

NBER WORKING PAPER SERIES

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Working Paper 16273
<http://www.nber.org/papers/w16273>

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
August 2010

We are grateful to the Ontario Research Fund for financial support, and to Xiaojun Shi, Nick Crafts and participants at a seminar at CIGI for helpful comments. The views expressed herein are those of the authors and do not necessarily reflect the views of the National Bureau of Economic Research.

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NBER Working Paper No. 16273
August 2010
JEL No. F1

ABSTRACT

Because of the differing forms that international agreements on trade in goods and trade in services take in the GATT (1994) and the GATS there is an incompatibility between measures of world trade in goods and services. Measures of goods trade reflecting GATT (1994) are restricted to trade that crosses borders. Service trade, however, under GATS mode 3 (commercial presence) includes both cross border delivery and foreign affiliate sales within borders. As a result, present comparisons of services and goods trade, as in WTO (2007), are unsatisfactory. One can further argue that our perceptions of the degree of integration in the global economy are likely ill formed, and for comparability the trade component of affiliate sales in goods should be included in goods trade or affiliate sales should be removed from service trade data.

Here, we make modifications to reported goods and services trade for specific countries where this is possible by using data on affiliate sales in both goods and services to produce more consistently measured cross country estimates of trade flows. This allows us to compare combined total goods and services trade both over time and across countries, as well as growth rates of trade, trade imbalances and the relative size of trade in goods and services. We use three different statistical bases for measures. One of them is the present mixed GATT and GATS basis; another is trade including foreign affiliate sales, and a final one excludes foreign affiliate sales. Perceptions both on the combined size of country goods and services trade as well as their relative size change a lot using these three measures. We finally draw conclusions and offer policy implications.

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1. Introduction

As integration of global economy deepens and more cross border multinational activity occurs, traditional cross-border trade statistics do not fully capture all of the forms of trade involved. In the services area, this is acknowledged to be the case for commercial presence service activities (for example, banking services provided by, say, a U.S. owned bank in country X to intermediate between residents of country X), but is also the case with goods related activities (McDonalds may sell hamburgers in Germany using German meat and buns, but uses US knowhow, branding and organization).

In recent years, some international organizations (UNCTAD, WTO, IMF, OECD, etc) and countries (US, Japan, Germany, UK, etc) have begun to focus on foreign affiliate service activities, and they regularly collect and issue service related statistics capturing these, called foreign affiliate trade statistics (FATS). The FATS makes it possible to obtain a reasonably accurate picture of the commercial presence component of trade in services. But one can argue that trade in goods should also include a portion of foreign affiliate sales (FAS) as it also forms part of goods trade similar to commercial presence in services. Seemingly, accounting for commercial presence in services data but excluding it from goods trade only reflects the difference between GATT (1994) for goods and the GATS for services, not any meaningful economic logic.

The paper explores both the statistical importance of FAS in both trade in services and goods and how our perceptions of the role of trade in the world

economy may be altered by different treatments of FAS. If the argument is accepted that FAS should either be partially included in goods trade to achieve consistency across the separate sets of goods and services trade data or alternatively removed from services trade data, then adjustments to available data are needed. Some countries' services trade data (most notably U.S., Japan, and Germany) already include both deliveries of services across borders and sales by foreign affiliates from commercial presence. And data on FAS in goods is available from information on foreign affiliate activity from the OECD database. For consistent accounting and comparison of goods and service trade, either commercial presence should be accounted for in goods trade data or services data should have it removed.

We use data for USA, Japan, Germany, Finland and Czech Republic only to produce initial estimates of more consistent goods and services trade data. For these countries, the underlying information needed is available for their cross-border trade in both services and FAS, while for others it is not. We do not label this as fully consistent goods and services as the basis for foreign affiliate transactions differs between goods and services, but we suggest what we report is more consistent data. In addition, we are able to use these data to assess how perceptions of the role and size of trade in the world economy might be affected by such adjustments. We focus on the size of country total trade in goods and services, the growth rate of trade, trade imbalances and the relative size of trade in goods and services.

We explore the implications for each of the use of different consistent statistical measures using both the present mixed GATT and GATS basis, as well as consistently including or excluding FAS in both goods and services trade. We find that perceptions of the importance of trade in the dimensions above using three different measures change sharply, as FAS have become an important part of both trade in goods and services. If we either add or remove foreign affiliate sales to traditional cross-border trade in both goods and services, perceptions of the trade situation change substantially for each country. This size of trade increases sharply, imbalances can change in sign, and growth rates change.

Earlier literature has noted the potential importance of foreign affiliate sales in goods. This includes Zeile (1993), GAO (2005), Hausmann and Sturzenegger (2006). However, outside of these papers, we find no other discussion of this issue, and none which explores, as here, the use of data on commercial presence for trade in goods in ways which mirror that in services.

The paper is organized as follows. Part 2 discusses background to the treatment of FAS in service and goods trade data. In part 3, we present our procedures for calculating FAS trade data for the group of countries with available data. Part 4 presents results for recalculations of country total trade, the growth rate of trade, trade imbalances, and the relative size of goods and services trade on different statistical bases. A final section offers our conclusions.

2. Foreign Affiliate Sales and Trade Statistics

Traditionally, trade in goods is recorded as the physical movement of goods across borders and import and export data on trade in goods are obtained from customs clearance data. But for services, this treatment cannot capture all modes of service delivery covered by the WTO General Agreement on Trade in Services (GATS) since data on GATS mode 3 (commercial presence) is missing under such an approach. At present, for several countries commercial presence trade in services via foreign affiliate sales data may or may not be included. Importantly, it is included for such large economies as the US and Germany. The result is the use of different bases both across goods and services and across countries for the two sets of trade data. Data on the growth rates of goods and services trade using current conventional measures are shown in Figures 1-3.

[Figures 1-3 around Here]

It is the growth in both types of trade and the potentially distorted perceptions that follow that makes this issue important. For many advanced economies, services contribute more than 70% of GDP and employment (OECD, 2005b). Many developing countries are now embarked on a path of industrialization with a growing role for services. This has been accompanied by discussion of new trade liberalization in services and in 1994 the initiation of GATS in the WTO. International trade has grown faster than global GDP in recent decades. With this growth, service's contribution to the global economy has also grown.

Existing measures of trade in services are based on classifications used in GATS and these involve four modes of service delivery, i.e., cross-border supply, consumption abroad, commercial presence and presence of natural persons. Table 1 reports the statistical coverage for the four GATS modes of services trade. GATS treatment of services thus captures more trade related activities for services than is true of GATT based measures of trade in goods.

Statistics based on modes of service delivery pose challenges for data collection and statistical methodology (Lipse, 2006), and by extension, the comparability of trade in goods and trade in services which we emphasize here. Services are often regarded as different from goods and largely non-tradable and having the characteristics of intangibility, non-storability, proximity and simultaneity of production and consumption. But for core services (banking, insurance, transportation, retailing, wholesaling), their intermediation role across time, space, and risk is key.

[Table 1 around Here]

An inter-agency task force headed by the UN statistics division with participation for international organizations including OECD, IMF, UNCTAD, WTO and Eurostat was formed in 2002 to meet the need for a more accurate picture of the size of trade in services and published the “Manual of Statistics of International Trade in Service” (UN, 2002 and 2010; Arkell, 2002). This manual recommends that data on trade in services should include both “detailed presentation of trade in services data on balance of payments basis”, and “the

compilation of statistics covering the overall activities of overseas affiliates and others". The former lead to the adoption of separate EBOPS (Extended Balance of Payments in Service) data for trade in services, and the latter to the separate compilation of foreign affiliate trade statistics (FATS). The idea was that EBOPS and FATS data could then cover almost all service delivery through the four GATS modes.

Foreign affiliate trade statistics (FATS) (also known as transnational corporation (TNC) data) cover the service operations of foreign direct investment-based enterprises. FATS data include sales, expenditures, profits, value-added, exports and imports, employment and inter and intra firm trade. Also, FATS is divided into an inward and outward component. Inward FATS reflect the operations of foreign-owned firms (in the FDI sense, of a minimum of 10% of book value) in the local economy or country. Outward FATS reflect the operations of firms abroad which are owned by a firm in the home-country (owned in the FDI sense, of involving a minimum of 10% of book value). So far, UNCTAD, OECD, EUROSTAT collect and publish FATS data. Progressively more countries are publishing this data, including the US, Canada, Japan, France, Germany, UK, Italy, and Finland.

FATS data provide a basis for measuring commercial presence and hence total trade in services. The justification of including FAS in service trade is based partly on service features, but also because FDI is considered to be a channel for the delivery of services (OECD, 2001 and 2005a; Eurostat, 2007).

The argument is that the development of modern technology, especially information and telecommunication technology, has weakened the claimed distinguishing features of services since more and more services are becoming tradable. Also, deregulation of cross border investment and the search for more efficient use of global resources has spurred the growth of sales of goods through relocated production. Foreign investment has thus become an alternative to cross-border trade in the delivery of goods to consumers, especially for large developed countries such as U.S. and Japan (GAO, 2005).

Thus, in order to accurately assess the significance of trade in both goods and services in the modern global economy one must seemingly inevitably include some treatment of foreign affiliate trade in both portions of the trade data. Present WTO GATT and GATS based procedures only produce FAS data in services, which creates a statistical inconsistency when included in services data. Ideally, trade in both goods and services should be collected either on a conventional BOP basis or on a combined BOP and FATS basis. The presently available combination of BOP goods and FATS services trade according to GATS seems potentially misleading for comparative purposes insofar as trade in goods is under reported.

3. A Methodology for Calculating Both Cross-Border and FAS Measures of Trade in Both Goods and Services

To obtain data on FAS in goods trade, the natural approach is to mimic services data. But even data on trade in services using EBOPS and FATS encounter consistency problems. First, BOP data is based on a residency basis, while FATS data is based on the location of direct investment. This difference can cause miscalculation of trade in certain cases and can lead to mismeasurement in overall service trade if EBOPS and FATS are simply combined (Eurostat, 2007). Second, data on cross-border service flows are classified by type of service, treating both sales and purchases alike, whereas data on sales of services through affiliates are classified on the basis of primary industry of affiliates, measuring only affiliates' sales, but without their purchases. Since it is difficult to collect data on specific types of services sold by affiliates (thus far, these data have not been collected by any country), this can make service-by-service comparisons between EBOPS and FATS difficult (Arkell, 2002). Furthermore, the recording of sales without purchases through affiliates does not provide a complete picture of service activities and their economic impacts (Bensidoun and Deniz, 2008).

Similar issues arise with trade in goods if one attempts to add foreign affiliate sales to current cross-border trade data. By way of example, if McDonalds sells their hamburgers in Germany and use Germany meat and flour, the knowhow, branding and organization are of US origin. If we add all

Macdonald's foreign affiliate sales to US cross-border trade data, this will exaggerate the FAS component of trade, but to exclude it totally also seems inappropriate.

To construct FAS data seemingly implies using a weighting scheme to avoid exaggerating FAS, and we later use alternative weights based on foreign affiliate sales, value added value, and profits. We first give sales a 0.5 weight in calculating FAS in trade in goods and compare the results to available data. To combine goods data with data on services, we obtain FATS data from OECD statistics, EU statistics, a pilot survey item of Eurostat, the UNCTAD FDI/FATS database, and the US BEA database. Cross-border EBOPS data can be easily obtained from the UN or WTO database.

In the calculations of goods trade including FAS we report later, we use specific countries' industrial division foreign affiliate activities data from an OECD database (OECD, 2010), since OECD's inward and outward foreign affiliate activity data are reported by industry sector division on a UN international standard industrial classification basis (ISIC Rev.3). This allows us to use data for both the goods and services parts of this data according to an ISIC classification.

The procedure we use is to first collect specific countries' industrial data of foreign affiliate sales, value added and profit from the OECD database. Then, according to ISIC codes, we add all of the goods trade related industries data together as FAS of goods, and then add all of the services trade related

industries data together as FAS of services. Table 2 lists the detailed classification division we use in doing this. OECD foreign affiliate activities data use specific national currencies as their reporting units, so we use average yearly exchange rates to convert all this data to US dollars.

[Table 2 around Here]

We take one country's outward foreign affiliate activities as its foreign affiliate exports, and inward foreign affiliate activities as its foreign affiliate imports. We use four different activities to represent alternative measures of exports and imports in value terms in different calculations. These are sales (equal to turnover in the database), value added, profits (equal to gross operating surplus in the database), and sales with a 0.5 weight. Generally, the value of sales does not accurately measure FAS. As we mention above, all production of US McDonalds' hamburgers in Germany are not of US origin, and if we use the whole sales value as US FAS it exaggerates. To take account of this, we also use value added, profits and sales as proxies for FAS. Value added eliminates intermediate costs, and so reduces host countries' cost contributions to FAS. Profit represents the net income of multinational enterprises after all costs of production, and it shows multinational firms' returns which may be related to FAS.

The FAS weight we use to represent host country contributions to such sales is 0.5 of total sales. However, we also make calculations using full FAS on the grounds that for some countries component imports from third countries are

involved, which in turn are produced by affiliates of host country counterparts. Foreign affiliate exports of goods are thus alternatively taken as equal to 0.5 times total outward affiliate sales, full total outward affiliate sales, value added or profits of outward FDI activities in goods industry (ISIC, Rev.3 industry 01-45). Imports equal similar inward activities for goods industries. Table 3 summaries these treatments we use in alternative calculations.

[Table 3 around Here]

After obtaining cross-border and FAS goods and services trade data, we then focus on how four perceptions of the role of trade in individual national economies are affected. These are the size of total goods and services trade, the trade growth rate, trade imbalances and the relative size of trade in goods and services. We contrast the perceptions of each of these for the individual countries we have data for using three different statistical bases; the current mixed GATT and GATS basis, a FAS inclusive basis and a FAS exclusive basis. The GATT and GATS basis denotes the calculations of goods trade under GATT rules and services trade under GATS rules that appear in WTO reports. The FAS inclusive basis denotes both goods and services trade including FAS. The FAS exclusive basis denotes both goods and services trade without FAS data.

4. Some Specific Results of Important Trade Topics with FAS

We use data for five countries (USA, Japan, Germany, Finland and Czech Republic) as individual country cases to calculate total goods and services trade, trade growth rates, trade imbalances and the relative size of trade in goods and services using different bases. The choice of these countries reflects data availability. Tables 4 to 11 report the results.

[Tables 4–11 around Here]

Several striking features emerge from these tables. First, total trade in goods and services by country changes substantially if we use different statistical bases. For the US, if we take sales as FAS, total trade inclusive of FAS is nearly 3 times that on a FAS exclusive value. If we use value added and profit as FAS, FAS inclusive total trade is nearly 1.5 times that on a FAS exclusive basis. This is reflective of the feature that the US has substantial multinational activity abroad which can substitute for exports.

Japan, Germany, Finland and Czech Republic also have large numbers for FAS and thus experience similar effects on measures of their trade. Their FAS inclusive value of total trade is more than 2 times of FAS exclusive trade if we use sales as FAS. Japan has large multinational enterprises in key industries such as auto and electronics. Germany also has many multinational enterprises operating abroad. Finland's FAS reflects foreign investment by metal, forest and electronic industries of which NOKIA is a key element. The Czech Republic has been a recipient of large inflows of foreign investment following its entry into EU,

which has greatly increased its inward FAS. These calculations thus suggest that FAS in goods are potentially a large part of total trade, and trade itself globally may be much larger than currently thought.

Second, using these measures annual growth rates of total trade in goods and services in different countries under different statistical bases may all be higher than a GATT/GATS basis would suggest. In the US, the average trade growth rate from 2004 to 2007 under different bases varies between 11.7% and 12.9%; higher than economic growth. Japan's average trade growth rate varies between 10.8% and 12.1% under different bases. Germany, Finland and Czech Republic have comparatively higher average growth rates, separately about 14.3%, 17.4% and 24.7%. Finland and Czech Republic have especially more rapid trade growth rate because of their small size and export-oriented economic development strategy. These features all reflect more rapid FAS growth than is the case for conventionally measured cross border trade in goods.

Third, the relative size of trade in goods and services changes a lot under different bases for each of the countries we consider. For the US, if we take sales as FAS, the average relative size on a FAS inclusive basis is 1.43; but this is 3.68 using a FAS exclusive basis; and 0.66 for a GATT and GATS basis. These large differences change if we use value added or profits as FAS, but do not change as much as the size of trade. In Japan, Germany and Czech Republic, a FAS basis is larger than cross-border trade, and the relative size of trade in goods and services is sharply different under different statistical bases. Big changes also

occur for Finland. Thus if we measure goods and services trade on a GATT and GATS basis as at present, we may miss much of the trade involved.

Lastly, imbalances in trade are different under the different bases. For the US, the size changes when we use sales as FAS. The average FAS exclusive balance is a deficit of \$-698 billion, but the average FAS inclusive balance is a surplus of \$477 billion, and the average GATT and GATS basis balance is a smaller deficit of \$-356 billion. If we use value added and profits as FAS, the total FAS value decreases. All of the measures under different bases become trade deficits but the amounts are different also. Although the US has a large trade deficit in cross-border trade, its FAS moves trade measures into a surplus and sharply reduces the total imbalance.

These features of the recalculated goods and services trade data all reflect the deepening international division of labor which has prompted US and other OECD firms to invest and operate abroad in recent years. The Japanese, German and Finnish average trade balance from 2003 to 2007 increases respectively by more than 20 times, 4.8 times and 11.9 times when we add FAS to cross-border trade since these three countries have large foreign direct investments and large foreign affiliate sales. The Czech Republic is a special case since its average trade balance is a surplus of \$2.2 billion on a FAS exclusive basis, but after adding FAS the trade situation changes to a deficit of -\$150.6 billion if we use sales as FAS. The reason is the substantial inflow of foreign investment into the Czech Republic from 2000 following its accession to the EU.

5. Implications and Concluding Remarks

As both integration of world economy and trade liberalization proceed, multinational firms organize more of their production, sales and services abroad. As a result, foreign affiliate activities become a progressively more important part of the international economy. Trade data collected on a current account basis takes a residency-based view of trade, that is, it measures the physical flow of goods and services across a nation's borders, regardless of the nationality or the ownership of parties on either side of the transaction. In the 1940s when GATT based measurements of trade were formalized and national trade and balance of payments accounting methodologies were created, few companies had operations outside the home country. Imports were goods produced by foreign companies, exports by domestic ones.

To fully capture commercial presence and more accurately calculate trade flows, international organizations and countries have begun to collect and publish foreign affiliate activities sales data. Such data opens the way to calculate commercial presence trade data. Here we argue that trade in goods as well as services should include a FAS part, and, if only trade in services has an added FAS part as at present, we cannot compare goods and services trade because of the statistical inconsistency.

It is finally worth noting that global trade imbalances are an important area of global debate impacted by this statistical issue, in turn affecting potential contemporary G20 dialogue and cooperation. Many of the G20 countries

including US, China, Japan seek to reduce trade imbalances, but if we take account of the FAS, the imbalance situation changes sharply. Presently measured global imbalances in cross-border trade may thus misrepresent the real situation and raises the issue of whether global G20 efforts are only stabilizing inaccurate statistics, not the real global economy. According to our calculations, the US may actually have a trade surplus or a small deficit and Japan, Germany and Finland may have much larger trade surpluses than at present. It may thus be useful for G20 countries to be aware of these measurement issues.

As economic integration further accelerates in the years ahead, trade statistical methods will need even more to change accordingly. Traditional cross-border trade has gradually been substituted by foreign direct investment over the last few decades, because of production segmentation and further international division of labor following increased multinational firms production and operations abroad. Additionally, they now have separate parts of their production abroad firms through outsourcing. We suggest here that statistical recording of international trade now also needs to respond, and we are able to make some initial calculations to reflect this. They in turn affect (and in some cases sharply) our perceptions on the size, role, and speed of change of trade.

Table 1 The Four Modes of GATS Trade in Services and Their Statistical Coverage (including FATS)

MODE	STATISTICAL COVERAGE
1. Cross-border Supply	<u>BOP</u> : transport (for the most part) (205), communications services (245), insurance services (253), financial services (260), royalties & license fees (266), part of computer and information service (262), other business services (268) and personal, cultural & recreation services (287).
2. Consumption Abroad	<u>BOP</u> : travel and tourism (236), repairs in foreign ports, part of transport (852).
3. Commercial Presence	<u>BOP</u> : Part of construction services (249). <u>FATS</u> : services classified by ISIC industry branch.
4. Presence of Natural persons	<u>BOP</u> : part of computer and information services (262), other business services (268), personal, cultural & recreation services (287), and construction services (249), compensation of employees (310). <u>FATS</u> : expatriate employment in foreign affiliates. <u>Other sources</u> : statistics on migration, employment, etc.

Source: Manual on Statistics of International Trade in Services, 2002, P.24

Table 2 The International Standard Industrial Classification (ISIC Rev.3) Codes Used in Our Data Analysis

Classification	Industries	ISIC Rev.3
Goods	Agriculture, Hunting, Forestry, and Fishing	01+02+05
	Mining and Quarrying	10-14
	Total Manufacturing	15-37
	Electricity, Gas and Water Supply	40-41
	Construction	45
	Total Goods	01-45
Service	Wholesale and Retail Trade, Repair of Motor Vehicles and Personal Goods	50+51+52
	Hotels and Restaurants	55
	Transport, Storage and Communications	60-64
	Financial Intermediation	65+66+67
	Real Estate Renting and Business Activities	70-74
	Other Community and Personal Services	75+80+85+90-99
	Total Services	50-99
Total	Grand Total	01-99

Sources: UN statistics website (<http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=2>) and Bensidoun and Deniz (2008), p36.

Table 3 Methods Used in the Calculation of Foreign Affiliate Sales

NAME	SORT	Data Source (OECD)	Calculation Methodology
Affiliate Sales in Goods	Outward (Export)	Outward activity of multinationals by industry sector-ISIC Rev3	Sum (turnover/value added/gross operating surplus of goods industry, ISIC3 01-45)
	Inward (Import)	Inward activity of multinationals by industry sector-ISIC Rev3	Sum (turnover/value added/gross operating surplus of goods industry, ISIC3 01-45)
Affiliate Sales in Services	Outward (Export)	Outward activity of multinationals by industry sector-ISIC Rev3	Sum (turnover/value added/gross operating surplus of goods industry, ISIC3 50-99)
	Inward (Import)	Inward activity of multinationals by industry sector-ISIC Rev3	Sum (turnover/value added/gross operating surplus of goods industry, ISIC3 50-99)

Source: Compiled by Authors

Table 4 Yearly Total Trade in Goods and Services Averaged Over The Period 2003-2007

Unit: Billions US Dollar

Country	Basis for Calculation	Sales Using FAS	Sales Using FAS with 0.5 Weight	Value Added as FAS	Profit as FAS
US	GATT and GATS Basis	6615.461	4975.198	3651.396	3568.267
	FAS Inclusive	9708.361	6521.648	4070.564	3659.609
	FAS Exclusive	3334.935	3334.935	3334.935	3334.935
Japan	GATT and GATS Basis	2172.681	1760.400	1610.160	1374.074
	FAS Inclusive	2977.192	2162.655	1865.033	1423.143
	FAS Exclusive	1348.119	1348.119	1348.119	1348.119
Germany	GATT and GATS Basis	3463.171	2753.133	—	—
	FAS Inclusive	4781.562	3412.329	—	—
	FAS Exclusive	2043.095	2043.095	2043.095	2043.095
Finland	GATT and GATS Basis	239.516	200.479	—	—
	FAS Inclusive	398.676	280.059	—	—
	FAS Exclusive	164.074	164.074	164.074	164.074
Czech Republic	GATS Basis	264.950	226.034	203.245	—
	Including FAS	351.149	269.133	221.472	—
	Excluding FAS	187.117	187.117	187.117	187.117

Notes: A GATT and GATS basis means trade in services includes cross border trade and FAS, but trade in goods only includes cross border trade; FAS inclusive means both trade in goods and trade in services include FAS and cross border trade; FAS exclusive means both trade in goods and trade in services only includes cross border trade. “—” denote lack of data.

Sources: Cross-border goods trade data come from UN database; Cross-border service trade data come from OECD database; Affiliate sales data collected and calculated from OECD database; Exchange rates come from foreign exchange average converter (<http://www.oanda.com>).

Table 5 Annual Growth Rate of Country Trade in Goods and Services Averaged over The Period 2004-2007

Unit: %

Country	Basis for Calculation	Sales Using FAS	Sales Using FAS with 0.5 Weight	Value Added as FAS	Profit as FAS
US	GATT and GATS Basis	12.4177	12.2381	11.8780	12.6273
	FAS Inclusive	12.3428	12.2240	11.7141	12.9038
	FAS Exclusive	11.8921	11.8921	11.8921	11.8921
Japan	GATT and GATS Basis	12.1821	11.9953	12.1259	11.7455
	FAS Inclusive	10.8834	11.1392	11.8674	11.5970
	FAS Exclusive	11.7155	11.7155	11.7155	11.7155
Germany	GATT and GATS Basis	15.3186	14.7272	—	—
	FAS Inclusive	14.9908	14.6124	—	—
	FAS Exclusive	13.7657	13.7657	13.7657	13.7657
Finland	GATT and GATS Basis	26.8435	21.0424	—	—
	FAS Inclusive	13.5120	13.4109	—	—
	FAS Exclusive	16.1564	16.1564	16.1564	16.1564
Czech Republic	GATS Basis	24.1535	24.1598	24.9014	—
	Including FAS	26.4611	25.6635	25.2511	—
	Excluding FAS	24.1988	24.1988	24.1988	24.1988

Notes and Sources: The same as Table 4.

Table 6 Annual Relative Size of Country Trade in Goods / Services Averaged Over The Period 2003-2007

Unit: Ratio

Country	Basis for Calculation	Sales Using FAS	Sales Using FAS with 0.5 Weight	Value Added as FAS	Profit as FAS
US	GATT and GATS Basis	0.6583	1.1169	1.9498	2.2520
	FAS Inclusive	1.4341	1.7750	2.5751	2.4036
	FAS Exclusive	3.6834	3.6834	3.6834	3.6834
Japan	GATT and GATS Basis	1.0447	1.7054	2.2209	4.1883
	FAS Inclusive	1.8086	2.3287	2.7334	4.3743
	FAS Exclusive	4.6418	4.6418	4.6418	4.6418
Germany	GATT and GATS Basis	0.9546	1.5868	—	—
	FAS Inclusive	1.7001	2.2066	—	—
	FAS Exclusive	4.7119	4.7119	4.7119	4.7119
Finland	GATT and GATS Basis	1.2160	1.8268	—	—
	FAS Inclusive	2.7954	3.0047	—	—
	FAS Exclusive	3.8142	3.8142	3.8142	3.8142
Czech Republic	GATS Basis	1.6339	2.6646	4.2842	—
	Including FAS	2.4670	3.3443	4.7524	—
	Excluding FAS	7.2280	7.2280	7.2280	7.2280

Notes and Sources: The same as Table 4.

Table 7 Annual Imbalance of Trade Averaged Over The Period 2003-2007

Unit: Billions US Dollar

Country	Basis for Calculation	Sales Using FAS	Sales Using FAS with 0.5 Weight	Value Added as FAS	Profit as FAS
US	GATT and GATS Basis	-355.818	-526.860	-663.086	-517.287
	FAS Inclusive	476.525	-110.689	-524.269	-461.319
	FAS Exclusive	-697.903	-697.903	-697.903	-697.903
Japan	GATT and GATS Basis	696.473	379.232	291.684	76.685
	FAS Inclusive	1241.580	651.786	500.352	102.134
	FAS Exclusive	61.991	61.991	61.991	61.991
Germany	GATT and GATS Basis	583.684	360.333	—	—
	FAS Inclusive	742.988	439.986	—	—
	FAS Exclusive	153.773	153.773	153.773	153.773
Finland	GATT and GATS Basis	-2.596	2.606	—	—
	FAS Inclusive	101.898	54.853	—	—
	FAS Exclusive	8.550	8.550	8.550	8.550
Czech Republic	GATS Basis	-68.158	-32.963	-13.123	—
	Including FAS	-150.560	-74.164	-30.809	—
	Excluding FAS	2.231	2.231	2.231	2.231

Notes and Sources: The same as Table 4.

Table 8: The Relative Size of Trade in Goods and Services by Country over The Period 2003-2007 (Unit: Ratio)

Country	Basis for Calculation		2003	2004	2005	2006	2007		2003	2004	2005	2006	2007
US	GATT and GATS Basis	Using Sales as FAS	0.6489	0.6671	0.6740	0.6751	0.6262	Using Sales as FAS with 0.5 Weight	1.1022	1.1272	1.1426	1.1447	1.0676
	FAS Inclusive		1.4226	1.4484	1.4652	1.4514	1.3827		1.7592	1.7873	1.8132	1.8029	1.7126
	FAS Exclusive		3.6557	3.6327	3.7483	3.7608	3.6197		3.6557	3.6327	3.7483	3.7608	3.6197
Japan	GATT and GATS Basis		1.0848	1.0024	0.9901	1.0733	1.0730		1.7546	1.6361	1.6258	1.7575	1.7529
	FAS Inclusive		1.9627	1.7359	1.7121	1.8109	1.8211		2.4646	2.2347	2.2186	2.3614	2.3641
	FAS Exclusive		4.5862	4.4479	4.5418	4.8471	4.7861		4.5862	4.4479	4.5418	4.8471	4.7861
Germany	GATT and GATS Basis		0.9868	1.0043	0.8985	0.9286	—		1.6227	1.6573	1.5074	1.5599	—
	FAS Inclusive		1.7588	1.7708	1.6156	1.6554	—		2.2574	2.2897	2.1088	2.1703	—
	FAS Exclusive		4.5628	4.7382	4.6753	4.8712	—		4.5628	4.7382	4.6753	4.8712	—
Finland	GATT and GATS Basis		—	1.3854	1.3550	0.9076	—		—	2.0307	1.9659	1.4837	—
	FAS Inclusive		—	3.3118	3.2703	1.8040	—		—	3.4426	3.3553	2.2164	—
	FAS Exclusive		4.0573	3.8012	3.5797	4.0618	3.8125		4.0573	3.8012	3.5797	4.0618	3.8125
Czech Republic	GATT and GATS Basis		1.5542	1.6838	1.5552	1.7464	1.6297		2.5206	2.7487	2.5461	2.8192	2.6884
	FAS Inclusive		2.2640	2.4817	2.3144	2.6630	2.6121		3.0961	3.3999	3.1676	3.5590	3.4987
	FAS Exclusive		6.6647	7.4770	7.0174	7.3082	7.6729		6.6647	7.4770	7.0174	7.3082	7.6729
US	GATT and GATS Basis	Using Value Added as FAS	1.9208	1.9393	1.9846	1.9921	1.9124	Using Profits as FAS	2.5036	2.2886	2.1734	2.1765	2.1180
	FAS Inclusive		2.5572	2.5749	2.6150	2.6162	2.5121		2.6281	2.4293	2.3275	2.3495	2.2837
	FAS Exclusive		3.6557	3.6327	3.7483	3.7608	3.6197		3.6557	3.6327	3.7483	3.7608	3.6197
Japan	GATT and GATS Basis		2.2463	2.2447	2.2408	2.1824	2.1901		4.1861	3.9995	4.0657	4.3530	4.3374
	FAS Inclusive		2.7984	2.7769	2.7384	2.6544	2.6991		4.3701	4.1767	4.2735	4.5544	4.4966
	FAS Exclusive		4.5862	4.4479	4.5418	4.8471	4.7861		4.5862	4.4479	4.5418	4.8471	4.7861

Notes and Sources: The same as Table 4.

Table 9: Total Trade in Goods and Services by Country over The Period 2003-2007 (Unit: Billions US Dollar)

Country	Basis for Calculation		2003	2004	2005	2006	2007		2003	2004	2005	2006	2007
US	GATT and GATS Basis	Using Sales as FAS	5152.777	5849.061	6541.328	7305.205	8228.934	Using Sales as FAS with 0.5 Weight	3867.653	4416.956	4938.889	5516.036	6136.456
	FAS Inclusive		7570.437	8590.313	9632.892	10691.012	12057.153		5076.483	5787.582	6484.671	7208.940	8050.565
	FAS Exclusive		2582.528	2984.851	3336.450	3726.867	4043.977		2582.528	2984.851	3336.450	3726.867	4043.977
Japan	GATT and GATS Basis		1642.659	2037.946	2232.710	2367.829	2582.258		1341.889	1643.767	1794.045	1923.253	2099.043
	FAS Inclusive		2334.341	2784.419	3042.748	3210.189	3514.264		1687.730	2017.004	2199.064	2344.433	2565.046
	FAS Exclusive		1041.119	1249.589	1355.380	1478.678	1615.828		1041.119	1249.589	1355.380	1478.678	1615.828
Germany	GATT and GATS Basis		2730.486	3244.373	3693.384	4184.443	—		2191.940	2606.545	2907.623	3306.425	—
	FAS Inclusive		3791.427	4485.164	5088.300	5761.358	—		2722.411	3226.941	3605.081	4094.882	—
	FAS Exclusive		1653.395	1968.717	2121.862	2428.406	—		1653.395	1968.717	2121.862	2428.406	—
Finland	GATT and GATS Basis		—	194.499	215.971	308.077	—		—	168.590	187.475	245.373	—
	FAS Inclusive		—	351.569	391.619	452.838	—		—	247.125	275.299	317.753	—
	FAS Exclusive		119.267	142.681	158.978	182.669	216.773		119.267	142.681	158.978	182.669	216.773
Czech Republic	GATT and GATS Basis		165.049	221.474	254.044	295.837	388.345		140.274	189.506	215.350	254.849	330.189
	FAS Inclusive		210.914	287.312	329.525	394.572	533.423		163.207	222.424	253.090	304.216	402.728
	FAS Exclusive		115.499	157.537	176.656	213.861	272.034		115.499	157.537	176.656	213.861	272.034
US	GATT and GATS Basis	Using Value Added as FAS	2710.154	3174.045	3591.045	4011.779	4354.315	Using Profits as FAS	2833.024	3266.152	3648.666	4074.402	4434.735
	FAS Inclusive		2760.578	3245.993	3684.435	4128.793	4478.248		3168.948	3649.716	4066.980	4535.629	4931.549
	FAS Exclusive		2582.528	2984.851	3336.450	3726.867	4043.977		2582.528	2984.851	3336.450	3726.867	4043.977
Japan	GATT and GATS Basis		1058.932	1275.306	1384.021	1507.388	1644.719		1235.255	1474.709	1606.516	1787.462	1946.857
	FAS Inclusive		1096.502	1320.516	1440.785	1564.127	1693.785		1445.316	1716.567	1853.174	2052.606	2257.502
	FAS Exclusive		1041.119	1249.589	1355.380	1478.678	1615.828		1041.119	1249.589	1355.380	1478.678	1615.828

Notes and Sources: The same as Table 4.

Table 10: Trade Imbalance of Trade by Country over The Period 2003-2007 (Unit: Billions US Dollar)

Country	Basis for Calculation		2003	2004	2005	2006	2007		2003	2004	2005	2006	2007
US	GATT and GATS Basis	Using Sales as FAS	-334.869	-379.947	-339.594	-374.691	-349.988	Using Sales as FAS with 0.5 Weight	-429.586	-514.452	-547.818	-590.907	-551.539
	FAS Inclusive		218.241	370.643	521.250	566.736	705.753		-153.031	-139.157	-117.396	-120.194	-23.668
	FAS Exclusive		-524.302	-648.957	-756.042	-807.123	-753.089		-524.302	-648.957	-756.042	-807.123	-753.089
Japan	GATT and GATS Basis		616.994	667.309	701.215	714.507	782.342		337.322	372.093	378.160	381.976	426.610
	FAS Inclusive		975.260	1178.992	1266.045	1323.900	1463.702		516.455	627.935	660.576	686.673	767.290
	FAS Exclusive		57.649	76.877	55.106	49.446	70.878		57.649	76.877	55.106	49.446	70.878
Germany	GATT and GATS Basis		428.522	536.896	664.948	704.368	—		262.346	339.957	405.808	433.221	—
	FAS Inclusive		549.321	675.496	834.287	912.849	—		322.746	409.258	490.478	537.461	—
	FAS Exclusive		96.171	143.019	146.668	162.074	220.935		96.171	143.019	146.668	162.074	220.935
Finland	GATT and GATS Basis		—	-14.742	-26.040	32.995	—		—	-2.028	-10.017	19.863	—
	FAS Inclusive		—	96.775	95.591	113.330	—		—	53.730	50.798	60.030	—
	FAS Exclusive		9.983	10.685	6.006	6.731	9.343		9.983	10.685	6.006	6.731	9.343
Czech Republic	GATT and GATS Basis	-47.903	-57.107	-64.398	-66.631	-104.749	-25.230	-28.722	-30.629	-31.420	-48.815		
	FAS Inclusive	-92.344	-120.327	-136.114	-162.142	-241.873	-47.450	-60.332	-66.487	-79.176	-117.377		
	FAS Exclusive	-2.557	-0.337	3.140	3.791	7.120	-2.557	-0.337	3.140	3.791	7.120		
US	GATT and GATS Basis	Using Value Added as FAS	-504.756	-625.552	-715.571	-765.497	-704.054	Using Profits as FAS	-420.127	-501.209	-559.963	-603.323	-501.812
	FAS Inclusive		-412.944	-495.566	-575.082	-614.679	-523.076		-376.668	-459.339	-506.766	-541.700	-422.120
	FAS Exclusive		-524.302	-648.957	-756.042	-807.123	-753.089		-524.302	-648.957	-756.042	-807.123	-753.089
Japan	GATT and GATS Basis		221.878	275.657	277.789	323.834	359.264		67.832	90.454	69.244	67.011	88.881
	FAS Inclusive		389.181	468.807	472.850	544.605	626.315		81.899	111.567	98.518	102.733	115.953
	FAS Exclusive		57.649	76.877	55.106	49.446	70.878		57.649	76.877	55.106	49.446	70.878

Notes and Sources: The same as Table 4.

Table 11: Annual Growth Rate of Trade in Goods and Services by Country over The Period 2003-2007 (Unit: %)

Country	Basis for Calculation		2004	2005	2006	2007		2004	2005	2006	2007
US	GATT and GATS Basis	Using Sales as FAS	13.5128	11.8355	11.6777	12.6448	Using Sales as FAS with 0.5 Weight	14.2025	11.8166	11.6858	11.2476
	FAS Inclusive		13.4718	12.1367	10.9844	12.7784		14.0077	12.0446	11.1689	11.6747
	FAS Exclusive		15.5787	11.7794	11.7016	8.5088		15.5787	11.7794	11.7016	8.5088
Japan	GATT and GATS Basis		24.0638	9.5569	6.0518	9.0559		22.4965	9.1423	7.2021	9.1402
	FAS Inclusive		19.2808	9.2776	5.5030	9.4722		19.5099	9.0262	6.6105	9.4101
	FAS Exclusive		20.0236	8.4661	9.0969	9.2752		20.0236	8.4661	9.0969	9.2752
Germany	GATT and GATS Basis		18.8204	13.8397	13.2957	—		18.9150	11.5509	13.7157	—
	FAS Inclusive		18.2975	13.4473	13.2276	—		18.5325	11.7182	13.5864	—
	FAS Exclusive		19.0712	7.7789	14.4469	—		19.0712	7.7789	14.4469	—
Finland	GATT and GATS Basis		—	11.0400	42.6470	—		—	11.2016	30.8832	—
	FAS Inclusive		—	11.3917	15.6322	—		—	11.4005	15.4214	—
	FAS Exclusive		19.6316	11.4220	14.9021	18.6698		19.6316	11.4220	14.9021	18.6698
Czech Republic	GATT and GATS Basis	34.1870	14.7058	16.4514	31.2696	35.0968	13.6378	18.3420	29.5626		
	FAS Inclusive	36.2221	14.6923	19.7397	35.1903	36.2839	13.7871	20.2007	32.3822		
	FAS Exclusive	36.3969	12.1362	21.0607	27.2013	36.3969	12.1362	21.0607	27.2013		
US	GATT and GATS Basis	Using Value Added as FAS	15.2885	11.7115	11.6683	8.8438	Using Profits as FAS	17.1168	13.1378	11.7162	8.5383
	FAS Inclusive		15.1712	11.4328	11.5233	8.7291		17.5838	13.5072	12.0604	8.4638
	FAS Exclusive		15.5787	11.7794	11.7016	8.5088		15.5787	11.7794	11.7016	8.5088
Japan	GATT and GATS Basis		19.3850	8.9379	11.2632	8.9174		20.4332	8.5246	8.9137	9.1105
	FAS Inclusive		18.7676	7.9582	10.7616	9.9822		20.4299	9.1077	8.5607	8.2895
	FAS Exclusive		20.0236	8.4661	9.0969	9.2752		20.0236	8.4661	9.0969	9.2752

Notes and Sources: The same as Table 4.

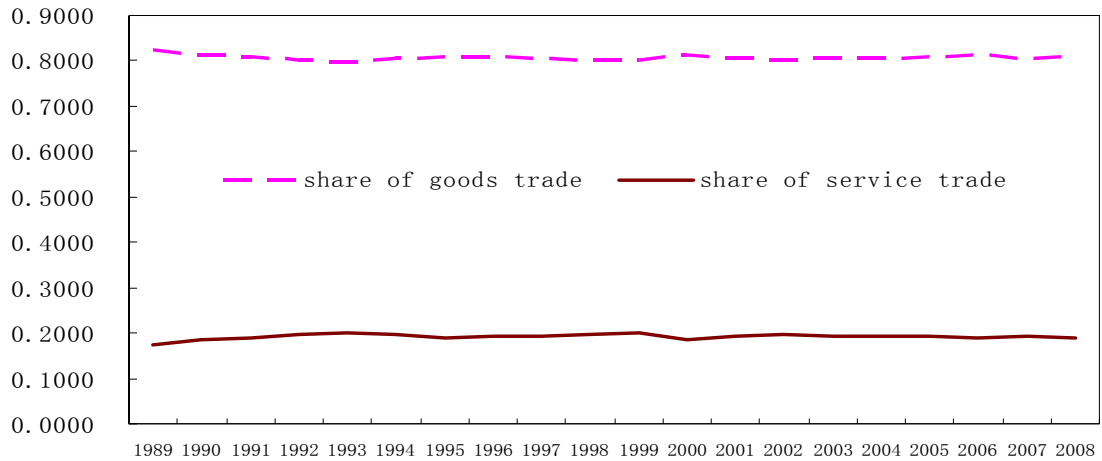


Figure 1 Share of Goods Trade and Service Trade in Total World Trade (1989-2008)

Source: WTO World Trade Report, 1990-2009

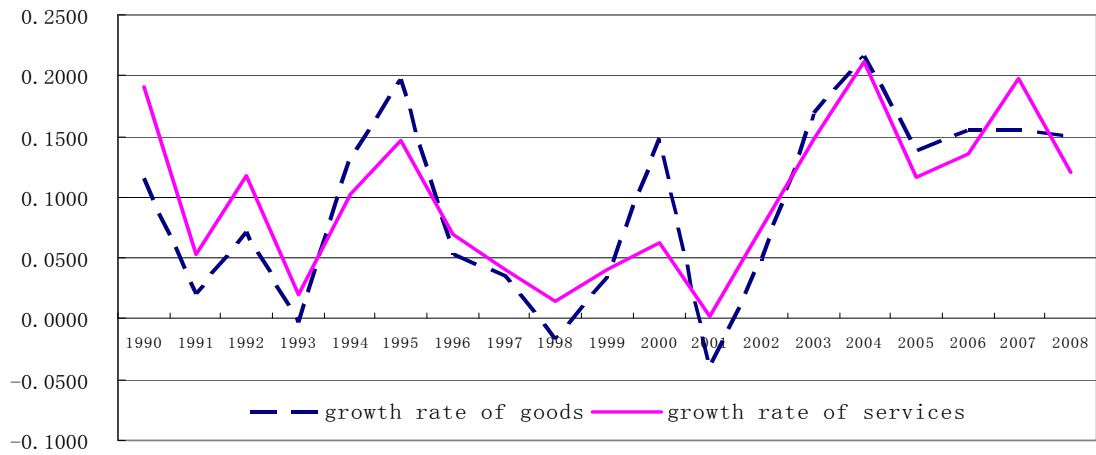


Figure 2 Growth Rates of World Goods and Services Trade (1990-2008)

Source: WTO World Trade Report, 1990-2009

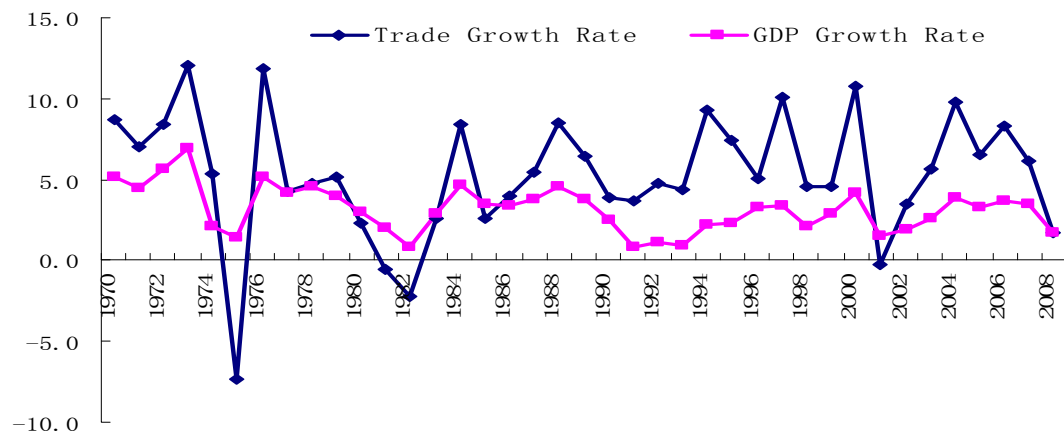


Figure 3 Trade and GDP Global Growth Rate (1970-2008)

Source: WTO World Trade Report, 2009

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