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Trade in Goods and Services: Statistical Trends and Measurement Challenges

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"***No nation was ever ruined by trade***"

Benjamin Franklin (1706-1790) in "Essays: Thoughts on Commercial Subjects"

In this issue

International trade statistics play a vital part in OECD's monitoring, analysis and projections of macroeconomic developments in individual economies and the world economy. In response to these needs, OECD's Secretariat manages three trade in goods and services databases of which a very large merchandise trade database.

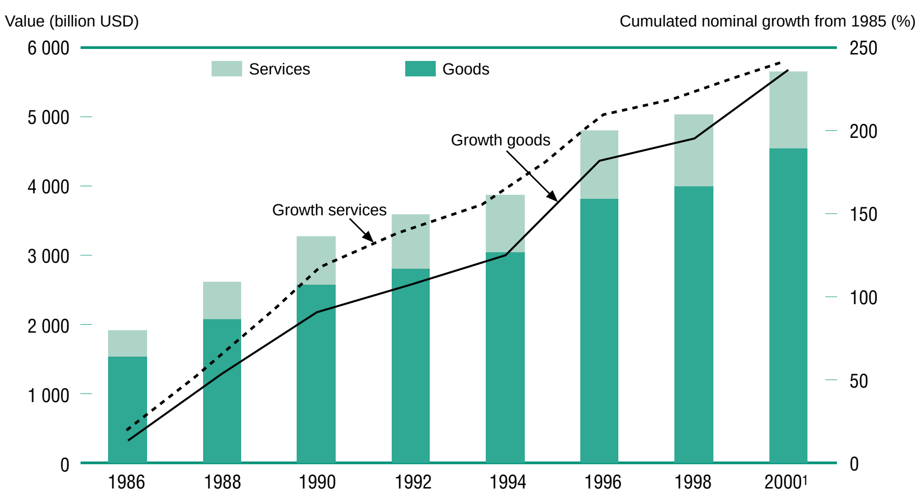
However, even if these international trade statistics are well developed and international standards have been defined by international organisations to harmonise practices, a number of measurement issues and comparability problems remain. In particular the increasingly important phenomenon of globalisation, entailing the internationalisation of production and sales and new forms of delivering goods and services to customers across countries, new developments in information and communications technologies and the growing importance of e-commerce requires new approaches and poses new methodological challenges.

This issue of Statistics Brief summarises key measurement issues in both goods and service trade. It also highlights a major new achievement in this domain, the completion of the Manual on Statistics of International Trade in Services.

Key features of trade in goods and services

In 2000, the estimated total value of world exports of merchandise and commercial services amounted to almost 7.6 trillion USD, world merchandise exports amounted to 6.2 trillion USD, while world exports of commercial services added up to some 1.4 trillion

Chart 1. **Growth of OECD trade in goods and services 1985-2000**



1. 2000 OECD estimates.
Source: OECD-Eurostat, *OECD Statistics on International trade in services,* 2001. IMF, *Balance of Payments Statistics Yearbook,* 2000.

OECD Trade		$US billion 2000*	Percentage change 1985–2000*	Annual average % change 1985–2000*	Share in world trade 1990	1999
Exports	Goods	4414	232.3	8.3	74.1	73.2
	Services	1143	241.4	8.5	81.9	79.4
Imports	Goods	4677	241.2	8.5	75.9	75.8
	Services	1084	246.3	8.6	76.2	74.8

* 2000: OECD estimates
Source: OECD-Eurostat, *OECD Statistics on International Trade in Services*, 2001;
IMF, *Balance of Payments Statistics Yearbook*, 2000.

USD. The 30 OECD countries represented about 75% of world exports, with almost 80% of world services exports and 73% of world goods exports. On average, OECD trade grew in value terms at around 8.5% per year during the last 15 years. Total growth was fast up to 1995 and trade in goods growth accelerated in 1999 and, particularly, in 2000 (see chart 1 and table above).

Throughout the 90s, trade grew faster than gross domestic product worldwide and for the OECD area in both value and volume terms. From 1995, the ratio of trade in goods and services to GDP increased from about 19% in 1995 to 23% in 1999 (measured in volume terms). These increases were attributable to dynamic growth in merchandise trade, which increased from some 15% to almost 19%.

The relatively minor role for services in international trade (approximately 20%) appears in sharp contrast to the contribution of services to the domestic economies of Member countries. The proportion of total production (gross output) contributed by services is between 55% - 65% for G7 countries[1] and continues to rise as opposed to declining agriculture and industry shares.

Trade in goods

How is trade in goods measured?

Customs records are the most common source for the measurement of the physical movement of goods across borders. OECD obtains its merchandise data directly from national customs authorities or statistical offices. A notable exception to this general rule is the European Union, where two systems co-exist since the advent of the Single Market in 1993 and the removal of internal customs formalities (see box).

Although the measurement of merchandise trade is well defined by international guidelines[2] and well coordinated internationally,[3] there still remain measurement problems and certain deficiencies with regard to international comparability. Asymmetry is the most important problem: the value of a country's exports rarely matches the corresponding import value of the destination country (mirror statistics). These mirror statistics are an important quality assessment tool and have led to numerous reconciliation exercises.

The most significant sources for disparities are:

• Trade system: either the general or the special trade system may be used. The United Nations (UN) recommends the former system, which corresponds to the economic territory of a country. Customs warehouses and customs free zones are excluded from the latter. OECD countries are about evenly split amongst the two and noticeable statistical differences can occur between countries using different trade systems.

• Coverage: specific goods or transaction types may be defined differently and included or excluded depending on the country. The measurement of merchandise trade flows should cover all goods, which add to, or subtract from, the resources of a country as a result of their movement in or out of the country. This definition implies, for instance, that state trading, commercial transactions in military equipment and supplies, and foreign aid transactions are included, while direct transit trade, temporary imports and exports, and monetary gold (a financial asset, not a good) are excluded.

• Valuation: Following the United Nations Statistical Division's recommendations to promote international comparability of merchandise trade data and also for practical reasons, most countries value imports C.i.f. (*i.e.* including Cost, Insurance and Freight), and exports F.o.b. (free on board, *i.e.* excluding freight and insurance costs).

1. G7: Major seven group: Canada, France, Germany, Italy, Japan, United Kingdom, United States.

2. United Nations, *International Merchandise Trade Statistics: Concepts and Definitions*, Studies in Methods Series M, No 52, Rev2, New York 1998. In 2000, the UN Statistics Division, with the help of an international expert group, produced a compiler's manual giving detailed advice on how to compile trade data.

3. The "International Trade Statistics Task Force", comprising representatives from WTO, UN, OECD, IMF, WCO and Eurostat, is playing a major role in elucidating statistical problems and in harmonising international practices.

Measurement of European Union trade

In the wake of the single market, a new system for collecting trade between the European Union (EU) member states, called Intrastat, was introduced in January 1993. Based upon declarations of firms of transactions above a certain threshold value, the new harmonised community system affects EU merchandise trade statistics in a number of ways:

• Comparability with pre-1993 figures has been lost;

• Coverage under the new system is less exhaustive than that of the customs-based system;

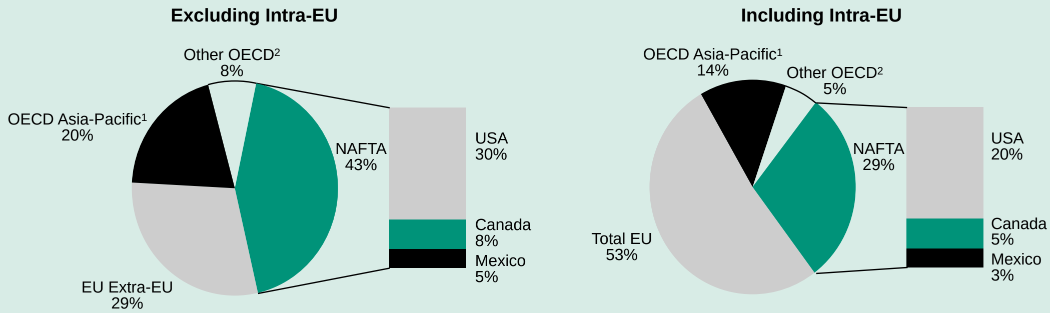
• Unlike the previous measurement system, intra-EU imports are about 5% below the intra-EU exports (asymmetry problem). Possible causes include differences in member countries with respect to adjustments made for non-response, confidentiality, triangular trade, thresholds and the like;

• The situation of different thresholds used illustrates the problem: to reduce the response burden on businesses, thresholds for intra-EU trade range from about 30,000 EUR to as much as over 600,000 EUR while the recommended threshold for extra-EU trade is only 800 EUR.

Comparing the EU aggregate with geographical or economic zones gives very different pictures if intra-EU trade is included or not. As shown below, the main traders of the OECD in 1999 are the EU and the United States (USA). When intra-EU flows are excluded from the EU aggregate, the EU and the USA each represent some 30% of OECD trade. When these flows are included, EU countries represent over half of OECD trade, while the USA drops to 20%.

Trade in goods by OECD region

% of total OECD trade, 1999



1. Australia, Japan, Korea, New Zealand.
2. Czech Republic, Hungary, Iceland, Norway, Poland, Slovak Republic, Switzerland, Turkey.

Source: OECD, *International Trade by Commodity Statistics,* 2001.

• Partner country attribution in the case of transit trade, re-exports and re-imports: the attribution can be the cause of major discrepancies. For instance, it is estimated that re-exports from Hong Kong-China amounted in 1999 to over 150 billion USD. Inclusion of these in world or regional aggregates would lead to a considerable analytical bias and over-reporting.

• Classifications: Technological developments, environmental concerns, ongoing trade negotiations and changes in trade patterns require amendments to existing classifications. The observable trend is towards more explicit details or additional codes given to certain commodities.

• Other: additional factors that can produce significant differences in mirror statistics include: different points of valuation (statistical value at the border or as stated on the invoice), different time of recording the corresponding import of an export, different exchange rates, inclusion or exclusion of freight rates, different and increasing thresholds, confidentiality, increasing part of unrecorded trade (smuggling).

Necessary adjustments of merchandise trade for the Balance of Payments

The merchandise trade statistics are an essential component of the balance of payments and the national accounts statistics. Substantial harmonisation of the concepts of these two frameworks was achieved with the implementation of the System of National Accounts 1993[4] (SNA 1993) and the Fifth Edition of the International Monetary Fund's Balance of Payments Manual (BPM5)[5].

Whereas data collection on international merchandise trade is mainly based on customs declarations, the balance of payments statement on trade in goods systematically summarises goods transactions for a specific time period, for the most part involving changes of ownership between residents and non-residents. It covers general merchandise (which includes most movable goods), the movement of goods for processing (when no change of ownership occurs), the value of repairs on goods (not the value of goods undergoing repair), and goods procured in ports by non-resident carriers.

Customs data need to be supplemented with additional information to help produce the data required for national accounts and balance of payments purposes. The additional information includes:

• Certain goods (for example goods for repair) excluded from the detailed official trade statistics. These goods need to be recorded separately, so that these detailed statistics may be adjusted to derive international merchandise trade totals for the national accounts and the balance of payments.

• A separate collection of data on freight and insurance: for merchandise trade statistics imports are valued C.i.f., whereas for the balance of payments, imports are valued F.o.b. Exports are valued F.o.b. in both frameworks.

• Timing differences: according to the balance of payments methodology, the change of ownership is the principle determining the coverage and time of recording of international transactions in goods, whereas for international merchandise trade statistics the principle is based on the physical movement of goods. This introduces a possible time lag between the recording of an export and that of the corresponding import.

• Other sources where the relevant transactions are not subject to customs controls (*e.g.* intra-EU merchandise trade is recorded using an enterprise survey).

• The conceptual differences between merchandise trade and balance of payments data inevitably lead to statistical differences.

In 1999, OECD merchandise imports were some 2% higher than the aggregate reported under the balance of payments, while the difference for exports was negligible at only 0.2%. However, this "netting out" at OECD level masks considerable differences at country level. Over half of OECD countries reported differences between 1% and 5%, eleven countries showed differences in excess of 5% and only three countries less than 1%.

Trade in services

How is trade in services measured?

Measurement of trade in services is inherently more difficult than measurement of trade in goods. The intangibility of services makes them difficult to define. Although some services may be defined through their physical function – *e.g.*, transport or hotel services – others are conceptually more abstract such as consultancy or education. Unlike trade in goods, trade in services involves no package crossing the customs frontier with accompanying documentation showing an internationally recognised commodity code; a description of the contents; information on quantity, origin, and destination; an invoice; and an administrative system based on customs duty collection which facilitates data compilation. Obtaining the required information on services trade, once defined, is dependent on and limited by the extent of the common international understanding of concepts by statisticians and data providers.

Methods of data collection can be described in terms of six main types of sources: international transactions reporting systems (mainly from central banks); surveys of enterprises; surveys of households, administrative data; government data; and information obtained from partner countries and international organisations. These may be supplemented by modelling and estimation techniques.

The recommended method of measurement of trade in services in the OECD is currently based on the principles of the BPM5 concerning recording of service transactions between residents and non-residents of an economy. These transactions may be broken down according to the Joint OECD-Eurostat Trade-in-services classification.

Goods or services?

The case of international e-commerce

The possibility of electronic delivery of certain goods and services raises a number of boundary and measurement issues. In particular, so-called "digitized" products (e.g. printed matters, sound, film, and software) increasingly cross borders as data files instead of being physically stored on a CD, a tape or diskette. International discussions continue to determine whether or not such transactions are to be considered as goods or as services.

These borderline issues are not simply statistical; amongst other things, the classification of digitized products as goods or services is also relevant in trade negotiations as different agreements apply to goods and services.

The case of software is particularly interesting, offering various interpretations according to how it is traded. The total OECD market for packaged software in 1999 was estimated at about 146 billion USD and annual growth rates in recent years are estimated to be in excess of 10% (source: International Data Corporation). Overall data on international trade in software, which may be traded as a good or a service, are currently not available mainly due to measurement problems[1] in trade in services.

1. These measurement problems are currently being investigated by the OECD Working Group on the Measurement of Software in the National Accounts.

Selected components of G7 trade in services

G7 Major components of services exports	$US billion 1999		Average annual % change 1995–99	
	Exports	Imports	Exports	Imports
Total Services	697	687	3.3	2.8
Transportation	145	174	-0.1	0.4
Of which:				
Sea	41	63	-4.4	-3.4
Air	68	74	2.3	3.1
Travel	203	226	3.3	3.0
Communications services	13	19	7.9	4.3
Insurance services	16	15	6.6	-0.8
Financial services	36	15	13.7	6.9
Computer & information services*	14	11	15.5	14.3
Royalties & license fees	59	40	5.4	6.9
Other business services	152	139	5.9	4.8
Other services	60	49	-1.1	2.1

* growth based on average 1996-99

Source: OECD-Eurostat, *OECD Statistics on International Trade in Services*, 2001.

Relatively few complete data are available by type of service for OECD as a whole. The fastest growing G7 service exports in the period 1995-99 were computer and information services, financial services and communications services. Similarly, in the same period the fastest growing G7 service imports were computer and information services, financial services, royalties and license fees. For both G7 exports and imports, sea transport services payments contracted the most in the period 1995-99.

The new Manual on Statistics of International Trade in Services

The General Agreement on Trade in Services (GATS) in 1995, which was the first global trade agreement on trade in services, and the current GATS 2000 negotiations have prompted a much greater need for detailed, relevant and internationally comparable information on trade in services by type of service, by mode of delivery and by direction of trade flows. Such information is needed to monitor agreements and facilitate ongoing negotiations.

As a first step in response to this need and the wider needs of government, business and analysts an interagency task force,[6] authorised by the UN Statistical Commission (UNSC) and convened by OECD, has produced a Manual on Statistics of International Trade in Services[7] (*Manual*). The *Manual* has benefited from the advice of national experts, specialist consultants, statistical compilers, trade negotiators, business representatives, policy makers and analysts in all regions of the world and various international agencies.

The aim of the *Manual* is to provide a coherent conceptual framework within which countries can structure the statistics they collect and disseminate on international services trade. It recommends a number of core and additional data items to be implemented over time, and in doing so recognises the constraints under which statistical compilers operate and the need not to burden data providers unduly. In order to facilitate countries' adoption of this framework, it builds on existing standards for compilation, in particular the BPM5 and the SNA 1993.

The *Manual* describes four modes through which services may be traded internationally. It does so by considering the location of both the supplier and consumer of the traded service. These four modes are summarised as mode 1 or cross border supply; mode 2, consumption abroad; mode 3, commercial presence; and, mode 4 or presence of natural persons. Chart 2 (see next page) describes these modes further. Recommendations are made in the *Manual* on the attribution of service transactions across the modes of supply.

A broader view of services

The *Manual* is innovative in that it takes both a broader and a more detailed view of international trade in services than the conventional balance of payments perspective set out in BPM5. It provides a more detailed classifi-

4. Commission of the European Communities, International Monetary Fund, Organisation for Economic Co-operation and Development, United Nations, and World Bank, System of National Accounts 1993 (Brussels/Luxembourg, New York, Paris, Washington), 1993.

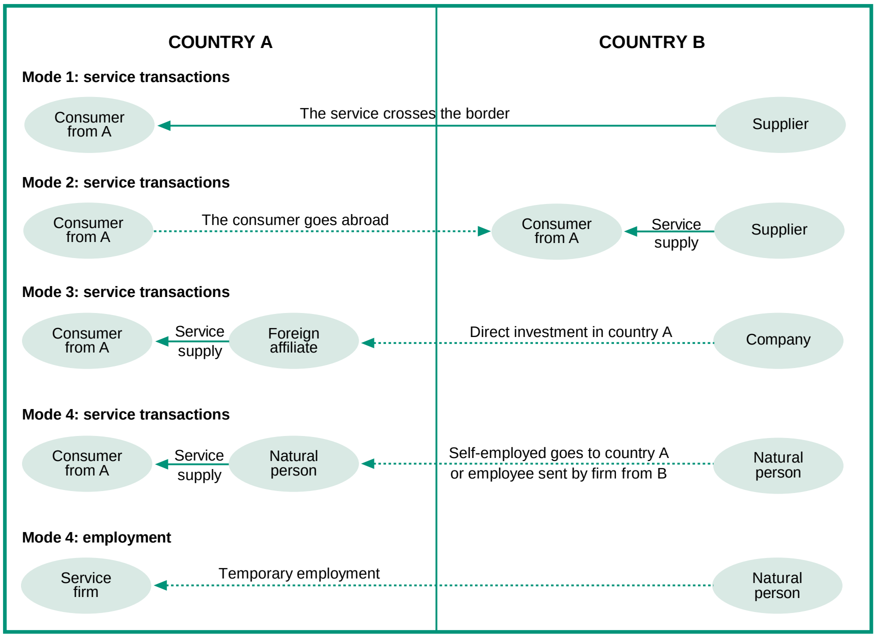
5. International Monetary Fund, Balance of Payments Manual-Fifth Edition (Washington D.C.), 1993.

6. The Interagency Task Force comprises representatives of Eurostat, IMF, OECD, UN, UNCTAD and WTO.

7. The final unedited draft of the Manual is available at www.oecd.org/std/its, choose International Trade in Services and then click on Manual on Trade in Services.

cation of services delivered through conventional trade between residents and non-residents than is contained in BPM5, includes a treatment of local delivery of services through a foreign commercial presence and takes a first step toward linking these two systems. Links to existing statistical frameworks are described and correspondences provided between the classifications used in the *Manual*.

Chart 2. **The four supply modes of international trade in services**



Building on the BPM5 framework, the *Manual* recommends extending the classification of transactions by type of service to provide more detail through the Extended Balance of Payments Services (EBOPS) classification. This is also a disaggregation of the Joint OECD-Eurostat classification.

As well as providing services by way of trade between residents and non-residents of an economy (measured in balance of payments statistics), enterprises in an economy may also supply services internationally through the activities of foreign affiliates abroad. The *Manual* recognises this in its recommendations for foreign affiliate trade in services (FATS) statistics. Included are recommendations on (1) the selection of foreign affiliates to be covered (which follows the definition of foreign-controlled enterprises used in the 1993 SNA)[8]; (2) the attribution of FATS statistics by principal activity and (if possible) by product; and (3) the variables to be compiled. While FATS statistics are less well-developed than the balance of payments statistics, some statistics for foreign-owned affiliates in the compiling economy may be found in, or derived from, existing statistics on domestic production and others may be developed from data sources on foreign direct investment.

For both resident/non-resident trade in services and foreign affiliate trade in services the *Manual* recommends the compilation of statistics on trade by partner country.

One area in which the *Manual* moves beyond existing statistical frameworks is in the case where services in one country are provided by individuals (or natural persons) from another country moving to the first country on a non-permanent basis to take up employment. This area, which is part of mode 4, is one in which countries make commitments in trade agreements, and while some statistics on work related payments are included in balance of payments statistics, there is a need for further development of statistics in this area. The relevance of currently available statistics on the employment and associated movements of foreign nationals are discussed.

Although it is an important first step, the *Manual* identifies the need for further work in a number of areas. These include compilation guidance, improving the classification and descriptions of certain services such as internet related services, and the development of a framework for the measurement of the movement of natural persons and associated payments in relation to trade in services. In a longer time frame it is desirable that the links be reviewed and strengthened between classifications of services activity and products on the one hand, and classifications of international trade in services between residents and non-residents on the other.

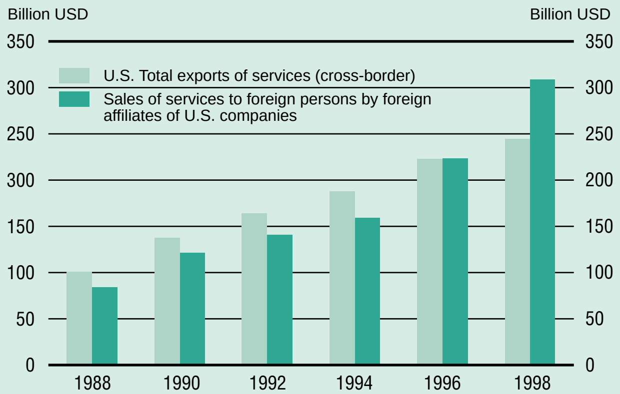
The *Manual* was approved by the UNSC in March 2001 as an international manual and a joint publication by the six international agencies is being prepared for around the end of 2001. The participating agencies are co-operating to promote the *Manual*'s recommendations. As part of this co-operation this year, OECD began collecting data on trade in services by partner country, with a view to publication in 2002.

8. This is implemented statistically as covering affiliates that are majority-owned by a direct investor.

Growing importance of Foreign Affiliates in trade in services

GATS is far less comprehensive and more discretionary than GATT. More fundamentally, for many services a physical proximity between supplier and customer is essential, e.g. hotels, hairdressing and industrial cleaning. It is also one of the characteristics of nearly all entities normally described as services that they cannot be traded separately from their production. Consequently many service producers find it necessary to establish a commercial presence through a foreign affiliate in countries they wish to trade in, in order to be close to their customers. Foreign affiliates' trade in services data are developing apace, but there is as yet a limited availability internationally. However the importance of FATS trade has been growing rapidly and data from the U.S. show that the sales of majority U.S. owned service affiliates outside the U.S. now exceed U.S. service exports - see chart below. Similarly, the service sales of majority foreign-owned affiliates in the U.S. exceeded U.S. service imports in 1998.

US outward FATS sales versus service exports



Source: Bureau of Economic Analysis, U.S. Department of Commerce, *U.S. International Services: Cross-Border Trade and Sales Through Affiliates 1986-99,* 2000.

Glossary

FATS: Foreign Affiliates Trade in Services statistics measure the commercial presence abroad of service suppliers through affiliates in foreign markets, and therefore are closely related to statistics on foreign direct investment. Data on the activities of majority-owned foreign affiliates in the compiling economy are usually referred to as inward FATS, and those relating to majority-owned foreign affiliates of the compiling economy that are established abroad are referred to as outward FATS. FATS statistics cover a range of variables that can comprise some, or all, of the following: sales (turnover) and/or output, employment, value added, exports and imports of goods and services, number of enterprises, etc.

GATT: the General Agreement on Tariffs and Trade is an international agreement setting out the rules for conducting international trade in goods and also consists of protocols and certifications relating to tariff concessions. It is also the name of an international organisation created to support the previous text of the agreement (GATT 1947). Following the Final Act of the 1986-1994 Uruguay Round of trade negotiations, the GATT organisation was replaced by the WTO (World Trade Organisation). The WTO covers the amended GATT agreement (GATT 1994), trade in services (GATS, see below) and trade related aspects of intellectual property rights (TRIPS).

GATS: the General Agreement on Trade in Services establishes a set of rules and disciplines governing WTO (World Trade Organisation) member countries' use of trade measures in services. Such measures consist of laws, regulations, administrative actions and decisions affecting the purchase, payment, or use of a service or the presence of foreign service suppliers.

FDI: Foreign direct investment is the category of international investment that reflects the objective of a resident entity in one economy to obtain a lasting interest in an enterprise resident in another economy.

OECD trade databases

The OECD Secretariat provides a complete set of databases/publications on trade statistics. These reliable sources of annual and monthly data provide detailed statistics for each individual OECD Member country and zone totals as well as definitions and methodological notes. All publications are available on paper and electronically (CD-ROM and on line at **www.SourceOECD.org**). For more information, refer to **www.oecd.org/std/its**.

• INTERNATIONAL TRADE BY COMMODITY STATISTICS
The International Trade by Commodity Statistics database is a unique and reliable source of yearly statistical data on imports and exports. It provides detailed data in value and quantity by commodity and by partner country.

• MONTHLY STATISTICS OF INTERNATIONAL TRADE
This reliable and up-to-date source of statistics on international trade of OECD countries provides a detailed insight into the most recent trends in trading patterns for OECD countries with the rest of the world. Data are broken down by economic groupings, by country and by region, and include seasonally adjusted series as well as calculated indicators.

• OECD STATISTICS ON INTERNATIONAL TRADE IN SERVICES
This joint OECD-Eurostat publication includes statistical data on international trade in services. The data are based on the BPM5 and the OECD-Eurostat Classification of Trade in Services.

Related databases

(available on line (**www.SourceOECD.org**) or on CD-ROM

- International trade and competitiveness indicators, OECD, 2001
- International Direct Investment Statistics Yearbook, OECD, 2000
- Tariffs and Trade: the OECD query and reporting system, OECD, 2001

Further information

- OECD Benchmark Definition of Foreign Direct Investment - Third edition, OECD, 1996
- Trade in Services: Negotiating Issues and Approaches, OECD, 2001
- Environmental Goods and Services: The Benefits of Further Global Trade Liberalisation, OECD, 2001
- Post-Uruguay Round Tariff Regimes: Achievements and Outlook, OECD, 1999
- Measuring Globalisation: The Role of Multinationals in OECD Economies, Volume II - Services, OECD, 2001 (forthcoming)

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