article dealing with the sports goods international trade – to our knowledge – has been published in 1989, thirty-three years after Rottenberg's article (Andreff, 1989). The paper was describing French foreign trade in all sports goods groups according to the French customs classification, trade balance and export/import ratio for each of them.

A first approach of French specialisation in sports goods trade was attempted relying on two specifications. The first one used a simple Balassa intra-industry specialisation index:

$$B_i = [(X_i - M_i) / (X_i + M_i)].100,$$

in which usually *i* stands for an industry. In the 1989 study, *i* was standing for each sports group within the overall French sports goods industry. Thus, properly speaking, it was rather an intra-product (or product group) specialisation index than an intra-industry index, *i.e.* covering the overall sports goods industry as such. Some sports goods were identified as nearly 'pure' *Heckscher-Ohlin* goods when France exhibited an inter-product specialisation as regards to, say, a *A* sport good in the trade of which the country was almost exclusively importer (or exporter). When French exports of a, say, *B* sport good were nearly exactly of the same value as its imports, one could coin such good as a 'pure' *Balassa* good and state that France exhibited a *Krugman* intra-product specialisation regarding this sport good.

A second approach was looking at the unit value of internationally traded sports goods. In this respect, skis, ski boots, sailing boats, windsurfs or golf equipment cannot be categorised as the same sort of sporting goods as, say, sportswear, tracksuits, balls, swimsuits, sporting footwear. The former group contains goods with a high unit value, due to a significant value added in the production process, a rather sophisticated and evolving technology and know how whereas the latter group consists in cheaper goods (per unit) with a lower value added, which are produced with a mature technology and an easily transferable know how. Moreover, high unit value sports goods are usually required for the practice of specialised equipment-intensive sports such as, for instance, sailing, winter sports, surfing, motor sports

or golf. Such goods were coined *'equipment-intensive'* sports goods. Low unit value sports goods are less specialised and can be used in a wider range of sport practices (gymnastics, walking, body building, keep fit, team sports and track and fields) or even on leisure time without any sport practice (ex.: sportswear, tracksuits, sporting footwear). They were classified as '*trite'* sports goods.

An update (Andreff, 2004) has shown that, in the long run, France is specialised as an exporter of 'equipment-intensive' sports goods such as sailing boats, yachts, windsurfs, skis and accessories, and (less and less) ski boots; she improves its net importer position in gymnastics and other sports equipment and in golf equipment. On the other hand, at least since 1981, France is a net importer of 'trite' sports goods such as skates and, increasingly, sporting footwear while she has switched from a net exporting to a net importing position in swimsuits (as well as in other sportswear). A conclusion can be derived, to the extent that France is representative, which is that developed countries tend to be net exporters of high value added and high-technology 'equipment-intensive' sports goods whereas they are net importers of 'trite' sporting goods.

A study geared towards the economy and finance of sports in a dozen European countries (Andreff *et al.*, 1994) has been achieved for the Council of Europe, and has witnessed with less detail sports goods foreign trade of sampled countries in 1990. The major result is that most European countries exhibited a foreign trade deficit in sports goods while being well-known exporters of 'equipment intensive' sports goods. Therefore, these countries are likely to be significant importers of 'trite' sports goods, but no data were available to exactly prove such a specialisation. Two European exceptions were France and Italy which showed sports goods excess in trade balance, due to exporting more 'equipment intensive' sports goods than importing 'trite' sports goods (verified in the French case). Since 2002, the French Ministry for Sports started publishing foreign trade data aggregated in twelve sports groups (2004 is the last year available in *STAT Info*, 2007).

A last study in the area tackled the issue of international division of labour between countries (and regions) in sports goods global trade (Harvey and Saint Germain, 2001) while an overall survey of existing works is available in Andreff (2006a). The research by Harvey and Saint-Germain (2001) was based on data coverage of 28 countries, from 1974 to 1994. These countries represented 75% of global trade in sports goods and encompassed three NAFTA countries (Canada, Mexico, the US), fifteen EU countries (as of 1995, after the fourth enlargement) and ten South-East Asian countries (China, Hong-Kong, Indonesia, Japan,

Malaysia, Philippines, Singapore, South Korea, Taiwan, Thailand). Among sampled countries, in 1994, ten major exporters of sporting goods were the USA, China, Hong-Kong, France, Austria, Korea, Japan, Italy, Germany and Canada; ten major importers were the USA, Japan, Germany, Hong-Kong, Canada, France, the UK, Italy, the Netherlands and Spain. A study of sports goods global trade concentration by trading blocs exhibited a tendency of developed (NAFTA and EU) countries to primarily trade together. Trade in sports goods displays a geographic concentration on developed countries like for most manufactured products. The same conclusion was extended to the ten sampled Asian countries since intra-bloc trade across Asian countries has skyrocketed, from 1974 to 1994. Therefore, a second tendency has been witnessed as one of '*regionalisation*' of sports goods trade into continental blocs. The main limitation of Harvey and Saint Germain's study is that it did not go further into the analysis of product specialisation in the 28 sampled countries (or the three regional blocs) as regards to their sports goods global trade. To overcome it, in fact, it would have required a much wider data collection.

Given the poor state of arts in analysing sports goods international trade, our motivation here is to present first detailed information based on new data collection accompanied with a simple exploratory and descriptive data treatment. In other words, we publish here the outcome of a long lasting and unrewarding stage in a research process, but it is the absolute precondition for further research work implementing more econometric and analytical tools.

3. Building up a dataset of sports goods global trade

With this paper, we intend to start up a process of filling the knowledge (or rather ignorance) gap that still exists at the (nearly empty) crossroads between sports economics and international trade analysis. Therefore, we engaged ourselves into the task of gathering detailed data regarding sports goods global trade. It immediately appeared to be a long lasting process.

We started collecting data from *Comtrade*, the United Nations data basis that covers every year all international trade flows in the world. In fact, for some countries data are replaced with blanks, not because these countries do not trade any good or any sport good, but simply because, for some reason, they did not report data to the UN, either for all goods or only some goods. In the case of sports goods, data information is missing in our sampled dataset for

1994 as regards to Belgium, Russia (the Russian Federation) and Philippines and to Pakistan before 2004. Consequently, our dataset is unbalanced.

In fact, we observed in *Comtrade* that, for many countries, there is practically no sports goods trade or it is very tiny. Thus, we selected 41 countries which are major trade partners in sports goods global trade. Except the importance of their sports goods foreign trade, we used two other selection criteria, one is quasi-institutional, the other one aims at making our dataset comparable, to some extent, with the one gathered by Harvey and Saint Germain (2001), in view of further inter-temporal comparisons. Our Canadian colleagues had sampled three NAFTA countries, fifteen EU countries and ten Asian countries insofar as they were significant trade partners in sport goods. Thus, we have kept these 28 countries.

However, we have enlarged our dataset with 13 additional countries. In Europe, we have picked up Switzerland, which is a significant trade partner in sports goods. We have thus created a sub-sample, labelled *EU + S*, that groups 15 countries:

Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Portugal, Spain, Sweden, the UK + Switzerland (although it is not an EU member, its overall foreign trade resembles to EU trade).

We have kept *NAFTA* countries: *Canada, Mexico and the US*.

We have slightly enlarged the Asian sub-sample (*Asia*) by adding India and Pakistan, thus we have 11 countries:

China[1], *India, Indonesia, Japan, Hong Kong, Korea, Malaysia, Pakistan, Philippines, Singapore, and Thailand.*

India has been added to our sample because it is now one of the biggest and fastest growing Asian economies, even though its emergence on global market is not that much significant in sports goods. Pakistan, like Indonesia, concentrates a number of subcontracted factories producing sports goods, namely for Nike (Andreff, 2004), which generate outward-processing trade. Unfortunately, Pakistan's data are only available since 2004.

Eastern Europe is also a significant area of sports goods production, and thus trade, due to both local firms and relocated factories through Western European foreign direct investment. Moreover, the area is of interest in a companion research work (Andreff and Poupaux, 2007). That is the reason why we have sampled Russia, the biggest regional economy, and six other significant sports goods in an *East* country group:

[1] Unfortunately, Taiwan's foreign trade is not published as such in *Comtrade*. In Harvey and Saint Germain (2001), albeit Taiwan is selected in the country sample, no data appears. In fact, their real sample size is 27 instead of 28.

Bulgaria, the Czech Republic, Hungary, Poland, Romania, Russia, and Slovakia.

Finally, with the 36 above-listed countries, we still are missing some other emerging economies whose sports goods trade is not negligible, due to either local production (Argentina, Brazil) or outward-processing trade (Morocco, Tunisia) or both (Turkey). They are gathered in an *EMEC* country group:

Argentina, Brazil, Morocco, Tunisia, and Turkey.

When it comes to identifying sports goods in the *Comtrade* SITC (standard international trade classification), it is not that easy. At aggregated SITC levels (say 2 or 3 digits), obviously no sport good shows up. Thus, we had to go down to the most disaggregated SITC level (6 digits in *Comtrade*). There we found 36 different identifiable sports goods that are internationally traded (Appendix 1). However, the 6 digit SITC is not without its problems as regards to what we needed. For instance, the 620191, 620192, 620193 and 620199 classes, which contain sports goods, are parts of an aggregated 6201 class in which some overcoats, capes, wind-jackets, car-coats, cloaks, wind-cheaters, raincoats and anoraks (classified in 620111, 620112, 620113, 620119) might well be sportswear as well, sold to sport participants; but we cannot clearly identify them at the given aggregation level.

The most tricky issue is with T-shirts, shorts, gloves and the like, which are not classified in the aggregated 6211 class but, instead, show up in classes 6201 to 6210 and 6212 to 6217 or even in the two digit 61 class (articles of apparel, accessories, knit or crochet) different from the aggregated 62 class. A number of these goods are obviously or probably sports goods, but both classes 61 and 62 (except 6211) are not disaggregated on a use value (or demand) criteria but considering the materials and technology used to manufacture them (knitted, crocheted, wool, cotton, fine animal hair, synthetic fibres, textile materials, artificial fibres, man-made fibres). Then, we cannot distinguish among all this sort of textile-clothing production which part corresponds to a sporting use or a demand derived from sport participation while a share of it is made up of sports goods[2]. The same comment applies to some other SITC classes that we have screened. For instance, racing motor cars, motor bikes and bikes are classified with products of the automotive industry and cannot be identified as sports goods, some airplanes, wind-gliders and new flying machines used in sport are classified in SITC with aeronautical industry's trade, and a number of sport shoes are classified with the leather and shoes industry trade. We face here the same identification

[2] In France, roughly one third of the textile-clothing industry production and trade are assumed to be sports goods. This assumption could not be statistically verified so far, due to the same identification problem as with SITC.

limitation as with textile-clothing products. This is the main limitation of our dataset (which only includes ski boots), since sport footwear global trade is nearly as much important as sportswear global trade, and involves such leading firms as Nike, Adidas-Reebok, Puma, New balance, Asics and so on (Andreff, 2006b).

An exact and precise identification of all sports goods is not possible with SITC and has three consequences that the reader must be aware of. For the one, the statistical estimation of sports goods global trade that we are able to provide on the basis of our dataset, from the very beginning, is a marked underestimation, since it does not cover the whole sport footwear and sportswear global trade and it does not take into account any of the sport motor cars, motor and non motor bikes, airplanes, wind-gliders and so on. The second bias is that most missing sports goods are 'trite' sports goods, such as sportswear and sport footwear (and increasingly bikes) that are likely to be massively produced in developing and emerging countries nowadays. As a result, the real share of the latter countries in sports goods global trade might well be bigger than the one exhibited in the following.

A third bias, linked to missing data about 'trite' sports goods, is that trade balance for some countries may show up in our dataset with a different amount than if we have had been able to cover all the traded sports goods. We have tested it on French trade of sports goods. With French customs data, France shows a sport goods trade deficit amounting to €560 million in 2002 and €382 million in 2004 while with our collected *Comtrade* data the deficit is respectively $100 million in 2002 and $35 million in 2004. Whatever the current euro/dollar exchange rate in both years, one cannot reconcile the two calculated deficits each year. It is not a question of inconsistency. If one checks how French trade of sports goods is statistically covered (*STAT-Info*, 2007), it appears that the range of products with a sport use is much wider than in *Comtrade* SITC: for instance, it covers bikes, motor boats, airplanes, wind-gliders and so on, sport fire arms, and fishing equipment (but not motor cars and motor bikes and probably not all sportswear and sport footwear, for the same reasons of impossible identification as in SITC). This remains to be checked for other countries in further research.

Finally, given the big size of our hand-made dataset (41x36 = 1,476 import data and 1,476 export data, *i.e.* 2,952 data per year), as a start up we have only selected five years for our observation. 1994 and 2004 were obvious choices since 1994 is the last year covered by Harvey and Saint Germain and 2004 is the last available year in *Comtrade* as of April 2007. But 2004 is an Olympic year which may specifically influence sports goods trade while 1994 is a soccer World Cup year. In between we have selected, for the sake of temporal

comparison, another World Cup's year, that is 2002, and two 'ordinary' years with no big global sport event such as the Olympics or the soccer World Cup, which are 1997 and 1999.
Given the above-mentioned methodological tricks due to *Comtrade* data limitations, our dataset is very much representative of the overall sports goods global trade. Every sampled year, our 41 countries total up from 94% to 96% of identifiable sports goods global imports and exports in SITC (Table 1).

Table 1 - Overall identifiable and sampled sports goods global trade

$ million	1994	1997	1999	2002	2004
Sports goods imports					
All countries (Comtrade)	20264	24253	21700	24531	31844
41 sampled countries	19538	23249	18720	23277	30003
Sample / Overall (in %)	**96.4**	**95.9**	**95.4**	**94.9**	**94.2**
Sports goods exports					
All countries (Comtrade)	14810	19367	17515	20761	28331
41 sampled countries	14239	18696	16970	19909	27457
Sample / Overall (in %)	**96.2**	**96.5**	**96.9**	**95.9**	**96.9**

N.B. Global imports and global exports should be equal. It is never the case due to "errors and omissions" in country reporting, different trade coverage among countries, smuggling and, here, more or less identifiable sports goods in SITC.

4. Sports goods global trade: descriptive statistics

First, we can now precisely respond to the initial question: how much does sports goods trade represent in global trade? Our response is: for overall sports goods exports or imports, it is between 0.33% and 0.53% of global exports or imports of all traded goods (Table 2). This response must be further qualified. Our dataset misses a number of sports goods (see above), probably between one third and one half, if we check it on French sports goods foreign trade. Thus, a realistic estimation is that sports goods global trade is *in the range of 0.5% to 1%* of overall global trade (for all goods). In some areas, the percentage of sports goods is probably over 1% like in Asian and emerging countries exports, and NAFTA imports. The share of sports goods in Eastern European exports was even the highest in our dataset in 1994, but it came down afterwards so that it is the lowest (with NAFTA) in 2004.

Table 2 - Sports goods global trade in overall (all goods) global trade*

	19 94		19 97		19 99		200 2		200 4	
	Import	Export	Import	Export	Import	Export	Import	Export	Import	Export

Comtrade sports goods	0.53	0.39	0.46	0.37	0.39	0.33	0.39	0.34	0.36	0.33
In our dataset	0.55	0.41	0.48	0.39	0.41	0.33	0.41	0.36	0.37	0.36
of which										
NAFTA	0.78	0.26	0.67	0.30	0.51	0.24	0.51	0.24	0.48	0.22
EU + S	0.48	0.31	0.46	0.31	0.39	0.27	0.40	0.27	0.40	0.26
East	0.17	0.72	0.17	0.35	0.17	0.36	0.19	0.26	0.21	0.22
Asia	0.51	0.62	0.42	0.60	0.42	0.55	0.37	0.61	0.28	0.59
EMEC	0.15	0.63	0.16	0.46	0.14	0.57	0.12	0.59	0.12	0.49

* Percentage of sports goods global import and export to overall (all goods) global trade

Table 3 - Area and country distribution of sports goods global trade (%)

	1994		1997		1999		2002		2004	
Area	Export	Import	Export	Import	Export	Import	Export	Import	Export	Import
NAFTA	13,6	36,6	16,2	34,7	15,3	34,6	13,3	35,0	10,6	32,1
EU + S	34,8	37,9	35,4	40,4	34,7	40,8	32,2	40,3	33,1	44,8
East	2,8	0,6	3,4	1,3	3,7	1,3	3,4	1,8	3,5	2,6
Asia	44,9	24,2	42,1	22,4	42,4	22,4	47,0	22,2	49,1	19,7
EMEC	3,8	0,7	2,8	1,1	3,8	0,9	4,1	0,7	3,8	0,8
Country *	Export	Import	Export	Import	Export	Import	Export	Import	Export	Import
USA	9,9	32,0	10,9	29,9	10,2	29,4	8,9	29,8	7,0	27,2
Germany	5,0	12,5	4,7	11,5	5,0	9,9	4,4	8,0	4,8	8,5
Italy	7,5	3,1	6,5	3,3	7,0	3,9	6,7	4,4	5,8	5,2
Czech Rep.	0,6	0,2	0,6	0,4	0,6	0,5	0,7	0,5	0,9	0,7
China	16,7	0,4	20,2	0,4	21,6	0,5	28,4	0,6	33,6	0,7
Tunisia	2,0	0,2	1,9	0,3	2,3	0,3	2,9	0,3	2,7	0,2

* We have selected one specific country per area and two in EU+S.

When it comes to area and country distribution of sports goods global trade – that is each area's and country's global market share -, it has evolved between 1994 and 2004, but major features has remained nearly unchanged. Asia was the major exporting area (between 42% and 49% of sports goods global export) all over the observed period, ahead of the EU region (32-35%). NAFTA had a quite smaller share in global export market (11-16%) while Eastern Europe (2-3%) and other emerging countries (3-4%) are marginal exporting areas. On the import side, major importing areas are the EU (38% to 44% of sports goods global imports) ahead of NAFTA (32-36%) and Asia (20-24%). Eastern Europe (1-2%) and other emerging countries have a small share in global import market.

At a country level, from 1994 to 2004, the first major exporter of sports goods was China, followed by Hong Kong and the US, except that France took over the US in 2004. France, Italy and Germany usually were the next significant exporters while Argentina, Brazil and Greece are lagging behind as the smallest exporters in our sample. The first major importer usually was the US, followed by Japan and Germany, and then France, the UK, Italy, Canada

and Hong Kong. The least importing were Pakistan, Indonesia, Philippines Morocco, India and Bulgaria. There is some inertia in international division of labour among countries on the sports goods global market.

The distribution of sports goods global trade by different goods only changes slightly and slowly over the 1994-2004 period. However, all results about goods distribution must be taken with a pinch of salt, since our dataset does not cover sport footwear and bikes, and not entirely sportswear (the distortion created by missing sports cars, motor bikes, and airplanes is less significant, these markets being known as quite smaller).

Table 4 - Sports goods global imports, distribution by goods groups * (%)

Global	1	2	3	4	5	6	7	8	9	10	11
1994	25,3	33,9	5,6	0,6	1,7	8,2	2,3	4,2	0,4	4,1	13,8
1997	22,4	33,6	4,1	0,4	2,0	10,9	2,0	3,5	0,4	4,8	16,0
1999	21,2	32,0	4,6	0,5	2,3	10,5	2,2	3,8	0,4	4,1	18,3
2002	30,2	20,7	4,4	0,4	2,0	11,7	2,1	4,2	0,5	2,8	21,0
2004	19,6	30,7	5,0	0,3	2,3	10,8	1,7	3,9	0,5	2,4	22,9
In 1994											
NAFTA	21,1	35,8	3,4	0,2	1,2	9,0	1,3	4,4	0,1	7,0	16,6
EU+S	27,4	40,1	5,7	0,9	1,4	3,4	2,3	3,7	0,6	2,4	12,1
East	24,1	28,4	10,2	0,6	2,6	0,7	3,2	9,6	1,2	4,3	15,0
Asia	28,4	24,6	8,8	0,6	2,6	14,8	3,7	3,4	0,5	2,4	10,4
EMEC	31,3	21,4	1,1	0,3	1,8	1,2	1,4	14,6	0,5	6,2	20,2
In 2004											
NAFTA	15,2	28,7	3,9	0,1	2,7	11,9	0,9	4,0	0,3	2,0	30,3
EU+S	21,1	36,3	6,3	0,5	1,9	5,4	1,4	3,7	0,4	2,5	20,4
East	11,3	32,7	12,7	0,3	1,2	0,6	3,6	5,6	1,4	5,9	24,8
Asia	22,1	25,5	2,5	0,2	2,2	24,1	3,3	3,0	0,6	2,6	13,9
EMEC	33,5	26,3	1,3	0,3	1,8	0,8	2,3	8,8	0,7	0,5	23,6

* Sports goods groups 1 to 11 refer to Appendix 1

As to global *imports*, anoraks (2) were representing 34% of the market in 1994 and still 31% in 2004 (Table 4). Sportswear (1) followed in 1994 with a 25% market share while, in third position, we found gymnastic equipment (11) with 14%. In 2004, the ranking is reversed the sportswear share in global imports having fallen down to 20% while gymnastic equipment has reached 23% of the market. Golf (6), skis (3), balls (8), and skates (10) were respectively ranked the fourth, fifth, sixth, and seventh market shares, both in 1994 and 2004. Surfs (5) took over rackets (7) at the eighth rank between 1994 and 2004. Boats (4) and table tennis equipment (9) were definitely the smallest sports goods global markets, usually below 0.5% of global trade each. Asia was a markedly above-average importer of sportswear, golf, and

rackets (and skis and surfs in 1994). Eastern Europe imported over the average for skis, rackets, balls, gymnastic and tennis table equipments (and surfs in 1994). Emerging countries imported proportionally more balls and sportswear (and skates and gymnastic equipment in 1994). Over-average imports were gymnastic equipment in NAFTA (and skates in 1994). Europe over-imported sportswear and anoraks[3].

Table 5- Sports goods global exports, distribution by goods groups * (%)

Global	1	2	3	4	5	6	7	8	9	10	11
1994	30,5	30,2	7,7	0,6	2,3	7,7	2,1	3,6	0,4	3,1	11,7
1997	30,6	27,4	5,6	0,4	2,1	10,9	1,8	2,9	0,5	4,2	13,5
1999	27,0	28,6	5,9	0,6	2,3	10,3	2,1	3,1	0,5	3,9	15,8
2002	27,4	27,2	5,4	0,4	1,8	11,3	2,0	3,4	0,5	2,4	18,3
2004	25,4	28,5	6,2	0,3	2,0	9,7	1,6	4,1	0,5	1,9	19,9
In 1994	*										
NAFTA	9,7	3,6	4,8	0,5	3,8	32,9	0,4	2,7	0,1	6,5	34,9
EU+S	35,2	20,0	20,0	1,3	1,9	2,3	1,4	2,8	0,5	2,6	12,1
East	26,1	61,6	2,2	0,2	0,4	0,1	0,2	0,9	0,2	3,3	4,8
Asia	31,7	40,5	0,1	0,3	2,4	5,9	3,6	5,1	0,6	2,9	6,9
EMEC	62,3	36,2	0,1	0,0	0,2	0,0	0,3	0,3	0,0	0,0	0,6
In 2004	*										
NAFTA	13,4	5,6	3,3	0,1	2,9	27,1	0,2	1,2	0,5	1,8	43,8
EU+S	28,1	24,8	14,0	0,6	2,5	4,1	1,4	2,7	0,7	2,0	19,1
East	25,8	39,5	14,2	0,1	0,8	0,1	2,2	0,7	0,2	3,1	13,2
Asia	20,6	36,4	0,9	0,1	1,7	11,6	2,2	6,3	0,4	2,0	17,9
EMEC	85,5	11,1	0,7	0,1	0,1	0,0	0,1	0,3	0,0	0,0	2,0

* Sports goods groups 1 to 11 refer to Appendix 1.

As to sports goods global *exports*, the overall distribution by goods is nearly the same as for imports, for obvious double accounting reasons (Table 5). Some differences in the distribution percentages (and sometimes in ranking different goods markets) can be explained by "errors and omissions" in countries' statistical reporting, smuggling and so on. Nevertheless, the three major sports goods global export markets pertain to anoraks, sportswear and gymnastic equipment. Then come golf, skis, balls, surfs, skates and rackets. Boats and tennis table equipment are small global export markets. Export specialisation reveals a crystal clear international division of labour. Asia is a major (over average) exporter of anoraks, rackets, balls, and table tennis equipment (and golf in 2004). Emerging countries specialised in exporting more sportswear (and anoraks in 1994). Eastern Europe was used to

[3] All detailed country data unpublished in this paper is available to the reader on request to andreff@univ-

export more anoraks in 1994 and 2004, and moved to more important skis, skates, and rackets exports in 2004. NAFTA was an over average exporter of gymnastic equipment, golf, and surfs (and skates in 1994) while Europe over-exported skis and sportswear.

Now for which areas and countries was sports goods foreign trade in excess or in deficit? The absolute amount of a sports goods foreign trade balance in dollars is not telling that much about sports goods international trade and specialisation of a country. For example, a $1 million deficit in sports goods, in relative terms, is one hundred times more of a concern in a country which exports $2 million of sports goods than in a country the sports goods exports of which are $200 million. Thus, instead of publishing foreign trade balances, we have opted for presenting export/import ratios that tell the same story as foreign trade balances without being dependent on the absolute value of sports goods trade in each country. Such ratios are calculated as:

$$R = \frac{X}{M} \times 100 \qquad (\mathbf{1})$$

where X stands for exports and M for imports.

From Table 6, we witness that emerging countries, Asia and Eastern Europe had every year an excess foreign trade balance (R > 100). But the trend is different in each area. In emerging countries, R started with a 379 value in 1994 and ended up with 414 in 2004 (*i.e.* the exports value is four times the imports value and, consequently, foreign trade excess is three times the imports value), and never fell below 212. Asia started with a 135 ratio in 1994 which augmented all over the period to reach 228 in 2004. Eastern Europe could compare to emerging countries in 1994 with a 369 ratio. However, with the progress towards a market economy and the recovery in living standards, sports goods imports started to grow more than exports. Then R decreased down to 123 in 2004. Two areas endeavoured a sports goods foreign trade deficit. The export/import ratio fluctuated between 67 and 71 in Europe from1994 to 2004. European imports of sports goods, as a trend, were roughly 50% bigger than European exports. In the case of NAFTA, R fluctuated between 28 and 37; on average sports goods exports did not cover more than one third of sports goods imports.

Table 6 - Sports goods export/import ratio (%)

Country/area	1994	1997	1999	2002	2004

paris1.fr or andreff@univ-mlv.fr.

Canada	48,4	56,1	61,8	53,2	47,0
Mexico	95,6	182,5	151,2	146,0	150,0
USA	22,5	29,4	28,5	25,5	23,6
NAFTA	**27,1**	**37,5**	**36,3**	**32,6**	**30,3**
Austria	147,6	111,1	107,9	115,4	123,4
Belgium	n.a.	72,1	98,1	110,4	98,6
Denmark	60,8	67,7	83,4	74,2	83,5
Finland	93,5	63,9	56,4	56,9	57,9
France	118,1	107,4	105,1	92,9	98,2
Germany	29,5	32,6	41,2	46,6	52,3
Greece	39,5	24,6	20,6	12,9	7,4
Ireland	107,8	73,1	51,6	33,1	22,8
Italy	173,7	155,6	146,6	130,7	101,7
Netherlands	60,4	127,2	66,8	75,4	82,0
Portugal	293,9	192,6	131,1	61,8	52,4
Spain	28,7	40,4	46,7	45,5	46,6
Sweden	25,6	35,1	42,4	45,0	44,9
Switzerland	16,5	15,3	15,4	15,2	17,1
United Kingdom	41,1	33,6	39,2	31,3	29,0
EU + S	**67,0**	**70,5**	**69,8**	**68,3**	**67,5**
Bulgaria	n.a.	591,1	573,7	437,2	315,6
Czech Rep.	222,7	123,0	112,9	111,5	112,4
Hungary	125,0	118,1	144,0	100,7	67,6
Poland	612,5	265,8	269,9	124,4	105,6
Romania	1759,5	1734,2	1861,8	1459,4	727,9
Russian Federation	n.a.	61,2	100,4	44,4	14,2
Slovakia	145,9	158,2	160,2	125,6	93,2
East	**368,5**	**204,5**	**230,1**	**161,2**	**122,6**
China	3097,4	4270,7	3913,4	3840,0	4263,5
Hong Kong (China)	146,3	143,3	150,2	145,7	141,4
India	2973,5	1286,7	1588,6	667,3	632,8
Indonesia	10355,0	4430,1	15941,5	2761,8	2204,1
Japan	9,3	10,8	8,6	13,0	11,9
Malaysia	110,2	124,8	161,2	99,3	117,9
Pakistan	n.a.	n.a.	n.a.	n.a.	5144,4
Philippines	n.a.	533,5	692,8	724,5	564,5
Rep. of Korea	402,3	138,3	177,2	49,3	33,2
Singapore	59,8	50,9	51,7	50,1	71,1
Thailand	1280,0	843,0	881,0	512,8	497,1
Asia	**135,2**	**151,0**	**155,4**	**181,1**	**228,0**
Argentina	6,0	14,6	13,0	41,7	29,0
Brazil	32,5	10,4	29,1	32,7	56,6
Morocco	2789,6	620,6	1269,1	1193,6	969,6
Tunisia	705,9	539,6	560,8	849,6	1145,5
Turkey	1763,2	263,2	307,8	190,3	89,1
EMEC	**378,7**	**212,0**	**340,7**	**510,5**	**414,1**

We cannot comment here in detail the export/import ratio for each country (see footnote 5). However, the NAFTA export/import ratio is much influenced by the US sport goods trade for which $R < 30$ every year. Canada also is a net importer of sports goods with $R < 62$ every

year. Europe splits in two country sub-groups as regards to sports goods foreign trade balance or export/import ratio. Net importers all over 1994-2004 were Belgium, Denmark, Finland, Germany, Greece, the Netherlands, Spain, Sweden, Switzerland, and the UK. Net exporters were Austria and Italy. A third group comprises of countries in which a sports goods excess turned around into a deficit: Ireland (since 1997), France and Portugal (since 2002). We observe two countries the sports goods deficit of which was occasionally turned around into an excess: the Netherlands (in 1997), Belgium (in 2002).

Emerging countries also split in two groups as regards to R. Argentina and Brazil are net importers of sports goods, usually with R < 50. Morocco, Tunisia, and Turkey are big net exporters with R peaking up at 2790 in 1994 in Morocco (still 969 in 2004), at 1145 in Tunisia in 2004, and at 1763 in 1994 in Turkey. In the first two countries, such a sports goods trade excess is basically relying on international subcontracting with outward-processing trade, rather than foreign direct investment or local initiative, in particular in sportswear and sport footwear production, as it had been shown elsewhere (M. and W. Andreff, 2000 and 2001). In Asia as well, two countries are net importers, Japan, usually with R < 20, and Singapore with R around 50, whereas all other Asian countries are net exporters. Let us notice that Korea turned around from a net exporter to a net importer position since 2002. Among net exporters, the most impressive are China (R peaked up at 4270 in 1997, still 4264 in 2004), Indonesia (R peak was 15941 in 1999) and Pakistan (R = 5144 in 2004). It is not without interest to stress that Nike had relocated the great bulk of its sports goods production in the two latter countries.

Except Russia, all Eastern European countries were net exporters of sports goods. Hungary turned around to a sports goods net importer position in 2004. The major net importer in the region is Romania (R peaked up at 1862 in 1999) followed by Bulgaria (591 in 1997). Here again outward-processing trade in sportswear and sport footwear is a basic driving force ((M. and W. Andreff, 2000 and 2001).

Now we prolong this exploratory study with some indexes of country specialisation in global sports goods trade.

5. Country specialisation in global sports goods trade

At this first stage of research, we stick to three common specialisation criteria. The first one is simply to check in which sports goods groups a country accumulates the most significant

trade deficits and excesses. Then, we use a specialisation index which is widespread in current economic literature on international trade, the so-called (goods) contribution to foreign trade balance (Lafay, 1989). It is defined as:

$$CBk = \left\{ \frac{Xik - Mik}{\frac{1}{2}(Xi + Mi)} - \left[\frac{Xi - Mi}{\frac{1}{2}(Xi + Mi)} \times \frac{Xik + Mik}{Xi + Mi} \right] \right\} \times 100 \qquad (2)$$

where *Xik* stands for country *i*'s export of good *k*, *Mik* for country *i*'s import of good *k*, *Xi* for overall (all goods) country *i*'s export and *Mi* for overall country *i*'s import[4]. A country *i* exhibits a (revealed) comparative advantage in good *k* when CBk > 0 and a comparative disadvantage when CBk < 0. Since we are only interested here in comparative advantage and disadvantage within sports goods trade, in our calculation *Xik* stands for country *i*'s export in one specific sports goods group *k* (*k* = 1, …, 11; see Appendix 1), *Mik* for country *i*'s import in one specific sports goods group *k*, *Xi* for country *i*'s overall sports goods export and *Mi* for country *i*'s overall sports goods import.

The CBk criterion assesses in which (sports) goods a country holds a comparative advantage or disadvantage in its international trade specialisation. Another question is to know, in global trade of a good *k*, which are those countries with a high or low competitiveness, which is also called the market position of a country *i* in global trade of a good *k* (Fontagné *et al.*, 1995). This is calculated by:

$$MPi = \frac{Xik - Mik}{\frac{1}{2}(Xi + Mi)} \times 100 \qquad (3)$$

Formula (**3**) shows how big an excess (deficit) balance a country *i* derives, relatively to its overall foreign trade turnover, due to its competitive (non competitive) position on the global market of a good *k*.

Table 7 lists in which sports goods trade each of the 24 sub-sampled countries exhibits a significant excess or deficit balance, among our eleven goods groups, in 1994 and 2004[5]. All

[4] A good *k* contribution to the balance is the difference between the observed balance in good *k* (divided by half the overall foreign trade of country *i*) *minus* a theoretical balance in good *k* calculated as if the good *k* had the same weight in overall balance as its weight in country *i*'s overall foreign trade turnover (this theoretical balance corresponds to the assumption of no comparative advantage or disadvantage). Thus, when CBk > 0 (comparative advantage), it may be due either to an observed excess balance bigger than the theoretical excess balance in good *k* or a smaller observed than theoretical deficit balance in good *k* trade. When CBk < 0 (comparative disadvantage), it may be due to a smaller actual than theoretical balance in good *k* or to a bigger actual than theoretical deficit balance in good *k* trade.

[5] For other years and countries, refer to footnote 5.

major net importing developed countries show balance deficits in 'trite' sports goods such as sportswear (1), anoraks (2), rackets (7), and balls (8). This is verified for following countries: USA, Switzerland, Germany, Spain, the UK, and Japan. It is nearly so in Austria, Canada, France (except sportswear), the Netherlands, Sweden, as well as Brazil and Russia, and in 2004 Korea. A number of developed market economies accumulate significant foreign trade deficits in skis (3), surfs (5), golf (6), skates (10), and gymnastic equipment (11). Eastern European countries are not competitive in balls, skates and gymnastic equipment and, for some of them, in anoraks and skis. Except Japan, no Asian country did exhibit a foreign trade balance deficit of any sport good. This is confirmed with the three countries selected in Table 7, China (except balls in 1994), Hong Kong, and Indonesia (except gymnastic equipment in 2004). None of these countries can afford substantial deficits in sports goods trade, given their level of economic development and living standards.

Table 7 - Biggest trade balance excesses and deficits in some countries*

Balance excesses

						19	94					200 4										
Sports goods	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11
Canada										x												
Mexico	x				x	x						x	x	x			x					
USA						x																
Austria			x				x							x			x					
France	x		x									x		x								
Germany									x					x						x		
Italy	x				x					x	x	x				x					x	x
Netherlands																	x		x			
Spain			x											x								
Sweden			x						x											x		
Switzerland																						
UK																						
Czech Rep.		x	x							x	x	x		x		x						x
Hungary	x	x											x									
Poland	x	x										x	x									
Romania	x	x										x	x	x							x	
Russia	nd																					
China	x	x				x			x	x	x	x	x	x		x	x	x	x	x	x	x
Hong-Kong	x	x		x			x				x	x	x	x		x	x	x			x	x
Indonesia	x	x						x				x	x				x		x			
Japan																						
Korea	x	x				x				x												
Brazil												x										
Morocco	x	x										x	x									
Tunisia	x	x										x	x	x								

Balance deficits

						19	94					200 4										
Sports goods	1	2	3	4	5	6	7	8	9	10	11	1	2	3	4	5	6	7	8	9	10	11
Canada	x	x	x			x		x				x	x	x		x	x		x			x
Mexico								x		x	x								x			x
USA	x	x	x		x		x	x		x	x	x	x	x		x	x	x	x	x	x	x
Austria	x	x						x			x	x	x								x	x
France		x				x	x	x	x	x	x		x				x	x	x		x	x
Germany	x	x			x	x	x	x		x	x	x	x			x	x		x		x	x
Italy		x	x				x						x	x			x		x			
Netherlands	x	x	x				x	x		x	x	x	x									x
Spain	x	x					x	x		x	x	x	x			x	x	x	x			x
Sweden	x	x				x		x		x		x	x	x			x					x
Switzerland	x	x	x				x	x	x		x	x	x	x			x	x	x		x	x
UK	x	x			x	x	x			x	x	x	x	x		x	x	x	x		x	x
Czech Rep.	x												x				x		x		x	
Hungary			x							x	x			x					x		x	x
Poland			x					x						x				x	x		x	
Romania								x											x			x
Russia	nd												x	x					x		x	x
China								x														
Hong-kong																						
Indonesia																						x
Japan	x	x	x	x		x	x	x		x		x	x	x	x	x	x	x	x		x	x
Korea			x					x				x	x	x			x	x	x		x	x
Brazil		x						x		x	x		x					x	x			
Morocco											x								x			x
Tunisia											x											x

* Figures in columns refer to sports goods groups in Appendix 1

Nowadays, Asian countries (except Japan) are among the most competitive on global market for many sports goods. Table 7 shows that China, Hong Kong and Indonesia (and Korea in 1994) had excess balances for sportswear, anoraks, golf, and balls, as well as for rackets, skates and gymnastic equipment in the case of China and Hong Kong. Emerging countries in which sportswear production had been relocated through outward-processing trade (Morocco, Tunisia) showed a strong market position in export of sportswear and anoraks. Hungary, Poland and Romania entered this market as well, if we look at their product excess balances. Developed market economies (NAFTA and Europe) have few competitive sports goods with excess balances. In some countries, skis, sportswear (only France and Italy), golf, and table tennis equipment are in excess balance. Notice that several developed countries have simply no excess balance in any sport good: Switzerland, the UK, Japan, Russia, Canada (except skates in 1994) and the US (except golf in 1994).

The goods contribution to foreign trade balance (Appendix 2) was positive, showing a comparative advantage, nearly all sampled years, in skis, boats, surfs, golf, and gymnastic

equipment in NAFTA. On the other hand, NAFTA usually had a comparative disadvantage in sportswear, anoraks, rackets, and skates. The same comparative advantages and disadvantages are clearly exemplified with the US case. Europe had a positive contribution in sportswear, skis, boats, surfs, and table tennis equipment while its negative contribution concentrated on anoraks, golf, and rackets. Germany exemplifies a country with comparative advantage in 'equipment intensive' sports goods such as skis, boats and, to some extent, tennis table and gymnastic equipments while Italy is specialised in less equipment intensive sports goods such as surfs, skates, and even sportswear. Therefore, the main comparative disadvantages in German trade appeared with sportswear, anoraks, surfs, golf, rackets, balls, and skates. On the other hand, Italy's comparative disadvantages lie in anoraks, skis, golf, rackets, and balls. NAFTA and Europe goods contribution to trade balance confirms that developed market economies are more specialised in 'equipment intensive' sports goods (skis, boats, surfs, equipments) and less specialised in less equipment intensive (surfs, rackets, skates) and 'trite' goods (sportswear, anoraks, balls).

Emerging countries had a positive contribution to trade balance in sportswear and anoraks (exemplified by Tunisia) whereas Asia had a positive contribution in the same goods groups as well as in balls (confirmed with China), that are 'trite' sports goods, as expected (Andreff, 1989 and 2004). Major comparative disadvantages of Asia concentrated in skis and golf while those of emerging countries related to balls and gymnastic equipment. Eastern Europe comparative advantages are close to those of emerging and developing countries with a positive contribution to trade balance in sportswear and anoraks, and significant comparative disadvantage in rackets, balls and gymnastic equipment. The Czech Republic confirms this with some local specificities since it exhibits a comparative advantage in skates (linked to ice hockey being the most popular sport in the country) and, some years, in gymnastic equipment (gymnastics is the third Czech sport after hockey and soccer). However, the Czech Republic's specialisation has markedly changed from 1994 to 2004: in the last year it has a 'new' comparative advantage in skis and sportswear.

From the viewpoint of country specialisation, we thus observed the expected international division of labour between developed market economies specialised in 'equipment intensive' sports goods and all other less developed (whatever emerging, developing or in transition) specialised in 'trite' goods.

Examining countries' market positions (Appendix 3) basically confirm on each sports goods global trade market what we have learned from previous indexes. A positive sign of index (**3**)

is interpreted as a sign of country competitiveness, and the bigger its value the stronger its competitiveness. A negative sign of (**3**) points out a lack of competitiveness (coined non competitiveness in the following). NAFTA is practically not competitive in all sports goods trade, except one year or two in boats or golf (the same applies to the US). Europe is only competitive in skis, but Italy is not, whereas Germany is competitive in boats, skis and table tennis, and Italy in sportswear, surfs, skates, and gymnastic equipment.

Asia is competitive in sportswear, anoraks, rackets, balls, skates and gymnastic equipment. Emerging countries competitiveness holds in sportswear and anoraks. Eastern Europe is competitive in skis like developed economies, and sportswear and anoraks like emerging and developing countries. Notice that China, which has been competitive in the same goods as Asia in the past, has extended now (in 2004) its competitiveness to golf trade and, more slightly, to surfs and skis, in relation with its rapid industrialisation in the last decade. On the other way round, Korea was competitive in sportswear, anoraks, golf, and skates, in 1994. In 2004, it is no longer competitive in any sport good. This materialises, in some way, that Korea has recently joined the club of developed market economies (the US, Japan, the UK, Switzerland are neither competitive in any sport good trade in 2004).

6. A first data treatment for the year 2004

As a first data treatment, we used a Principal Component Analysis (PCA) only applied to our last sampled year. Through a statistical treatment, such method generates new variables (named “factorial axes”), that are linear combinations of initial variables, in such a way that factorial axes, ranked in a decreasing significance order, provide the best explanation of the initial variables’ statistical dispersion. Then, a graphic presentation is produced in projecting initial variables on plans made up of each pair of axes. Those variables the projections (points) of which are close in a graph are considered to be in a positive relationship. When representative points are at opposite sides of the graph, the represented variables are considered to be negatively linked. Finally, when representative projections are in an orthogonal position, variables are considered to be independent.

Then, a (hierarchical ascendant) classification methodology, based on using the first factorial axes and observed values for each individual (each country in our exercise), enables to create the most homogenous country classes from within while heterogeneity between classes is as

big as possible. Classes are elaborated on, step by step, in an ascendant way which starts from individuals (countries) and ends up with all classes gathered into a single group.

When applied to sports goods import and export values, a first factorial axis exhibits a not surprising country size effect whereas a second axis shows that most sports goods imports are on the opposite side of the graph compared to sports goods exports. A third factorial axis (Appendix 4) opposes skis and boats trade (both imports and exports) on the one hand, to golf trade on the other hand. Trade in these three sports goods groups is independent from trade in other sports goods. Further econometric studies should verify whether trade determinants are markedly different for these goods groups. The typology exercise swiftly groups most sampled countries (Appendix 5). However, nine countries join the rest of the sample only at the last ascendant step. Among them, China and the US appear as extremely different and this is probably linked with the fact than one is the biggest net sports goods exporter while the other one is a major net importer. The other seven singularised countries, Austria, France, Germany, Hong Kong, Italy, Japan and the UK, all are major partners in sports goods global trade whatever they are net exporters or importers.

In a second exercise, we applied the same methodology to sports goods export/import ratios. A first axis depicts again a size effect. A second axis divides sports goods in two groups as regards to export/import ratios, golf, sportswear, anoraks, and balls on the one hand, and gymnastic equipment, rackets, table tennis and skates on the other hand (Appendix 6). Except golf, the first group encompasses ‘trite’ sports goods whereas the second one gathers more specific equipments required by sportsmen and women. Along a third axis, golf, anorak and boats are opposed to sportswear and balls. Although the roots of this opposition are not spontaneously obvious, an assumption to be tested further would be a difference between goods with a higher unit cost in the first group as compared to the second one. Again, the ascendant typology put most countries in a same class (Appendix 7). Three countries emerge as dramatically different. First of all, China increasingly appears as the dominant player in sports goods global trade. Then come Indonesia and Pakistan, let us call them the Nike’s platforms for outward-processing trade in view of exporting all over the world. Tunisia, Thailand and Romania are also singled out, to a lower extent. All are famous for hosting relocated sports goods production.

When it comes to goods contribution to foreign trade balance, the observation of the first two factorial axes (Appendix 8) sharply opposes typically ‘trite’ sports goods (sportswear, anoraks) to typically equipment-intensive sports goods (skis, boats, golf, rackets, gymnastic

equipment) whereas both goods groups are independent in global trade from balls, skates, surfs and, to a lower extent, table tennis goods. This descriptive result is probably one of the more promising for further econometric testing that would look at economic determinants of global trade for these three different sports groups such as innovation, production technology, value added, unit value that are usually assumed to delineates 'trite' goods from (more and less) equipment-intensive goods. The ascendant classification reveals that countries are more heterogeneous regarding goods contribution to trade balance (*i.e.* specialisation) than with the other two groups of initial variables. It is quite consistent with the idea that each country attempts to find its own way towards a specific specialisation. From this more blurred picture, one country emerges as more than slightly different which is Austria, the major world ski exporter (compared to its country size). Malaysia, Thailand, India, and Philippines are rather close and may be assumed to represent a specific Asian specialisation pattern in sports goods trade. Another ascendant grouping encompasses following countries: Brazil, Canada, Germany, Italy, Japan, Mexico, Russia, Sweden, and the US. It seems that specialisation is rather similar among countries with the biggest domestic sports goods markets in the world (only France and Korea are missing); and rather different from countries with a relocated sports goods production, since we can also notice specialisation closeness between Bulgaria, Morocco, Poland and Turkey.

7. Conclusion

After this first detailed exploration of sports goods global trade, more is to be analysed as regards to determinants of sports goods global trade and specialisation of major trading partners. Some driving forces have been explicitly or implicitly assumed or suggested in the paper such as outward-processing trade, foreign direct investment in the sports goods industry, countries' level of economic development, countries' market size and geographical location (a gravity hypothesis ought to be tested with our dataset in the future). As a driver who enters a tunnel, we do not see yet the other end of the tunnel insofar as a research which needs to gather unexploited and incomplete information is so much time consuming. Since we have muddled through this first step, more research will be able to develop with our new dataset. Do not look backward to what has been already achieved, but forward to all that remains to be done.

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APPENDIX 1: GROUPING IDENTIFIED SPORTS GOODS IN COMTRADE (SITC codes)

n°	Sports goods group *	SITC code	Goods description in SITC
1	Sportswear	6211 (11 sports goods groups in 6 digits)	Track suits, ski suits and swimwear, other garments
2	Anoraks	620191 ; 620192 ; 620193 ; 620199 620291; 620292 ; 620293 ; 620299	Men's, boys' anoraks, etc. Women's, girls' anoraks, etc.
3	Skis	950611 ; 950612 ; 950619	Snow-skis and other snow-skis equipment
4	Boats	950621	Sailboards
5	Surfs	950629	Water-skis, surf-boards, other water-sport equipment
6	Golf	950631 ; 950632 ; 950639	Golf (clubs, balls) , golf equipment
7	Rackets	950651 ; 950659	Lawn-tennis, badminton or similar rackets
8	Balls	950661 ; 950662 ; 950669	Balls (lawn-tennis, inflatable or other)
9	Ttennis	950640	Article, equipment for tennis-table
10	Skates	950670	Ice skates, roller skates, skating boots
11	Gymnastic equip.	950691 ; 950699	Physical exercise, gymnasium and athletics equipment; equipment for sports, swimming and paddling pools

* In published tables we have grouped the 36 SITC identifiable sports goods into 11 economically relevant groups.

APPENDIX 2: SPORTS GOODS CONTRIBUTION TO FOREIGN TRADE BALANCE

NAFTA

Sports goods	**1994**	**1997**	**1999**	**2002**	**2004**
Sportswear	-7,68	-4,96	-6,41	-1,25	-1,29
Anorak	-21,57	-28,17	-23,16	-18,49	-16,48
Skis	0,96	1,46	0,92	-0,40	-0,46
Boats	0,24	0,22	0,18	0,00	0,01
Surfs	1,75	1,32	0,89	0,27	0,13
Golf	16,08	19,50	17,21	12,81	10,90
Rackets	-0,59	-0,67	-0,76	-0,63	-0,49
Balls	-1,14	-1,56	-2,05	-2,65	-1,99
Ttennis	-0,02	-0,01	0,02	0,07	0,14
Skates	-0,32	0,55	-0,76	-0,63	-0,12
Gymnastic	12,30	12,31	13,92	10,91	9,66

EU+S

Sports goods	1994	1997	1999	2002	2004
Sportswear	7,54	13,18	6,74	5,97	6,71
Anorak	-19,34	-15,37	-11,48	-10,97	-11,08
Skis	13,82	7,69	7,42	7,57	7,40
Boats	0,33	0,11	0,35	0,17	0,05
Surfs	0,46	0,16	0,30	0,49	0,57
Golf	-1,14	-1,64	-1,40	-1,66	-1,26
Rackets	-0,85	-0,74	-0,15	0,00	0,02
Balls	-0,89	-0,99	-0,88	-0,97	-0,98
Ttennis	-0,11	0,07	0,20	0,31	0,27
Skates	0,18	-1,40	0,05	-0,26	-0,43
Gymnastic	-0,01	-1,06	-1,13	-0,66	-1,27

East

Sports goods	1994	1997	1999	2002	2004
Sportswear	1,35	7,72	9,41	13,03	14,41
Anorak	22,24	26,38	25,27	16,94	6,79
Skis	-5,33	-5,81	-4,39	-3,60	1,48
Boats	-0,29	-0,02	-0,15	-0,12	-0,17
Surfs	-1,48	-0,94	-1,53	-1,34	-0,41
Golf	-0,43	0,10	-0,18	-0,47	-0,50
Rackets	-1,98	-3,30	-5,27	-2,61	-1,36
Balls	-5,89	-6,06	-8,35	-5,93	-4,84
Ttennis	-0,66	-1,14	-1,48	-2,40	-1,17
Skates	-0,66	-6,30	-2,83	-1,57	-2,75
Gymnastic	-6,89	-10,63	-10,50	-11,92	-11,47

Asia

Sports goods	1994	1997	1999	2002	2004
Sportswear	3,23	4,91	2,81	2,70	-1,31
Anorak	15,60	12,55	12,38	7,69	9,21
Skis	-8,47	-3,26	-2,83	-2,03	-1,31
Boats	-0,24	-0,23	-0,15	-0,11	-0,05
Surfs	-0,18	-0,88	-1,01	-0,22	-0,47
Golf	-8,64	-10,83	-9,83	-9,30	-10,58
Rackets	-0,15	-0,22	-0,31	-0,70	-0,93
Balls	1,69	1,82	1,61	1,51	2,73
Ttennis	0,12	0,11	0,07	-0,08	-0,19
Skates	0,47	1,61	1,73	0,39	-0,51
Gymnastic	-3,44	-5,57	-4,47	0,14	3,41

EMEC

Sports goods	1994	1997	1999	2002	2004
Sportswear	20,54	24,57	25,50	20,07	32,64
Anorak	9,76	14,53	3,48	-1,03	-9,56
Skis	-0,66	-0,49	-0,12	-0,25	-0,40
Boats	-0,22	-0,31	-0,26	-0,50	-0,07
Surfs	-1,08	-1,96	-1,67	-0,79	-1,10
Golf	-0,77	-1,14	-0,75	-0,35	-0,51
Rackets	-0,75	-1,16	-1,21	-1,55	-1,41
Balls	-9,45	-7,84	-7,33	-4,85	-5,32
Ttennis	-0,31	-0,58	-0,50	-0,41	-0,44
Skates	-4,12	-1,39	-1,09	-0,34	-0,30
Gymnastic	-12,95	-24,23	-16,05	-10,00	-13,54

USA

Sports goods	1994	1997	1999	2002	2004
Sportswear	-8,65	-7,51	-8,80	-5,24	-4,73
Anorak	-21,06	-27,49	-22,74	-18,84	-17,93
Skis	1,46	2,31	1,95	0,25	-0,60
Boats	0,32	0,32	0,29	0,04	0,04
Surfs	2,02	2,10	1,43	0,63	0,54
Golf	18,50	20,56	21,43	17,37	15,21
Rackets	-0,46	-0,54	-0,63	-0,48	-0,40
Balls	-0,69	-1,31	-1,84	-2,36	-1,74
Ttennis	-0,01	-0,02	-0,11	-0,09	-0,09
Skates	-2,19	-0,25	-1,22	-0,75	-0,37
Gymnastic	10,76	11,82	10,25	9,47	10,06

Germany

Sports goods	1994	1997	1999	2002	2004
Sportswear	-6,27	-6,14	-4,68	-5,64	-5,10
Anorak	-7,04	-2,43	-3,92	-5,65	-6,07
Skis	7,74	6,35	5,49	7,88	8,00
Boats	2,20	1,25	1,92	0,23	-0,10
Surfs	-0,24	-0,48	-0,31	-0,28	-0,38
Golf	-0,54	-0,22	-0,87	-1,29	-1,23
Rackets	-0,71	-0,78	-0,78	-0,74	0,86
Balls	-0,16	0,08	0,37	0,25	-0,13
Ttennis	1,27	1,79	2,09	2,43	2,23
Skates	-1,08	-3,44	-2,22	-1,53	-1,59
Gymnastic	4,83	4,02	2,91	4,35	3,49

Italy

Sports goods	1994	1997	1999	2002	2004
Sportswear	24,22	17,49	17,00	17,20	16,37
Anorak	-19,78	-21,86	-22,96	-24,19	-28,16
Skis	-8,67	-6,19	-4,88	-2,29	-2,40
Boats	-0,76	-0,51	-0,73	-0,32	0,01
Surfs	2,95	3,12	3,96	4,10	5,47
Golf	-0,82	-1,24	-1,32	-1,37	-0,76
Rackets	-1,65	-1,10	-0,64	-0,65	-0,63
Balls	-1,35	-2,23	-1,40	-0,98	-0,90
Ttennis	-0,38	-0,19	-0,14	-0,07	-0,06
Skates	5,87	11,37	9,23	2,45	2,57
Gymnastic	0,36	1,34	1,87	6,11	8,49

Czech Rep.

Sports goods	1994	1997	1999	2002	2004
Sportswear	-12,71	2,73	9,25	8,87	2,63
Anorak	22,79	-3,35	-2,58	-12,58	-12,77
Skis	-5,30	-5,02	2,56	8,03	14,27
Boats	-0,35	-0,18	-0,21	0,01	-0,09
Surfs	-2,97	-0,87	-1,37	-0,15	1,36
Golf	-0,77	-0,22	-0,23	-1,02	-0,99
Rackets	-2,43	-5,75	-4,96	-0,14	-1,12
Balls	-3,21	-1,82	-3,37	-1,55	-1,95
Ttennis	-0,45	-0,50	-0,79	-0,80	-0,47
Skates	8,73	15,37	1,41	-0,34	-3,19
Gymnastic	-3,32	-0,38	0,29	-0,32	2,34

China

Sports goods	1994	1997	1999	2002	2004
Sportswear	2,63	1,73	1,18	0,79	0,66
Anorak	4,74	3,68	3,79	2,56	2,68
Skis	-0,08	-0,04	-0,04	-0,02	-0,07
Boats	-0,02	0,00	-0,01	-0,01	0,00
Surfs	-0,02	0,00	0,00	0,01	-0,01
Golf	-3,98	-3,62	-2,99	-2,65	-3,01
Rackets	-0,29	-0,15	0,08	-0,08	-0,10
Balls	0,12	0,22	0,26	0,24	0,21
Ttennis	-0,18	-0,09	-0,03	-0,04	-0,12
Skates	-0,12	-0,12	0,13	-0,71	-0,34
Gymnastic	-2,79	-1,62	-2,38	-0,10	0,09

Tunisia

Sports goods	1994	1997	1999	2002	2004
Sportswear	-1,80	1,98	2,15	1,78	0,54
Anorak	4,59	0,22	-0,20	0,88	0,88
Skis	0,08	0,19	0,61	0,34	0,26
Boats	-0,09	-0,15	-0,10	-0,68	0,02
Surfs	-0,18	-0,10	-0,14	-0,12	-0,21
Golf	-0,13	-0,06	-0,07	-0,02	-0,01
Rackets	-0,15	-0,08	-0,04	-0,05	-0,05
Balls	-0,45	-0,50	-0,32	-0,23	-0,21
Ttennis	-0,02	-0,07	-0,04	-0,03	-0,02
Skates	-0,01	-0,02	-0,04	-0,01	-0,01
Gymnastic	-1,83	-1,40	-1,81	-1,85	-1,18

APPENDIX 3: COUNTRIES' MARKET POSITION ON SPORTS GOODS GLOBAL TRADE MARKET

Sportswear

Area	1994	1997	1999	2002	2004
NAFTA	-29,08	-18,88	-21,15	-16,94	-17,11
EU+S	-4,50	2,11	-2,15	-4,21	-2,58
East	30,78	27,20	28,33	23,82	18,33
Asia	12,30	15,46	13,69	15,55	15,10
EMEC	85,56	66,05	98,31	120,56	124,80
Country					
USA	-32,17	-23,90	-26,56	-22,31	-21,68
Germany	-34,37	-30,66	-20,99	-19,30	-14,81
Italy	47,85	32,52	30,21	27,40	16,93
Czech Rep.	-3,39	6,71	11,59	10,50	3,81
China	58,06	59,76	54,03	49,77	40,78
Tunisia	113,53	107,37	118,98	143,82	156,60

Anorak

Area	1994	1997	1999	2002	2004
NAFTA	-54,70	-54,37	-46,79	-42,34	-41,48
EU+S	-31,97	-25,90	-22,96	-22,65	-23,38
East	84,69	54,52	60,78	36,35	14,20
Asia	25,70	25,96	26,89	25,51	35,03
EMEC	48,26	32,74	26,23	21,53	7,61
Country					
USA	-61,38	-63,23	-53,98	-49,34	-49,34
Germany	-57,64	-48,32	-41,85	-38,68	-33,53
Italy	-7,49	-10,60	-12,62	-16,38	-27,61
Czech Rep.	56,41	0,16	-0,13	-10,30	-9,96
China	91,20	86,07	83,43	79,01	86,76
Tunisia	38,08	30,81	19,58	13,44	10,04

Skis

Area	1994	1997	1999	2002	2004
NAFTA	-3,27	-2,01	-2,84	-4,00	-4,50
EU+S	9,31	4,89	4,23	4,41	3,74
East	-0,83	-2,55	0,80	1,06	4,24
Asia	-7,33	-2,67	-2,15	-1,06	-0,22
EMEC	-0,29	-0,18	0,70	0,73	0,58
Country					
USA	-3,07	-1,86	-2,43	-3,75	-4,82
Germany	0,21	0,80	-0,15	1,85	2,01
Italy	-3,60	-2,91	-2,00	-0,77	-2,30
Czech Rep.	3,41	-2,99	4,09	10,55	17,44
China	0,05	0,12	0,74	1,09	1,12
Tunisia	0,32	0,61	2,02	1,65	1,68

Boats

Area	1994	1997	1999	2002	2004
NAFTA	-0,06	0,02	-0,09	-0,17	-0,14
EU+S	-0,09	-0,13	0,02	-0,11	-0,15
East	0,06	0,17	0,05	0,03	-0,13
Asia	-0,11	-0,10	-0,02	-0,01	0,04
EMEC	-0,13	-0,22	-0,17	-0,03	0,13
Country					
USA	-0,03	0,05	-0,08	-0,19	-0,15
Germany	0,42	0,17	0,55	-0,25	-0,51
Italy	-0,57	-0,37	-0,54	-0,24	0,01
Czech Rep.	-0,09	-0,16	-0,19	0,04	-0,07
China	0,00	0,00	0,00	0,01	0,00
Tunisia	-0,04	-0,08	-0,06	0,06	0,35

Surfs

Area	1994	1997	1999	2002	2004
NAFTA	-0,30	-0,27	-1,11	-2,01	-2,81
EU+S	-0,18	-0,40	-0,39	-0,24	-0,26
East	-0,47	-0,51	-0,84	-0,80	-0,21
Asia	0,56	0,24	0,17	0,74	0,97
EMEC	-0,49	-1,32	-0,95	-0,38	-0,58
Country					
USA	-0,33	-0,08	-1,14	-2,29	-3,16
Germany	-1,24	-1,57	-1,38	-1,33	-1,58
Italy	4,53	4,42	5,39	5,12	5,54
Czech Rep.	-1,29	-0,55	-1,10	0,01	1,56
China	0,35	0,39	0,40	0,98	1,17
Tunisia	-0,10	-0,05	-0,08	-0,07	-0,10

Golf

Area	1994	1997	1999	2002	2004
NAFTA	-0,08	1,98	1,19	-3,60	-5,61
EU+S	-2,31	-2,93	-3,12	-3,72	-3,14
East	-0,15	0,32	-0,05	-0,32	-0,44
Asia	-5,74	-4,94	-3,92	0,50	1,44
EMEC	-0,48	-0,84	-0,48	-0,20	-0,31
Country					
USA	1,08	1,68	3,07	-2,70	-4,99
Germany	-1,75	-2,00	-2,05	-2,52	-2,11
Italy	-0,59	-0,93	-1,01	-1,09	-0,75
Czech Rep.	-0,29	-0,14	-0,17	-0,94	-0,91
China	1,91	5,67	6,16	8,17	7,40
Tunisia	-0,07	-0,04	-0,04	-0,01	0,00

Rackets

Area	1994	1997	1999	2002	2004
NAFTA	-1,85	-1,43	-1,66	-1,60	-1,30
EU+S	-1,61	-1,30	-0,89	-0,68	-0,53
East	-1,02	-1,77	-1,58	-0,89	-0,79
Asia	0,93	1,12	1,10	1,12	1,04
EMEC	-0,11	-0,59	-0,45	-0,82	-0,76
Country					
USA	-1,91	-1,56	-1,83	-1,71	-1,42
Germany	-2,50	-1,91	-1,72	-1,58	0,06
Italy	-1,13	-0,47	-0,13	-0,39	-0,62
Czech Rep.	-1,25	-4,14	-2,67	1,30	-0,07
China	5,74	4,97	4,97	4,30	2,87
Tunisia	-0,09	-0,05	-0,02	-0,03	-0,03

Balls

Area	1994	1997	1999	2002	2004
NAFTA	-5,81	-4,21	-5,15	-6,43	-5,57
EU+S	-2,21	-1,99	-1,99	-2,15	-2,25
East	-2,77	-4,16	-5,73	-4,51	-4,24
Asia	2,99	3,27	3,26	4,16	6,86
EMEC	-5,62	-5,42	-4,03	-2,11	-2,93
Country					
USA	-5,95	-4,83	-5,91	-7,10	-6,20
Germany	-2,98	-2,48	-1,75	-1,99	-2,30
Italy	0,35	-1,22	-0,49	-0,37	-0,86
Czech Rep.	-0,52	-1,28	-3,01	-1,22	-1,61
China	9,60	7,68	7,71	8,00	7,79
Tunisia	-0,25	-0,29	-0,19	-0,13	-0,11

Ttennis

Area	1994	1997	1999	2002	2004
NAFTA	-0,16	-0,17	-0,20	-0,28	-0,25
EU+S	-0,31	-0,11	0,01	0,09	0,05
East	-0,16	-0,69	-0,92	-1,86	-1,02
Asia	0,28	0,34	0,30	0,19	0,16
EMEC	-0,19	-0,42	-0,31	-0,23	-0,24
Country					
USA	-0,18	-0,22	-0,35	-0,46	-0,46
Germany	0,42	0,86	1,18	1,45	1,45
Italy	-0,25	-0,10	-0,07	-0,02	-0,06
Czech Rep.	-0,10	-0,41	-0,72	-0,75	-0,44
China	1,06	0,79	0,77	0,60	0,46
Tunisia	-0,01	-0,04	-0,02	-0,02	-0,01

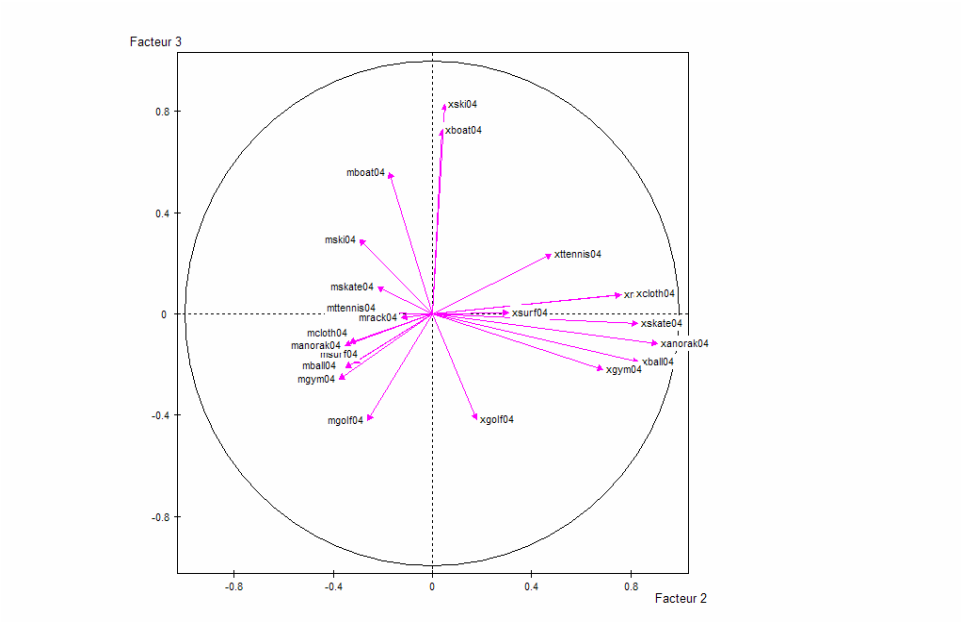
Skates

Area	1994	1997	1999	2002	2004
NAFTA	-8,19	-4,12	-5,44	-3,99	-2,19
EU+S	-0,81	-3,22	-1,51	-1,19	-1,32
East	3,41	0,05	1,14	-0,07	-1,86
Asia	1,26	2,88	3,11	1,84	1,21
EMEC	-2,59	-1,01	-0,70	-0,19	-0,17
Country					
USA	-10,26	-5,44	-6,26	-4,46	-2,30
Germany	-2,70	-9,73	-6,36	-3,73	-3,60
Italy	9,62	16,99	12,52	3,56	2,62
Czech Rep.	17,92	21,02	2,16	0,03	-2,87
China	5,48	7,21	8,51	4,92	3,25
Tunisia	0,00	-0,01	-0,02	-0,01	-0,01

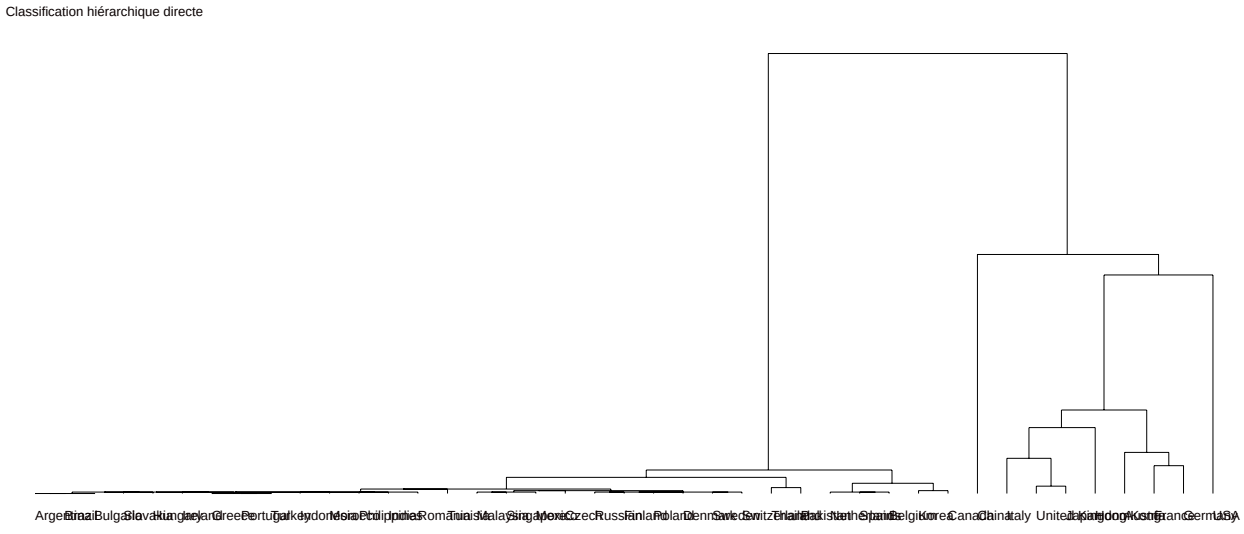
Gymnastic

Area	1994	1997	1999	2002	2004
NAFTA	-11,16	-7,36	-10,22	-20,38	-26,11
EU+S	-4,80	-5,59	-6,78	-7,16	-8,98
East	1,08	-3,98	-3,15	-5,93	-7,72
Asia	-0,93	-0,94	0,97	9,13	16,44
EMEC	-7,49	-17,00	-8,92	-4,38	-5,93
Country					
USA	-12,41	-9,82	-15,83	-24,33	-29,23
Germany	-6,85	-6,73	-8,68	-6,79	-7,70
Italy	5,12	6,20	6,55	9,78	8,75
Czech Rep.	5,24	2,38	2,27	1,65	4,84
China	14,05	18,19	23,31	33,01	39,24
Tunisia	-0,99	-0,75	-0,67	-0,83	-0,52

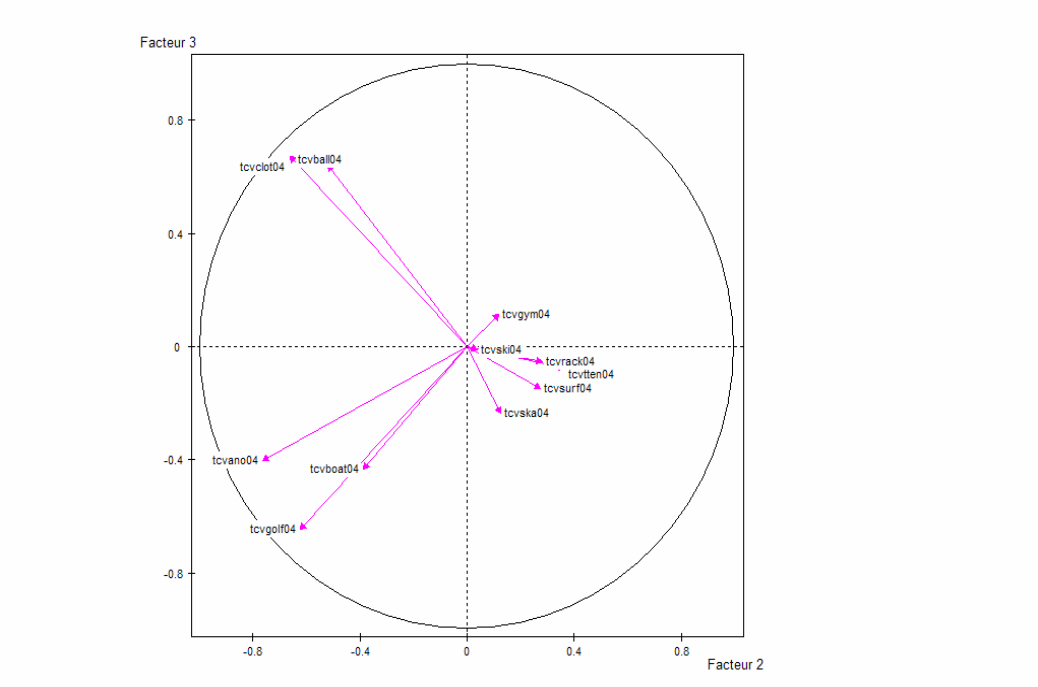
APPENDIX 4: SECOND AND THIRD FACTORIAL AXES, SPORTS GOODS EXPORT AND IMPORT VALUES



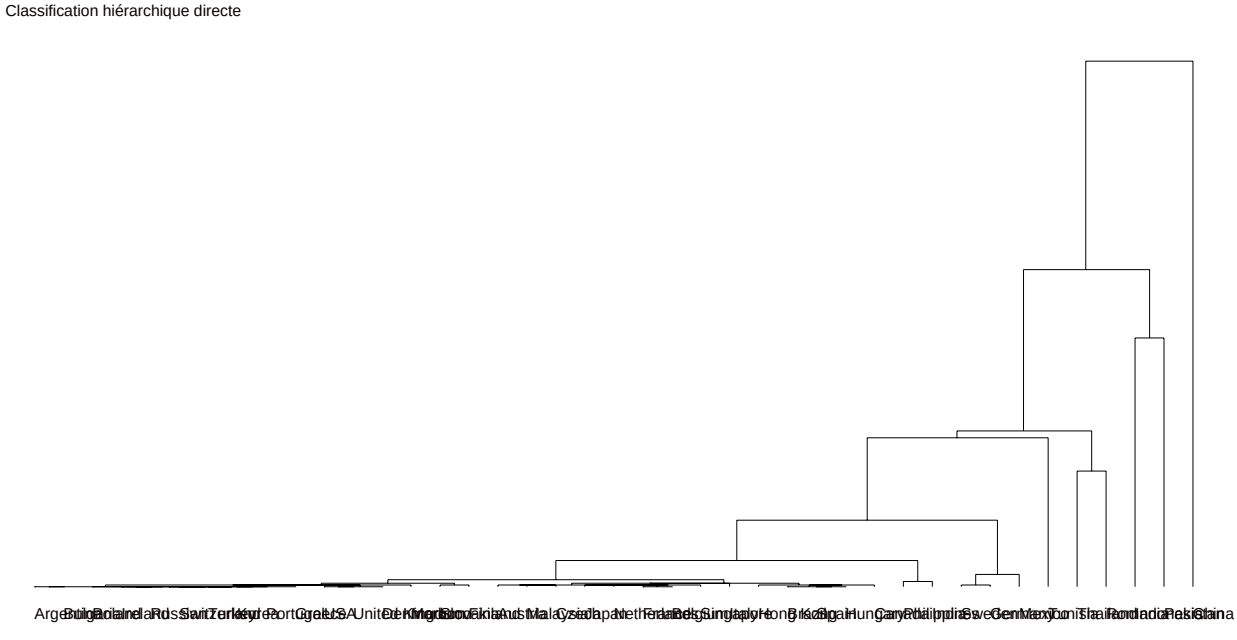
APPENDIX 5: COUNTRY CLASSIFICATION ACCORDING TO SPORTS GOODS EXPORT AND IMPORT VALUES



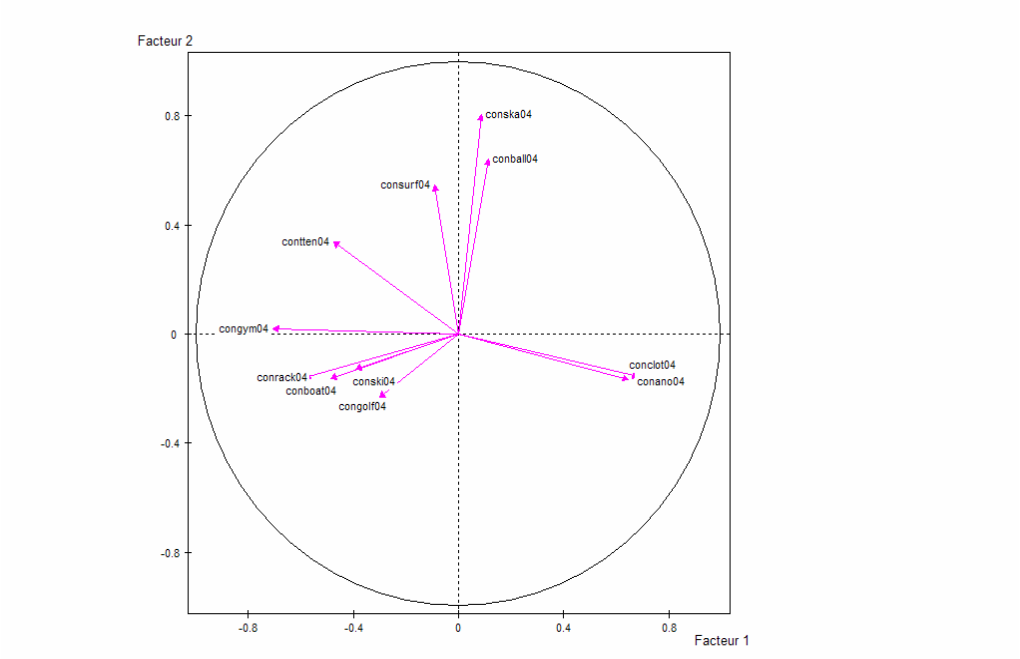
APPENDIX 6: SECOND AND THIRD FACTORIAL AXES, SPORTS GOODS EXPORT/IMPORT RATIOS



APPENDIX 7: COUNTRY CLASSIFICATION ACCORDING TO SPORTS GOODS EXPORT/IMPORT RATIOS



APPENDIX 8: FIRST AND SECOND FACTORIAL AXES, GOODS CONTRIBUTION TO THE SPORTS GOODS FOREIGN TRADE BALANCE



APPENDIX 9: CLASSIFICATION ACCORDING TO GOODS CONTRIBUTION TO THE SPORTS GOODS FOREIGN TRADE BALANCE