



**International Trade Centre**  
UNCTAD / WTO

*Reliability of trade statistics*

*Indicators of consistency between trade figures reported by  
countries and their corresponding mirror estimates*

*Explanatory notes, 2003 data*

Market Analysis Section, January 2005

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Comments and suggestions for amelioration are welcome. Please contact the Market Analysis Section at email: [MAS@intracen.org](mailto:MAS@intracen.org).

## Introduction

Some sceptics consider trade statistics so unreliable that they simply disregard them as a source of information. This view is not borne out by the experience of ITC. Though trade statistics cannot provide precise information on traded values and quantities, they do indicate orders of magnitude. There are, of course, a few countries and a number of special products for which trade statistics are of little use. Moreover, it is essential to maintain efforts towards further improving the quality of trade statistics. Compared with most other economic data, however, merchandise trade statistics tend to be fairly reliable, as they are by-products of customs control. In contrast to statistics on value added production or savings, they relate to the movement of physical goods that have to pass through a limited number of ports, airports and other border stations, which are monitored by customs authorities.

Notwithstanding the attractiveness of this comprehensive source of information, users of database and applications based on trade statistics should take into account some of the weak points of foreign trade statistics.

Trade data are never complete. Smuggling and non-reporting represent a serious problem in a number of countries. In addition, trade statistics - as any source of information - are not free of mistakes and omissions.

Most countries include imports for re-exports and re-exports in their trade statistics. A low-income country may be an exporter of airplanes simply because its national airline has sold second-hand planes.

According to international conventions for reporting trade statistics, the export value refers to the total or contract value, which may, of course, be very different from local value added. For many processing activities, for instance, the local value added remains below 20 per cent of the export value.

Detailed trade statistics are available only for merchandise trade and not for services, although the latter may account for a sizeable share of national exports.

Even at the lowest level of disaggregation, product groups in the trade nomenclatures do not necessarily reflect trade names and often contain a wide spread of different products. Moreover, the product nomenclature is sometimes misleading. The labels of aggregated product groups are often very general and provide at times only limited guidance on the leading items within the group of products concerned.

Exchange rates fluctuations are not always properly recorded in international trade statistics. Values are normally aggregated over the period of one year in local currency and converted into US dollars.

For countries that do not report trade data to the United Nations, ITC uses partner country data, an approach referred to as mirror statistics. Mirror statistics are a second-best solution (better than having no data at all). At the same time, they have a number of shortcomings when compared to the first-best solution of nationally reported data. First and foremost, they do not cover trade with other non-reporting countries. As a result, mirror statistics hardly cover South-South trade. For an assessment of intra-African trade, for instance, mirror statistics are not a suitable source of information. Second, there is the problem of transshipments, which may hide the actual source of supply. Third,

mirror statistics invert the reporting standards by valuing exports in cif terms (i.e. including transport cost and insurance) and imports in fob terms (excluding these items).

In view of the above shortcomings, trade statistics should never be the sole source of insight but need to be complemented by other sources and in particular cross-checked by product specialists and industry insiders. Overall, ITC's experience suggests that trade statistics represent a very useful source of information and a valid point of departure for strategic market research, if analysed with a healthy mix of scepticism and pragmatism vis-à-vis their strength and shortcomings.

In order to tackle this issue of "unreliability" or inconsistency of trade statistics, ITC have developed two useful sources of information, that complement each other.

1. technical notes on trade data
2. these indicators on consistency

These sources are both available from ITC's Country Market Analysis Profile (Country Map) sub-site at [www.intracen.org/menus/countries.htm](http://www.intracen.org/menus/countries.htm).

While indicators on consistency shows to which extent a country's trade data is consistent with its partner customs declarations (hence providing an assessment of discrepancies), technical notes on trade data tries to explain **why** trade data reported by one country may be not reliable or inconsistent with other sources (including mirror estimates). Both sources of information try to highlight the products and partner countries with potential problems, regarding the analysis or the estimation of trade flows.

## Indicators on consistency

As opposed to most economic data, such as production or consumption, there are usually two records for merchandise trade data, since transactions are both recorded by the customs offices in the exporting and the importing countries.

Hence, it is instructive to analyse the discrepancies between a country's export statistics and the corresponding import statistics of its partner country (mirror estimate). An approximate match of trade statistics and their mirror statistics is a good sign of data reliability. Import figures should be slightly higher than export figures, as they include freight and insurance costs, although these costs obviously vary between products. An average difference of about 10% between import and export figures is the norm.

There are many reasons to have discrepancies, described in Box 1. However, in the context of high discrepancies, the trade analyst should question himself which data source is the best, if any. Consequently, the next step would be to look at information on the collection of trade data in the country under analysis. Looking at ITC's technical notes on trade data or at the United Nations Statistics Division website ([www.un.org/depts/unsd](http://www.un.org/depts/unsd)) could help him at this respect. The UNSD website contains very useful information on good practice in official statistics, methods and classification. It also contains information on national reporting practices in international merchandise trade statistics for around 140 countries.

### Box 1: Sources of discrepancies

There are, of course, many reasons for discrepancies. For a complete description, see "*Inconsistency between the reported imported and reported exports of trading partners: An overview of the reasons for discrepancy*". Revised note by WTO, Task Force on International Trade statistics, Washington, March 1999. The different reasons can be regrouped as follows:

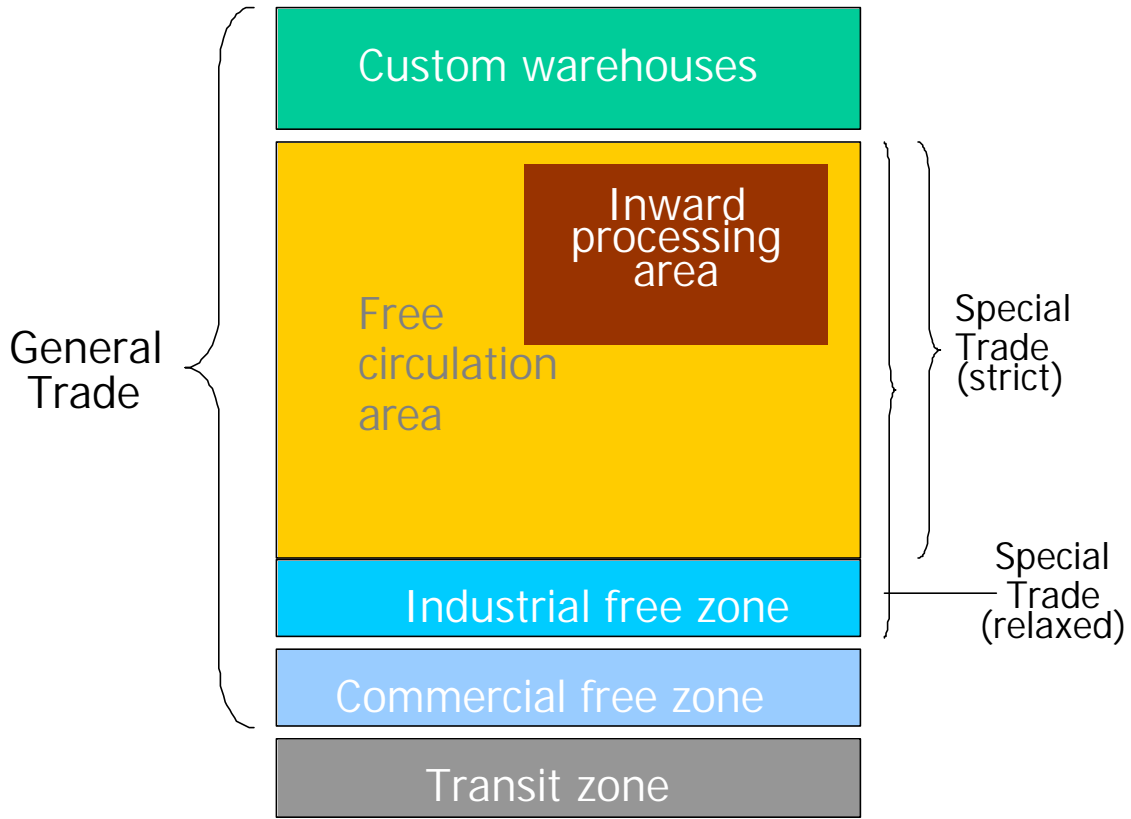
1. **Coverage and time of recording**, of which:
  - 1.a Goods to be included or not (returned goods, vessels, emergency aid, military goods)
  - 1.b Classification as goods or services (e.g. software)
  - 1.c Statistical threshold values (e.g. intra-EU trade)
  - 1.d Confidentiality (usually at the 6 digit level of the HS)
  - 1.e Simplification
  - 1.f Time lag in compilation (the time lag between the shipment and the arrival in the country of destination)
  - 1.g Reference period (July-June or January-December)
  - 1.h Illegal and unrecorded trade (ex: cut flowers in Uganda)
2. **Trade system** (General/Special Trade Systems)
3. **Commodity classification** (same goods under different headings)
4. **Valuation**, of which
  - 4.a CIF / FOB
  - 4.b currency conversions
5. **Quantity measurement** (gross-net, units)
6. **Partner country** (transit trade or re-exports)
7. **Errors and estimations**

As illustrated in Chart 1, the statistical territory in the General Trade System is broader than in the Special Trade System, since it includes both warehouses, commercial and industrial free zones, whereas in the strict version of the Special Trade System, the statistical territory is limited to the free circulation area of the country. Around 2/3 of the countries use the General Trade System.

In this context, it is often difficult to assess the origin and the final destination for goods that transit through one or even more countries. For example, many goods transit through Hong-Kong, Panama, Dubai (Emirates) or the Netherlands. Consequently, the Netherlands appear in the statistical databases as an exporter of bananas to other EU countries, while it is clear that there is no local production.

Another famous case is Hong Kong, which functions as a major "international marketing centre" for China, re-exporting Chinese production with an average margin of around 30%. Chinese producers are often not aware of the final destination of the products.

Chart 1: Economic territory as seen by customs law



## Description of the Tables of indicators

The consistency indicators are calculated at the four-digit level of the Harmonized System for 112 countries or territories reporting data to the UNSD COMTRADE database in 2003<sup>1</sup>. The list of territories is displayed in Annex 1. It is worth mentioning the exclusion of a few reporting countries/territories such as Panama, Hong-Kong (China) and Singapore from the sample. These territories are characterised by a large share of re-exports and their inclusion in the sample would have generated additional noise of a systematic nature.

For each country four tables have been built that analyse both imports and exports by partner country and by major product.

Table 1 and 2 provide the example of consistency indicators for Albanian exports by product (Table 1) and by partner country (Table 2), based on 2001 data (previous edition). On top on each table, synthetic consistency indicators are provided for the total (across all partner countries and all products).

### Extract of Table 1:

HS code	Product group	ALBANIA's export statistics (1)		Mirror estimates (1)		Discrepancy measures for ALBANIA		Discrepancy measures for World Trade	
		Value (US\$ m.)	Nb of part. countries	Value (US\$ m.)	Nb of report. countries	Total (2)	Absolute average (3)	Total (2)	Absolute average (3)
	<b>TOTAL</b>	<b>294.4</b>	<b>.</b>	<b>355.5</b>	<b>.</b>	<b>9.4</b>	<b>34.3</b>	<b>4.6</b>	<b>.</b>
6205	Men's shirts	17.4	4	7.8	5	-37.8	40.4	4.2	20.1

The different indicators in Table 1 are defined as follows:

#### ALBANIA's export statistics

Value (US\$ m.): exports to the sample countries, as reported by Albania (reported trade, noted *T*)

Nb of partner countries: number of importing countries (values > 0), according to Albanian statistics

#### Mirror estimates

Value (US\$ m.): sum of the imports of the sample countries from Albania (mirror estimate, noted *M*)

Nb of reporting countries: number of importing countries (values > 0)

#### Discrepancy measures for ALBANIA

Total: defined as  $\hat{a} = (M - T) / (T + M)$ . It varies between -100% ( $M=0, T \neq 0$ ) and +100% ( $T=0, M \neq 0$ ). If *T* is twice bigger than *M* then the discrepancy = -33.3% (for example,  $(M - 2M) / (M + 2M)$ ). Since import statistics include freight and insurance costs, we usually can expect a positive value (closed to 5%). It is important to note that for the corresponding indicators for Albania's imports, we change the sign of the indicator, defined as:  $(T - M) / (T + M)$ . The logic is to suppose a priori that import statistics (usually

<sup>1</sup> For the previous release, covering 2001 data, there were 98 reporting countries in the sample.

expressed in c.i.f.) are higher than export statistics (usually in f.o.b.). Consequently, a negative value indicates an "usual" discrepancy in all our tables (trade value reported by the exporter is higher than the one reported by the importer).

Absolute average: defined as the weighted average of the absolute deviations. Formally, the indicator

noted  $\bar{a}$ , is calculated as follows:  $\bar{a} = \sum_i v_i \cdot \frac{|M_i - T_i|}{(T_i + M_i)}$ , where the weight  $v_i = \frac{(T_i + M_i)}{(T + M)}$ ,  $T_i$  are

Albanian exports to country  $i$  and  $M_i$ , country's  $i$  imports from Albania. It varies between 0% ( $M=0$  or  $T=0$  and  $T \neq 0$  or  $M \neq 0$ ). The lower the value of  $\bar{a}$ , the lower the size of the discrepancies, the higher the degree of consistency. For example, a value of 10% indicates a strong level of consistency of trade statistics.

The two measures  $\hat{a}$  and  $\bar{a}$  are closely linked since it is easy to show that  $\bar{a} \geq |\hat{a}|$ , or in other words, the total deviation in absolute terms is inferior or equal to the average of absolute deviations (see Annex 2 for a mathematical proof and Box 2 for example of calculations of the measures).

### Discrepancy measures for World trade

Total: same measure than  $\hat{a}$ , defined above but it concerns the world trade value for the product group under review.

Absolute average: same measure than  $\bar{a}$ , defined above but based on all trade flows (for the sample countries) for the product group under review.

These two measures indicate to which extent trade flows for the corresponding product are consistent, across all countries in the sample. Hence, if there are systematic bias for a given product, say bananas, across all countries, it is not surprising to observe high discrepancies for the country under analysis.

### Extract of Table 2

Country	ALBANIA 's export statistics		Mirror estimates (1)		Bilateral discrepancy		Partner country vs world		Product groups with highest discrepancies
	Value (US\$ m.)	Nb of prod.	Value (US\$ m.)	Nb of prod.	Total (2)	Absolute average (3)	Total (2)	Absolute average (3)	
TOTAL	294.4	.	355.5	.	9.4	34.3	.	.	
ITALY	216.4	221	228.5	224	2.7	17.3	5.6	17.8	6205 ,6403 ,7202 ,1604
GREECE	38.6	126	57.4	137	19.6	72.0	-1.0	29.9	6305 ,6104 ,6201 ,6111

The different indicators in Table 2 are defined similarly than in Table 1, the only difference being that the summation is now done across products for one given partner country. We see for example that trade with Italy is much more consistent than trade with Greece.

What changes are the last three columns of Table 2.

**Partner country vs world** indicate to which extent the partner country's statistics (here Italian import statistics) are in accordance with their mirror estimate, indicating to the user if possible large discrepancies would more likely be attributed to the partner country (say Italy) rather than the reporting country (Albania here). Again, two measures are provided, a total measure and an absolute weighted average. We can see for example that the discrepancy indicators for Albanian exports to Italy and World exports to Italy both indicate no major inconsistencies. As opposed, there are large discrepancies in trade statistics for Albanian exports to Greece, with an average absolute discrepancy of 72%. There is also a relatively important discrepancy in trade statistics for Greek imports from the world.

**Product groups with highest discrepancies** list the products with highest average absolute discrepancies when analysing the bilateral trade. Only the most important products (accounting for at least 2% of bilateral trade) are included in the list.

### Box 2: Calculation of discrepancy measures

Table B.1 show how the two discrepancy measures (-37.8% and 40.4%) have been calculated for Albania's exports of 6205 men's shirts, included in Table 1. The discrepancy measures are relatively closed (in value terms).

Table B.1 Calculation of discrepancy measures for Albania's exports of 6205 men's shirts

Importers	Exports in US\$ th	Mirror data	Discrepancy	Absolute discrepancy	Total trade (exports+ mirror estimates)	Weight (share in total trade)	Weighed absolute discrepancy
	A	B	$C = 100 * (A-B)/(A+B)$	$D =  C $	$E = A + B$	$F = E / \text{Total}(E)$	$G=D*F$
Total	17,384	7,843	-37.8	37.8	25,227	1.00	
Italy	14,056	6,695	-35.5	35.5	20,751	0.82	29.18
Greece	2,026	819	-42.4	42.4	2,845	0.11	4.78
Germany	1,246	0	-100.0	100.0	1,246	0.05	4.94
Panama	56	0	-100.0	100.0	56	0.00	0.22
United States of	0	162	100.0	100.0	162	0.01	0.64
Spain	0	100	100.0	100.0	100	0.00	0.40
Austria	0	67	100.0	100.0	67	0.00	0.27
					<b>Sum</b>		<b>40.43</b>

Tables B.2 and B.3 are fictive examples that illustrate the usefulness of having two measures. Table B.2 show that when the total discrepancy measure is low but when the average discrepancy measure is high, the inconsistency lie in the origin or destination of the goods rather on the total traded volumes.

In Table B.3, the discrepancy measures are equal (in value terms), since the bilateral discrepancies have all the same signs, all partner countries declaring to import less than what the exporting country does.

Table B.2: Fictive example 1

Importers	Exports in US\$ th	Mirror data	Discrepancy, in %	Absolute discrepancy	Total trade (exports+ mirror estimates)	Weight (share in total trade)	Weighed absolute discrepancy, in %
	A	B	$C = 100 * (A-B)/(A+B)$	$D =  C $	$E = A + B$	$F = E / \text{Total}(E)$	$G=D*F$
Total	15,000	15,000	0.0	0.0	30,000	1.00	
Italy	15,000	0	-100.0	100.0	15,000	0.50	50.00
Greece	0	15,000	100.0	100.0	15,000	0.50	50.00
					<b>Sum</b>		<b>100.00</b>

Table B.3: Fictive example 2

Importers	Exports in US\$ th	Mirror data	Discrepancy	Absolute discrepancy	Total trade (exports+ mirror estimates)	Weight (share in total trade)	Weighed absolute discrepancy
	A	B	$C = 100 * (A-B)/(A+B)$	$D =  C $	$E = A + B$	$F = E / \text{Total}(E)$	$G=D*F$
Total	15,000	10,000	-20.0	20.0	25,000	1.00	
Italy	8,000	7,000	-6.7	6.7	15,000	0.60	4.0
Greece	3,000	2,000	-20.0	20.0	5,000	0.20	4.0
Germany	2,000	1,000	-33.3	33.3	3,000	0.12	4.0
USA	1,500	0	-100.0	100.0	1,500	0.06	6.0
Finland	500	0	-100.0	100.0	500	0.02	2.0
					<b>Sum</b>		<b>20.0</b>

Table 1: Comparison of ALBANIA's export statistics with those of partner countries, by product group, for 2001

HS code	Product group	ALBANIA's export statistics (1)		Mirror estimates (1)		Discrepancy measures for ALBANIA		Discrepancy measures for World Trade	
		Value (US\$ m.)	Nb of part. countries	Value (US\$ m.)	Nb of report. countries	Total (2)	Absolute average (3)	Total (2)	Absolute average (3)
	<b>TOTAL</b>	<b>294.4</b>	.	<b>355.5</b>	.	<b>9.4</b>	<b>34.3</b>	<b>4.6</b>	.
6406	Part of footwear:romovable in-soles,heel cushion etc:gaiter etc	78.2	5	76.9	1	-0.8	0.8	2.0	19.2
6203	Men's suits, jackets, trousers etc & shorts	25.2	6	25.4	7	0.4	7.2	0.1	19.9
6205	Men's shirts	17.4	4	7.8	5	-37.8	40.4	4.2	20.1
6206	Women's blouses & shirts	10.4	6	7.4	13	-17.2	25.0	10.9	25.5
1211	Medicinal plants	9.5	14	7.5	18	-11.8	26.7	10.1	28.8
6108	Women's slips, panties, pyjamas, bathrobes etc, knitted/crocheted	8.0	3	6.8	5	-8.2	8.4	12.9	31.0
6111	Babies' garments, knitted or crocheted	7.2	2	0.3	2	-91.1	91.1	11.6	29.6
6112	Track suits, ski suits and swimwear, knitted or crocheted	6.5	2	2.7	2	-41.8	41.8	9.8	34.4
6403	Footwear, upper of leather	6.5	2	12.1	4	29.9	30.6	11.0	26.1
7202	Ferro-alloys	6.5	1	8.0	4	10.6	10.6	12.8	26.3
4104	Leather of bovine/equine animal, other than leather of hd 4108/4109	6.3	4	6.6	2	2.2	6.4	4.2	15.6
8301	Padlocks/lock;clasp incorp lock;key for the foregoing art,of base met	5.9	1	6.5	1	5.1	5.1	3.8	20.8
2401	Tobacco unmanufactured; tobacco refuse	5.6	1	7.3	12	12.8	97.3	9.6	28.1
6109	T-shirts, singlets and other vests, knitted or crocheted	5.2	4	9.7	7	30.0	31.1	1.4	27.7
1604	Prepared/preserved fish & caviar	5.1	2	5.4	1	2.8	8.6	2.4	13.6
6106	Women's blouses & shirts, knitted or crocheted	4.9	4	6.7	5	15.9	44.9	1.7	57.8
7113	Articles of jewellery&parts thereof	4.2	2	0.2	2	-91.4	99.9	-5.7	26.3
6204	Women's suits, jackets,dresses skirts, etc	4.1	3	10.7	18	45.1	45.1	6.3	21.4
6107	Men's underpants,pyjamas, bathrobes etc	4.0	3	4.8	2	9.0	11.2	19.4	35.0
4407	Wood sawn/chipped lengthwise, sliced	3.0	2	6.1	6	33.4	33.4	8.8	13.5
7602	Aluminum waste and scrap	2.9	5	2.9	4	-0.5	10.4	4.8	25.2
2710	Petroleum oils, not crude	2.8	3	3.3	2	9.3	10.0	3.2	22.6
9401	Seat (o/t dentists' & barbers' chairs, etc), &part thereof	2.8	3	2.1	4	-14.7	17.4	6.5	17.9
8429	Self-propelled bulldozer, angledozer, etc	2.6	3	2.5	2	-0.6	85.9	2.0	18.1
6305	Sacks and bags of a kind used for the packing of goods	2.5	2	0.0	3	-98.1	99.7	-6.0	18.7
6114	Garments, knitted or crocheted, nes	2.2	4	0.1	1	-87.8	93.7	8.4	54.7
6211	Track suits, ski suits and swimwear; other garments	2.2	2	2.5	6	6.4	19.0	-5.6	35.2

Source: ITC, based on COMTRADE data of the UNSD.

Notes: (1): only include trade with reporting countries

(2): defined as  $100 \cdot (T-M)/(T+M)$ , T: reported trade, M: mirror estimate. Varies between -100% and +100%.

(3): average of  $100 \cdot |T-M|/(T+M)$

Table 2: Comparison of ALBANIA 's export statistics with those of partner countries, for 2001

Country	ALBANIA 's export statistics		Mirror estimates		Bilateral discrepancy		Partner country vs world		Product groups with highest discrepancies
	Value (US\$ m.)	Nb of prod.	Value (US\$ m.)	Nb of prod.	Total (1)	Absolute average (2)	Total (1)	Absolute average (2)	
<b>TOTAL</b>	<b>294.4</b>	<b>.</b>	<b>355.5</b>	<b>.</b>	<b>9.4</b>	<b>34.3</b>	<b>.</b>	<b>.</b>	
ITALY	216.4	221	228.5	224	2.7	17.3	5.6	17.8	6205 ,6403 ,7202 ,1604
GREECE	38.6	126	57.4	137	19.6	72.0	-1.0	29.9	6305 ,6104 ,6201 ,6111
GERMANY	16.7	35	17.9	57	3.3	46.1	-1.1	24.9	0813 ,2401 ,6114 ,6205
TFYR MACEDNA	6.3	31	1.2	12	-67.3	96.1	-18.6	51.4	2716 ,3801 ,7311 ,8414
SWITZERL.	4.5	7	0.3	8	-88.8	98.3	1.0	26.1	4907 ,7113 ,1211
TURKEY	3.1	12	3.6	13	7.6	50.4	6.9	32.6	1513 ,4106 ,4103 ,4102
USA	2.0	8	7.6	24	58.0	64.4	5.5	15.2	0712 ,2401 ,6403 ,8542
FRANCE	2.0	16	17.5	72	79.5	87.0	0.0	22.2	2530 ,8414 ,1211
DENMARK	0.8	4	0.8	5	3.0	26.9	6.6	23.4	8421 ,9614 ,4419 ,6206
AUSTRIA	0.7	12	1.9	24	45.7	84.6	3.4	21.2	3815 ,4907 ,6204 ,6205
SWEDEN	0.6	1	0.0	1	-96.4	100.0	-2.6	24.8	2610
PANAMA	0.5	7	0.0	1	-93.4	100.0	-66.9	74.8	6106 ,6108 ,6203 ,6205
CZECH REP	0.5	5	0.6	8	16.9	34.9	3.7	20.8	4104 ,4106 ,6204 ,1211
BELGIUM	0.4	3	0.9	14	36.6	46.6	8.2	22.9	2401 ,2936 ,5211 ,6211
NETHERLANDS	0.4	4	1.8	10	65.9	95.2	-12.1	28.0	2401 ,3002 ,3901 ,8431
SPAIN	0.3	5	1.4	18	66.8	86.8	3.2	20.2	0910 ,3907 ,6204 ,6205
UNTD.KINGDOM	0.2	2	0.9	15	66.9	67.1	-0.3	23.2	6505 ,8411 ,8473 ,8506
SLOVENIA	0.1	6	0.1	9	4.2	93.8	2.0	25.6	1211 ,2942 ,3305 ,4407
LEBANON	0.1	1	0.1	1	5.2	5.2	16.6	35.2	8474
JORDAN	0.1	2	0.0	0	-100.0	100.0	-1.6	39.6	3004 ,8703
JAPAN	0.1	1	0.6	5	77.0	77.0	11.2	22.3	2401 ,9014 ,9403 ,1211
ICELAND	0.1	1	0.0	1	-84.0	100.0	-2.7	41.3	4202 ,6204
HUNGARY	0.0	3	0.3	9	70.8	84.4	7.1	30.1	1302 ,6110 ,6203 ,6204
SLOVAKIA	0.0	1	0.1	3	20.4	100.0	4.0	20.5	0909 ,1211 ,2619 ,6204

Source: ITC, based on COMTRADE data of the UNSD.

Notes:

(1): defined as  $100 \times (T-M)/(T+M)$ , T: reported trade, M: mirror estimate. Varies between -100% and +100%.

(2): average of  $100 \times |T-M|/(T+M)$

**Annex 1: List of 112 reporting countries/territories (2003 sample)**

<b>COUNTRY</b>	<b>ISO code</b>	<b>COUNTRY</b>	<b>ISO code</b>	<b>COUNTRY</b>	<b>ISO code</b>	<b>COUNTRY</b>	<b>ISO code</b>
ALBANIA	ALB	FIJI	FJI	MEXICO	MEX	TFYR MACEDONIA	MKD
ALGERIA	DZA	FINLAND	FIN	MONGOLIA	MNG	THAILAND	THA
ANGUILLA	AIA	FR. POLYNESIA	PYF	MOROCCO	MAR	TOGO	TGO
ARMENIA	ARM	FRANCE	FRA	NAMIBIA	NAM	TUNISIA	TUN
ARUBA	ARB	GEORGIA	GEO	NETHERLANDS	NLD	TURKEY	TUR
AUSTRALIA	AUS	GERMANY	DEU	NEW CALEDNIA	NCL	UGANDA	UGA
AUSTRIA	AUT	GREECE	GRC	NEW ZEALAND	NZL	UNITED KINGDOM	GBR
AZERBAIJAN	AZE	GRENADA	GRD	NICARAGUA	NIC	URUGUAY	URY
BAHRAIN	BHR	GUATEMALA	GTM	NIGER	NER	USA	USA
BANGLADESH	BGD	GUYANA	GUY	NORWAY	NOR	VENEZUELA	VEN
BARBADOS	BRB	HUNGARY	HUN	OMAN	OMN		
BELARUS	BLR	ICELAND	ISL	PAKISTAN	PAK		
BELGIUM	BEL	INDIA	IND	PAPUA N.GUIN	PNG		
BOLIVIA	BOL	INDONESIA	IDN	PERU	PER		
BOSNIA HERZG	BIH	IRAN-ISLAM.R	IRN	PHILIPPINES	PHL		
BRAZIL	BRA	IRELAND	IRL	POLAND	POL		
BRUNEI DARSM	BRN	ISRAEL	ISR	REP.MOLDOVA	MDA		
BULGARIA	BGR	ITALY	ITA	ROMANIA	ROM		
CANADA	CAN	JAPAN	JPN	RUSSIAN FED	RUS		
CENT.AFR.REP	CAF	JORDAN	JOR	RWANDA	RWA		
CHILE	CHL	KAZAKSTAN	KAZ	SOUTH AFRICA	SAF		
CHINA	CHN	KENYA	KEN	SAMOA	WSM		
COLOMBIA	COL	KOREA REP.	KOR	SAO TOME PRN	STP		
COOK ISL	COK	KYRGYZSTAN	KGZ	SENEGAL	SEN		
COSTA RICA	CRI	LATVIA	LVA	SLOVAKIA	SVK		
CROATIA	HRV	LEBANON	LBN	SLOVENIA	SVN		
CYPRUS	CYP	LITHUANIA	LTU	SPAIN	ESP		
CZECH REP	CZE	LUXEMBOURG	LUX	ST.LUCIA	LCA		
DENMARK	DNK	MACAU	MAC	ST.VINCENT,G	VCT		
DOMINICA	DMA	MADAGASCAR	MDG	SWEDEN	SWE		
ECUADOR	ECU	MALAWI	MWI	SWITZERL.	CHE		
EL SALVADOR	SLV	MALAYSIA	MYS	SYRIAN A.R.	SYR		
ESTONIA	EST	MALDIVES	MDV	TAIWAN PROV.	TWN		
ETHIOPIA	ETH	MAURITIUS	MUS	TANZANIA	TZA		

## Annex 2: Mathematical correspondence between the two discrepancy measures

Since  $\bar{a} = \sum_i \mathbf{v}_i \cdot \frac{|M_i - T_i|}{(T_i + M_i)}$  (1) and the weight  $\mathbf{v}_i = \frac{(T_i + M_i)}{(T + M)}$ , we can rewrite (1) as:

$$\bar{a} = \sum_i \frac{(T_i + M_i)}{(T + M)} \cdot \frac{|M_i - T_i|}{(T_i + M_i)} \quad (2)$$

On the other hand,  $\hat{a} = (M - T)/(T + M)$  can be rewritten as:

$$\hat{a} = \frac{\sum_i (M_i - T_i)}{(T + M)} = \sum_i \frac{(M_i - T_i)}{(T + M)} = \sum_i \frac{(M_i - T_i)}{(T + M)} \cdot \frac{(T_i + M_i)}{(T_i + M_i)} = \sum_i \frac{(T_i + M_i)}{(T + M)} \cdot \frac{(M_i - T_i)}{(T_i + M_i)}$$

Since  $\forall i, |M_i - T_i| \geq (M_i - T_i) \Rightarrow \bar{a} \geq \hat{a}$ . Since  $\bar{a} \geq 0$ , then  $\bar{a} \geq |\hat{a}|$

As a special case, as illustrated in Box 2, if  $\forall i, T_i \geq M_i$  or  $M_i \geq T_i \Rightarrow \bar{a} = |\hat{a}|$ . In other words, if the bilateral discrepancies have all the same signs, the sum of the absolute values is equal to the absolute value of the sum and the two measures are equivalent.

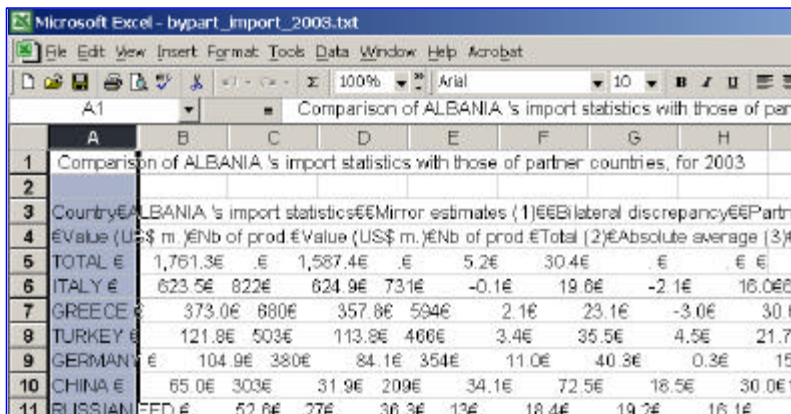
### Annex 3: How to use the text files in my applications

The present edition now provides the complete data sets (covering all products and partner countries) in text format.

These text formats can be opened by any software, such as Excel, Access, SAS, Word or Oracle. The “€” special character has been used as a column separator.

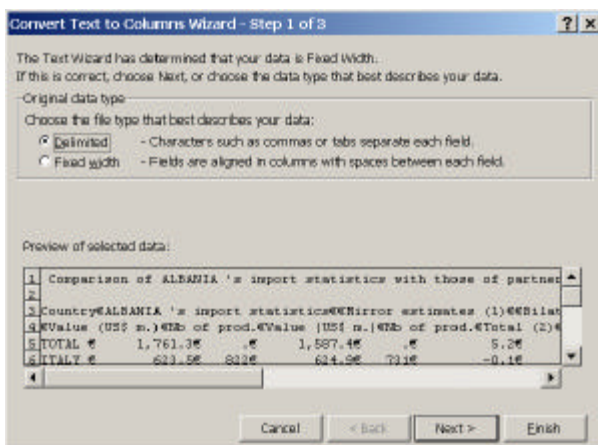
For example, in order to transfer the data in Excel, follow the next steps:

- 1) Save the text file on your hard disk
- 2) In your document manager (such as Windows Explorer), right-click on the document and select “Open with Microsoft Excel” or Open Excel and open the text file
- 3) Then **select the first column** (column A), as indicated below

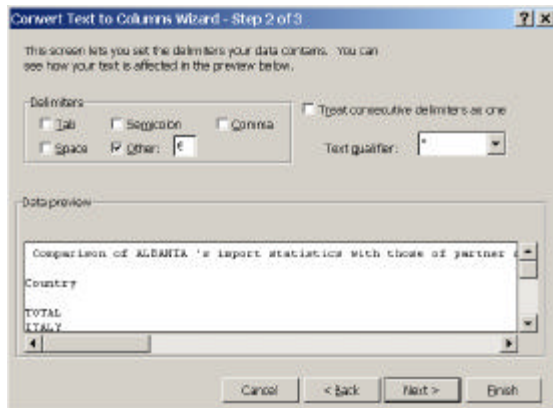


	A	B	C	D	E	F	G	H
1	Comparison of ALBANIA 's import statistics with those of partner countries, for 2003							
2								
3	Country	ALBANIA 's import statistics	€Mirror estimates (1)	€Bilateral discrepancy	€Partner			
4	€Value (US\$ m.)	€Nb of prod.	€Value (US\$ m.)	€Nb of prod.	€Total (2)	€Absolute average (3)	€	€
5	TOTAL	€ 1,761.3€	€	€ 1,587.4€	€	€ 5.2€	€ 30.4€	€
6	ITALY	€ 623.5€	€ 822€	€ 624.9€	€ 731€	€ -0.1€	€ 19.8€	€ -2.1€
7	GREECE	€ 373.0€	€ 880€	€ 357.8€	€ 594€	€ 2.1€	€ 23.1€	€ -3.0€
8	TURKEY	€ 121.8€	€ 503€	€ 113.8€	€ 466€	€ 3.4€	€ 35.5€	€ 4.5€
9	GERMANY	€ 104.9€	€ 380€	€ 84.1€	€ 354€	€ 11.0€	€ 40.3€	€ 0.3€
10	CHINA	€ 65.0€	€ 303€	€ 31.9€	€ 209€	€ 34.1€	€ 72.5€	€ 18.5€
11	RUSSIAN	€ 52.8€	€ 27€	€ 36.3€	€ 13€	€ 18.4€	€ 19.2€	€ 16.1€

- 4) From the main menu heading “Data”, select the “Text to Columns” option
- 5) Then select the “Delimited” option and click on Next, as indicated below



6) Then Type “€” in the “Other” Box and click on **Finish**, as indicated below



7) The data is now been transferred properly in Excel

Country	ALBANIA's import st	Mirror estimates (1)	Bilateral discrepancy	Partner country vs w	Product groups with							
	Value (US:Nb of prod	Value (US:Nb of prod	Total (2)	Absolute a	Total (2)	Absolute a	highest discrepancies					
TOTAL	1,761.30	1,587.40	5.2	30.4								
ITALY	623.5	822	624.9	731	-0.1	19.6	-2.1	16	6203	6406	2523	8301
GREECE	373	680	357.8	594	2.1	23.1	-3	30.6	2710	6002	2402	2523
TURKEY	121.8	503	113.8	466	3.4	35.5	4.5	21.7	1806	3402	7604	1101
GERMANY	104.9	380	84.1	354	11	40.3	0.3	15.7	1701	8703	5516	8704
CHINA	65	303	31.9	209	34.1	72.5	16.5	30	1006	8419	6402	0203
RUSSIAN	52.6	27	36.3	13	18.4	19.2	16.1	43.3	2710	3102	1001	1512
UNITED KINGDOM	44.9	97	14.1	109	52.3	82.9	-3.2	22.1	2716	8411	8431	8212
BULGARIA	40.5	261	29.6	234	15.6	49.2	3.7	23.4	2716	3916	3923	1905
SPAIN	31.7	112	29.7	97	3.3	14.6	-4	17.4	1701	6808	8703	
AUSTRIA	29.7	217	18.5	164	23.2	49.4	-3.3	25.3	8802	8471	8473	8410
CROATIA	28.4	55	27.3	55	2.1	25.2	-10.1	26.4	2203	0305	8503	3901
SLOVENIA	26.5	157	13.2	77	33.6	52.3	-1.3	17.1	1701	2402	2106	8450
FRANCE	20.1	141	23.5	132	-7.8	30.4	-0.5	18.5	9015	8471	8502	1701
USA	18.5	111	9	77	34.5	66.6	8.3	19.4	0203	0207	9018	8473
ROMANIA	15.2	49	14.6	36	1.9	16.7	3.9	20.7	7207	7211	7005	2306
SWITZERLAND	14.1	118	13	80	4.1	49.4	3.2	27.4	8537	8538	8504	8471
BRAZIL	13.5	16	7.8	8	26.9	28.3	5.9	18.2	0901	1005	1701	0202
CZECH REPUBLIC	13.2	67	13.7	55	-1.7	45.5	-0.4	17	1001	1107	2402	3402
NETHERLANDS	12.6	100	10.5	95	9.2	56.4	-1.4	25.3	1512	2402	3307	9022

Please note that some files are very long and may not be opened completely in Excel. Other programs must be used (such as Access or SAS).