

Effects on Services Trade with the United States

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Introduction

The goal of this analysis is to see how Latin American and Caribbean (LAC) service exports compete with China and India. Because consistent bilateral time series data are only available for the United States, we focus on trade in the U.S. market. While this means that the conclusions are specific to trade with the United States, the U.S. market is probably the most important market for LAC service providers. We utilize data on U.S. bilateral trade in services from 1986 to 2004. The data include imports and exports from China, India, Argentina, Bermuda, Brazil, Chile, Mexico, Venezuela, and other LAC countries (combined), as well about 30 other nations and regions.¹

First, we calculate some simple summary statistics on services, including: export growth, import growth, composition of services exports and imports, and share of intra-firm trade. We find that South America, Central America, and Mexico lag behind China and India in terms of services export and import growth. The only area where the region has performed well is in travel, which is comprised mainly of tourism. In contrast, the Caribbean has performed on par with China and India, though this is largely due to large and growing services trade between the United States and the offshore financial centers.

Second, we calculate an index of overall similarity in services imports and exports, based on the distribution of imports and exports across five broad categories of services trade and sixteen classes of non-transport unaffiliated services trade.² The export index shows to what extent LAC

¹ Exact country breakdown depends on year and industry.

² These include: royalties and license fees; travel, passenger fares, and other transportation; education; insurance; financial services; telecommunications; accounting, auditing, and bookkeeping services; advertising; computer and data processing services; database and other information services; research, development, and testing services;

countries are competing in the same sectors as China and India (at least in the U.S. market). The import index provides information on whether China, India, and LAC are outsourcing services to the same extent. Among the broad categories, the structure of exports between LAC and both India and China appears to be similar and roughly stable. However when we examine more detailed breakdown available for India, we find a sharp decline in export similarity with LAC countries.

Finally, we examine the extent to which India and China have displaced LAC exports to the United States. We find some evidence of displacement by India in business services.

Data

Data on international services trade is from U.S. Department of Commerce, Bureau of Economic Analysis, Balance of Payments Division. Services trade data are collected through quarterly and surveys of large firms that trade in services. Services trade by small firms is estimated. Services trade is inherently different from goods trade in that it is measured as value added. Services data do not contain information on wholesale trade and retail trade industries that provide distributive services, as these services are embedded in the value of goods sold. Table 1 defines the main services industries for which data are available.

Data on other private services are divided into two categories: affiliated and unaffiliated trade.

Affiliated trade refers to trade between U.S. parents and their foreign affiliates and between U.S.

management, consulting, and public relations; legal services; medical services; construction, engineering, architecture, and mining; industrial engineering; installation, maintenance, and repair of equipment; sports and performing arts; operational leasing; miscellaneous disbursements; other business, professional and technical services; other private services; and other unaffiliated services.

affiliates and their foreign parents. For example, U.S. imports of computer related services could be from unaffiliated foreigners or an affiliated firm (parent or subsidiary) located in a foreign country. Trade disaggregated beyond the five broad categories, however, is not broken down by country for affiliated firms. Therefore, when we discuss imports and exports of more detailed classifications, we focus on trade between unaffiliated entities.

Unlike in manufactures, where there has been a notable increase in intrafirm trade, U.S. services trade statistics do not record any strong trend. Affiliated imports made up one third of total services exports in both 1994 and 2004; affiliated imports were nearly 40 percent over the same period (Table 2). Trade in services with LAC remains predominantly between unrelated parties though intrafirm trade with South America, Central America, and Mexico (SCM) is increasing (Table 2). U.S. intra-firm imports from SCM have increased over the last 10 years from about 9 percent to 29 percent. Intrafirm trade has also increased for both China and India. In 2004, more than half of U.S. imports from China and 30 percent of imports from India were intra-firm. In contrast, the share that is intrafirm between the United States and the Caribbean, largely the off-shore financial centers, has declined.

Basic Trends in Services Growth

Figure 1 shows U.S. imports and exports of total private services for SCM, the Caribbean, India, and China. Figure 2 shows import and export growth, for these economies and the world. While the Caribbean, India and China have outpaced world growth, SCM have lagged behind.

Total private services trade can be disaggregated into the following categories: travel, passenger fares, other transportation, royalties and license fees, and other private services. Figures 3-7 show U.S. import and export growth in these categories. SCM lag behind the world and other regions in all areas except for travel services. This indicates that SCM has grown faster than the rest of the world as a tourist destination for U.S. residents.

Unaffiliated trade in other services between the U.S. and its partner countries (not transport and not royalties and license fees) can be further broken down into sixteen categories. This means that the analysis that involves trade by industry will exclude affiliated trade. An additional concern is that in order not to disclose individual company data, sometimes entries are left blank in the statistics.

Figure 8 shows total growth and growth of unaffiliated trade by region and country from 1994 to 2004. For most countries and regions unaffiliated and total trade move together, indicating that using unaffiliated trade to measure trends is not a bad approximation. However, Chinese and Mexican exports to the United States are an exception—total trade has grown, but there has been no growth in unaffiliated trade in services. In addition, unaffiliated U.S. exports to Chile have growth much more than total exports. This implies that the results we draw from unaffiliated trade must be taken with some caution, as a breakdown of trade in services by country and industry is only available for unaffiliated trade.

Figure 8 also highlights the rapid growth in the category entitled “Other Private Services”. U.S. imports of services have nearly doubled and U.S. exports of services have increased by 30

percent over the last 10 years. Growth in services imports from India has been exceptional, while growth in imports from LAC (and China) has been below overall services import growth.

Within this category “Other Private Services”, unaffiliated bilateral trade data can be disaggregated into data on education, financial services, insurance, telecommunications, business professional and technical services, and other services. Finally, “business professional and technical services” (BPT) can be broken down into advertising; computer and data processing services; database and other information services; research, development, and testing services; management, consulting, and public relations services; legal services; construction, architectural, and engineering services; industrial engineering; installation, maintenance, and repair of equipment; operational leasing; and other BPT services.

Growth in trade in business and professional services with India has been especially high. This is largely a result of improved telecommunications and the expansion in new technologies, such as the Internet, which allow services to be provided from a distance (see Freund and Weinhold 2002). Figure 9 shows growth in imports and exports between 1994 and 2004. U.S. imports from India expanded by a factor of 24 since 1994, while import growth from LAC kept pace with world growth, at just above 200 percent. In 1994, Argentina and India both exported roughly \$20 million in BPT services to the United States. By 2004 India exported \$528 million dollars in BPT services to the United States, or more than 60 percent of LAC’s combined exports.

Index of Similarity in Trade in Services

We use the Finger and Kreinin (1979) index, as in the IDB (2005) report on China and LAC.

The index ranges from 0 to 100, where 0 represents no overlap in service trade and 100 indicates industry-country market shares are identical.³

First we create an index of similarity for the five broad categories of overall Trade. Figures 10 and 11 display the indices for India and China, respectively. Similarity in United States imports from SCM and from the Caribbean and both India and China has in general declined over the last 10 year. LAC as a region shows an increase but this is due to compositional effects between the Caribbean and SCM. As importers, however, the regions have become more similar. The increase is largely due to an increase in “other private services” share of LAC imports.

The problem with these indices is that there were only four categories. Next we look at similarity in Other Private Services (OPS), excluding affiliated company trade. We only examine trade with India as missing data from China for many years and categories makes it impossible to provide an accurate comparison. Since most of Chinese trade in services with the United States is in transport, comparing similarities in trade in OPS is not very meaningful.

Figure 12 shows the indices of similarity in OPS with India. Similarity in exports from LAC and India (U.S. imports) has declined markedly since 1993. The decline is largely in the telecom sector and may be a result of privatization and the large decline in prices (and hence the value of trade) over this period. U.S. exports to LAC and India are not very similar and have not changed much over the last 10 years.

³ $ESI_{ij} = 100 * \sum_c \min(X_{ci}, X_{cj})$, where X_{ci} and X_{cj} represent the share of exports in industry c of countries i and j , respectively.

Figure 13 shows similarity in BPT services since 1993. Again we see a sharp decline in similarity between LAC exports and exports from India. This is largely due to the category other private BPT services, which did not grow as rapidly in LAC countries as other service categories.

As importers, again there is little change over the period and they do not appear to be key competitors for U.S. exports.

Regression Analysis—Is India Displacing Latin America?

The estimating equation follows from Freund and Ozden (2006). We regress bilateral export growth in an industry on importer, exporter, and year fixed effects, as well as overall import growth and import growth from India. Specifically,

$$(1) \quad d \ln \exp_{ijt} = \gamma_i + \gamma_j + \gamma_t + \beta_1 d \ln US_{jt} + \beta_2 d \ln India_{jt} + \varepsilon_{iivt},$$

where, $d \ln \exp_{ijt}$ is the natural log of exports from LAC country i in industry j to the United States at time t ; γ_i is an exporter fixed effect that will pick up fixed country characteristics (or characteristics that change slowly), such as comparative advantage, geography, and multilateral resistance; γ_j is an industry fixed effect that controls for high growth sectors, γ_t is a time fixed effect that will pick up overall export growth in a given year; $d \ln US$ is import growth in the United States from countries aside from India; and $d \ln india_{jt}$ is growth in Indian exports to the United States; and e is an error term that is assumed to be iid. We also try alternative fixed effects.

A negative coefficient on $d \ln India$ indicates that Indian export growth is negatively correlated with LAC export growth, after controlling for growth from the rest of the world. This implies that Indian exports are displacing LAC exports to a greater extent than exports from other countries. In particular, it is an elasticity, representing how a one percent increase in Indian exports are related to LAC exports in percent.

Because an increase in exports to India are likely to have a larger effect on LAC trade if India is a large exporter, we also try an alternative specification with Indian export growth weighted by India's lagged share of exports in the category. The regression equation is

$$(2) \quad d \ln \exp_{ijt} = \gamma_i + \gamma_j + \gamma_t + \beta_1 d \ln US_{jt} + \beta_2 dw \ln India_{jt} + \varepsilon_{iivt}.$$

We estimate these equations using data from 1990 to 2003. The advantage of this specification is that we are exploiting both cross-section and time-series variation to estimate how LAC exports are affected by India. In addition, the data are readily available and the coefficients are easy to understand.

Results of using panel data on business, professional, and technical services are reported in Table 3a and 3b for equations (1) and (2), respectively. While the coefficients on Indian export growth are negative for exports, they are not significant. Thus, there is no evidence that Indian exports have significantly displaced LAC exports across all industries (columns 4-6 in Table 3a and 3b).

Tables 4a and 4b report the results on U.S. imports for each industry separately. In only one industry, "Other BPT Services" is there robust evidence of displacement. The coefficient of -.28 in Table 4a implies that a one percent increase in growth from India leads to a .3 percent decline on growth from LAC. However, this is a catch all category so it is difficult to pinpoint the true economic importance.⁴ When weighted Indian export growth is used (Table 4b) there are

⁴ This category includes consists of agricultural services; language translation services; security services; collection services; salvage services; satellite photography and remote sensing/satellite imagery services; transcription services; waste treatment and de-pollution services; mailing, reproduction, and commercial art services; personnel supply services; management of health care facilities services; auction services, and other trade-related services.

significant negative effects in the following 4 categories: research, development, and testing services; legal services; industrial engineering; and other business professional and technical services. Thus, there is some evidence that India's export growth in these business categories is having a negative impact on LAC export growth.

Tables 5a and 5b repeat the exercise for U.S. exports. There is little evidence that exports of services to India affect exports of services to LAC. Of interest, U.S. export growth in database and other information services to India is negatively correlated with U.S. export growth to LAC (Table 5 b). Since there is likely to be a lot of intra-industry trade in this category this may be of concern. One possible explanation is that India's thriving computer and database industry requires a lot of inputs from the United States. And as trade in this area is being oriented toward India, it is also being steered away from LAC countries.

Policy Implications

Services export growth from LAC countries to the United States is unremarkable when compared with India or even China. Previous work has shown that income, financial depth, speaking the same language, and adjacency promote service exports, while distance retards exports—though to a lesser extent than goods trade.⁵ Exports of Business, Professional, and Technical services are aided by telecommunications and the internet development (Freund and Weinhold 2002). This implies that to the extent possible, countries aiming to expand services exports will need to pursue policies that improve financial services and extends the English speaking population. Promoting bilingual education in schools will improve potential for

⁵ Freund and Weinhold (2002) find an elasticity of trade to distance of -.4 compared with -1 usually found for goods trade.

services exports, and help LAC to benefit more generally from globalization. Technological development can also help expand trade in BPT services.

In addition countries may find niche service markets—eg computer services in India, Financial services in Bermuda, Port services in China. Given climate and proximity to the United States, a key market in LAC is health and retirement. Countries should use regional agreements to push for international insurance coverage and other policies to help growth in this sector.

Tourism has performed relatively well since 2002. In part this is because U.S. residents prefer to stay in region after 9/11. This trend will likely continue in the medium term and LAC should take advantage of this and improve infrastructure for tourism, roads, airport customs, etc. and explore niche markets such as golf, which attract high-end tourists.

Conclusions

We examined services trade growth with the United States and found Latin America to be lagging behind China, India, and the rest of the world. While exports from LAC countries exceed those from India and China, services export growth from the region, with the important exception of the Caribbean, has been well below world growth since 1999. China has benefited from rapid growth in goods trade and exports of transport services and India has benefited from new technologies and rapid growth in exports of business services. South America, Central America and Mexico have exceeded world growth only in exports of travel services, though even in this category, growth from India and China has outpaced Latin American growth.

Language and proximity have been shown to be important determinants of services trade Freund and Weinhold (2002). One area where Latin America has a large advantage over India and China is geography. Tourism and provision of health services are especially attractive, owing to proximity, labor costs, and climate. If Latin America wants to seriously compete on provision of business services they will have to expand the English speaking population.

References

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Table 1: Main Service Industries

Broad Industry	Description
Travel	Purchases of goods and services by foreign residents.
Passenger fares	Fares paid to one country by airline and vessel operators that reside in another country.
Other Transportation	Payments for the transportation of goods by ocean, air, land (truck and rail), pipeline, and inland waterway carriers.
Royalties and License Fees	Payments for transactions with nonresidents that involve patented and unpatented techniques, processes, formulas, and other intangible assets and proprietary rights used in the production of goods; transactions involving trademarks, copyrights, franchises, broadcast rights, and other intangible rights; and the rights to distribute, use, and reproduce general-use computer software.
Other Private Services	These accounts consist of other affiliated and unaffiliated services. The unaffiliated services consist of six major categories: Education; financial services; insurance; telecommunications; business, professional, and technical services; and “other unaffiliated services.”
Unaffiliated Sectors	
Education	Expenditures for tuition and living expenses of foreign students.
Financial Services	Payments for funds management, credit card services, explicit fees and commissions on transactions in securities, fees on credit-related activities, and other financial services. Implicit fees paid and received on bond trading are also covered.
Insurance	The portion of premiums earned or incurred for primary insurance and for reinsurance for the provision of services.
Telecommunications	Receipts and payments between U.S. and foreign communications companies for the transmission of messages between the United States and other countries; channel easing; telex, telegram, and other jointly provided basic services; value-added services, such as electronic mail, video conferencing, and online access services (including Internet backbone services, router services, and broadband access services); and telecommunications support services.
Business Professional and Technical Services	A variety of services, such as legal, accounting , advertising, and computer. See Table x.
Other Private Services	U.S. receipts include expenditures (other than employee compensation) by foreign governments in the United States for services such as maintaining embassies and consulates; non-compensation-related expenditures by international organizations headquartered in the United States; expenditures of foreign residents employed temporarily in the United States; and receipts from unaffiliated foreigners for the display, reproduction, or distribution of motion pictures and television programs. Payments consist primarily of payments to unaffiliated foreign residents for the display, reproduction, or distribution of foreign motion pictures and television programs.

Source: Borga and Mann 2003.

Table 2: Share of Trade Between Affiliated Firms

	U.S. Exports		U.S. imports	
	1994	2004	1994	2004
Latin America and Other Western Hemisphere	0.13	0.14	0.13	0.12
South and Central America and Mexico	0.10	0.13	0.09	0.29
Argentina	0.09	0.16	0.08	0.28
Brazil	0.15	0.18	0.17	0.38
Chile	0.08	0.09	0.02	..
Mexico	0.09	0.14	0.09	0.41
Venezuela	0.13	0.12	0.12	0.33
Other Western Hemisphere	0.24	0.15	0.18	0.08
Bermuda	0.40	0.17	0.19	0.04
China	0.04	0.15	0.15	0.56
India	0.00	0.05	0.06	0.30
All countries	0.33	0.33	0.39	0.38

Table 3a: Growth in Latin American BPT Trade with the U.S.

	U.S. Exports			U.S. Imports		
	1	2	3	4	5	6
dlnall	0.908*** [5.52]	0.902*** [5.28]	0.882*** [4.88]	0.589*** [4.47]	0.584*** [4.21]	0.484*** [3.40]
dlnindia	0.037 [1.21]	0.038 [1.18]	0.029 [0.85]	-0.042 [0.95]	-0.044 [0.95]	-0.026 [0.52]
Fixed Effects						
country	x			x		
industry	x		x	x		x
year	x	x		x	x	
country-industry		x			x	
country-year			x			x
Observations	820	820	820	550	550	550
R-squared	0.21	0.26	0.41	0.2	0.25	0.39

Robust t statistics in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 3b: Growth in Latin American BPT Trade with the U.S.

	U.S. Exports			U.S. Imports		
	1	2	3	4	5	6
dlnallni	0.895*** [5.41]	0.890*** [5.18]	0.859*** [4.69]	0.607*** [4.61]	0.601*** [4.33]	0.486*** [3.50]
dwlndia	5.291 [1.21]	5.509 [1.26]	6.85 [1.47]	-3.998 [1.03]	-3.858 [0.96]	-4.821 [1.17]
Fixed Effects						
country	x			x		
industry	x		x	x		x
year	x	x		x	x	
country-industry		x			x	
country-year			x			x
Observations	820	820	820	550	550	550
R-squared	0.21	0.26	0.41	0.19	0.25	0.39

Robust t statistics in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 4a: Determinants of U.S. Imports of BPT Services from Latin America by Industry

	All BPT Services	Advertising	Computer and data processing services	Database and other information services	Research, development, and testing services	Management, consulting, and public relations services	Legal Services	Construction, architectural, and engineering, services/1/	Industrial engineering	Installation, maintenance, and repair of equipment	Other
dlnall	0.786* [1.88]	1.662*** [3.47]	-0.035 [0.09]	2.519* [1.84]	-0.074 [0.12]	1.864*** [4.30]	0.712*** [3.37]	-0.141 [0.16]	4.180** [2.11]	0.340*** [2.90]	0.789* [1.81]
dlnindia	-0.089 [1.35]	0.064 [0.55]	0.077 [0.65]	-0.102 [0.41]	-0.447 [1.65]	0.142 [1.11]	-0.096 [1.58]	0.262* [1.72]	-0.032 [0.12]	-0.028 [0.15]	-0.279** [2.13]
Observations	113	59	67	45	62	83	68	43	33	46	44
R-squared	0.35	0.36	0.3	0.21	0.11	0.36	0.21	0.34	0.51	0.29	0.68

Year and country fixed effects included in all regressions.

Robust t statistics in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 4b: Determinants of U.S. Imports of BPT Services from Latin America by Industry

	All BPT Services	Advertising	Computer and data processing services	Database and other information services	Research, development, and testing services	Management, consulting, and public relations services	Legal Services	Construction, architectural, and engineering, services/1/	Industrial engineering	Installation, maintenance, and repair of equipment	Other
dlnallni	0.762* [1.85]	1.414*** [4.59]	-0.004 [0.01]	3.109** [2.57]	0.333 [0.52]	1.715*** [4.61]	0.782*** [4.04]	-0.198 [0.19]	2.360*** [3.99]	0.341*** [3.36]	0.849* [2.01]
dwlndia	-8.535 [1.59]	-10.083 [0.32]	-1.824 [0.39]	-17.226 [1.44]	-32.362* [1.73]	10.604 [1.16]	-30.765*** [3.15]	30.299** [2.28]	-19.881*** [4.00]	46.912 [0.48]	-69.063** [2.38]
Observations	113	59	67	45	62	83	68	43	33	46	44
R-squared	0.36	0.36	0.3	0.24	0.1	0.35	0.26	0.35	0.73	0.31	0.7

Robust t statistics in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 5a: Determinants of U.S. Exports of BPT Services to Latin America by Industry

	All BPT Services	Advertising	Computer and data processing services	Database and other information services	Research, development, and testing services	Management, consulting, and public relations services	Legal Services	Construction, architectural, engineering, services/1/	Industrial engineering	Installation, maintenance, and repair of equipment	Other
dlnall	1.020*** [2.71]	1.834* [1.82]	0.298 [0.77]	2.048*** [3.97]	-0.326 [0.24]	0.615 [1.25]	1.489*** [3.73]	0.942*** [3.48]	0.881** [2.11]	1.814 [1.63]	-1.467* [1.85]
dlnindia	-0.011 [0.12]	0.666 [1.08]	0.009 [0.11]	-0.193 [1.39]	-0.113 [0.38]	-0.033 [0.11]	0.06 [0.67]	0.04 [0.81]	0.238 [0.71]	0.517** [2.05]	-0.01 [0.17]
Observations	121	44	111	89	79	107	70	101	56	106	57
R-squared	0.1	0.17	0.14	0.24	0.29	0.32	0.18	0.16	0.49	0.21	0.62

Year and country fixed effects included in all regressions.

Robust t statistics in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 5b: Determinants of U.S. Exports of BPT Services from Latin America by Industry

	All BPT Services	Advertising	Computer and data processing services	Database and other information services	Research, development, and testing services	Management, consulting, and public relations services	Legal Services	Construction, architectural, and engineering, services/1/	Industrial engineering	Installation, maintenance, and repair of equipment	Other
dlnallni	0.997*** [2.62]	2.201** [2.41]	0.197 [0.51]	2.453*** [6.09]	-0.27 [0.21]	0.613 [1.26]	1.485*** [3.76]	0.937*** [3.49]	0.866** [2.55]	1.789 [1.61]	-1.477* [1.79]
dwnindia	-5.115 [0.41]	49.329 [0.28]	9.362 [1.26]	-34.418*** [3.56]	-20.865 [0.42]	-4.855 [0.12]	40.856 [0.66]	9.269 [1.19]	24.328** [2.02]	109.094** [1.99]	-1.979 [0.26]
Observations	121	44	111	89	79	107	70	101	56	106	57
R-squared	0.1	0.14	0.15	0.31	0.29	0.32	0.17	0.17	0.52	0.21	0.62

Robust t statistics in brackets

* significant at 10%; ** significant at 5%; *** significant at 1%

Figure 1: Imports and Exports of Private Services

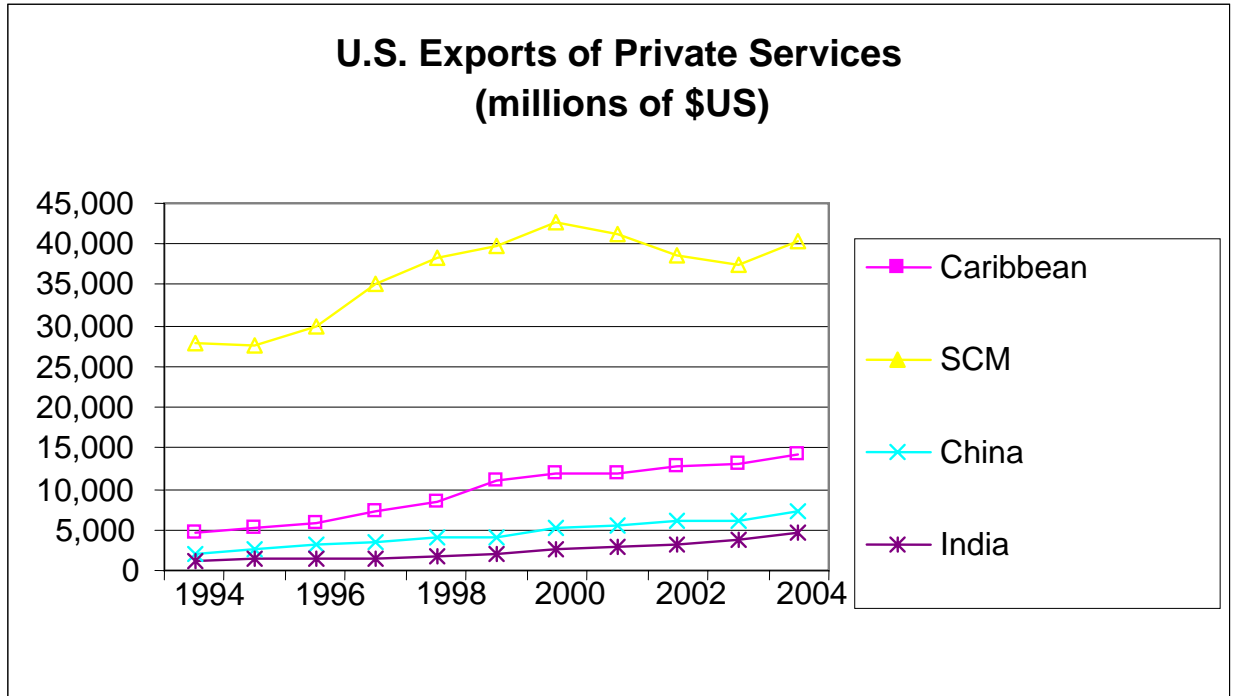
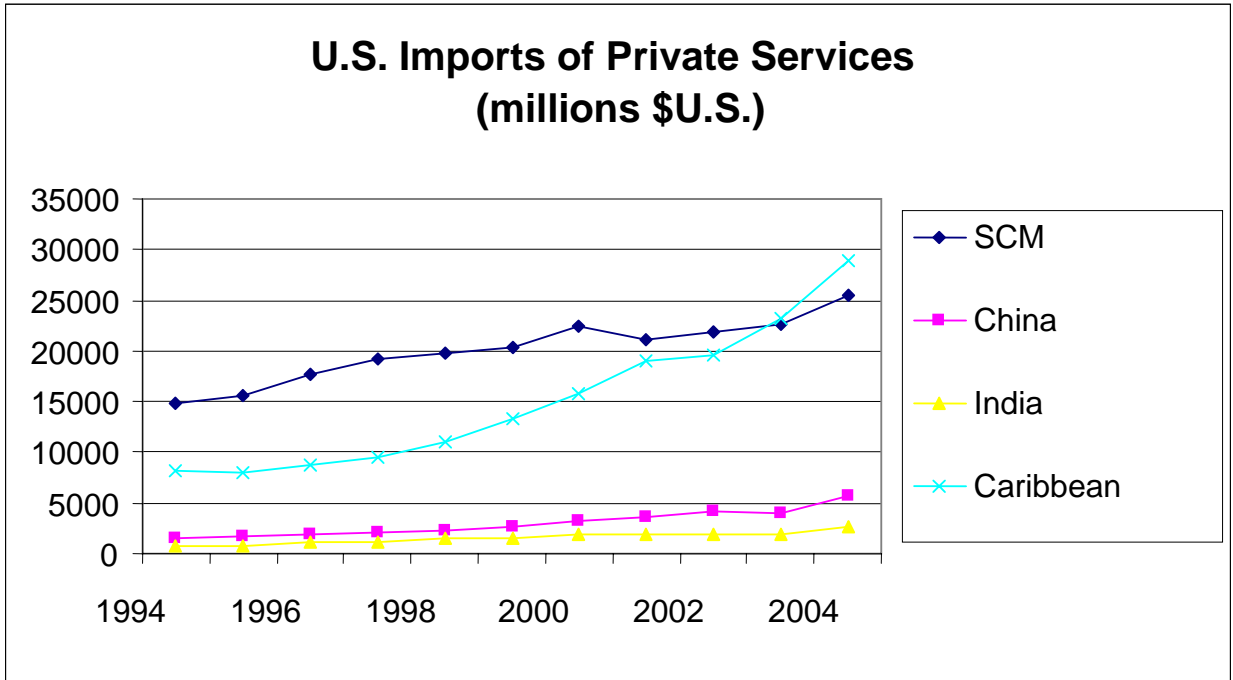


Figure 2: Growth in Imports and Exports of Private Services

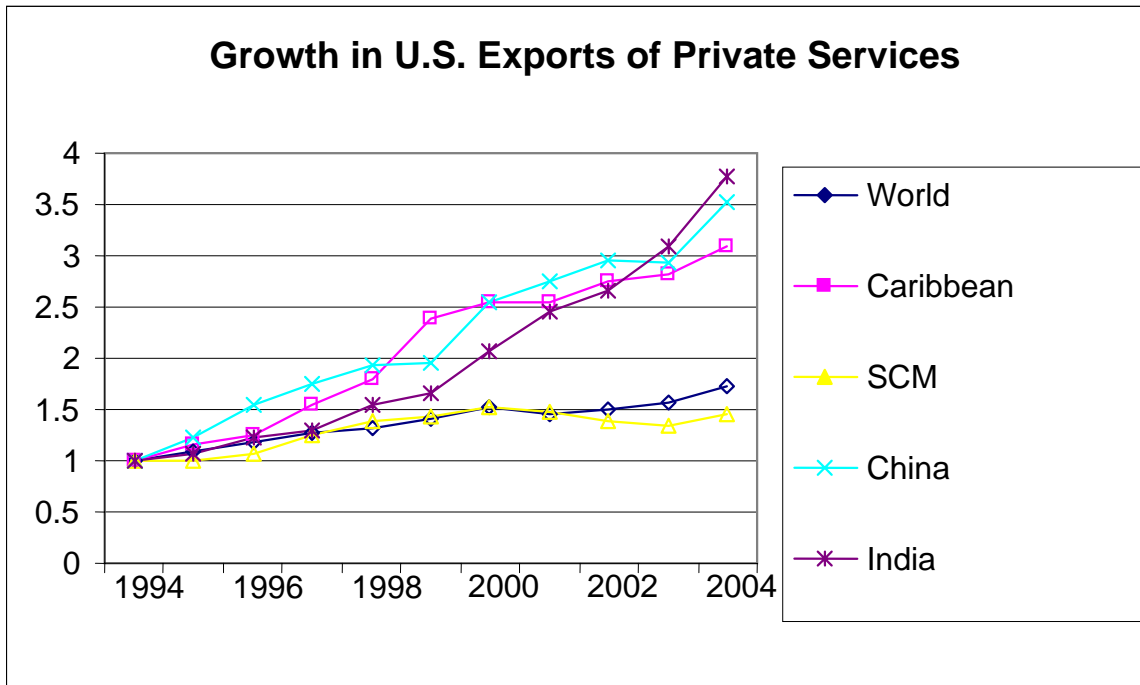
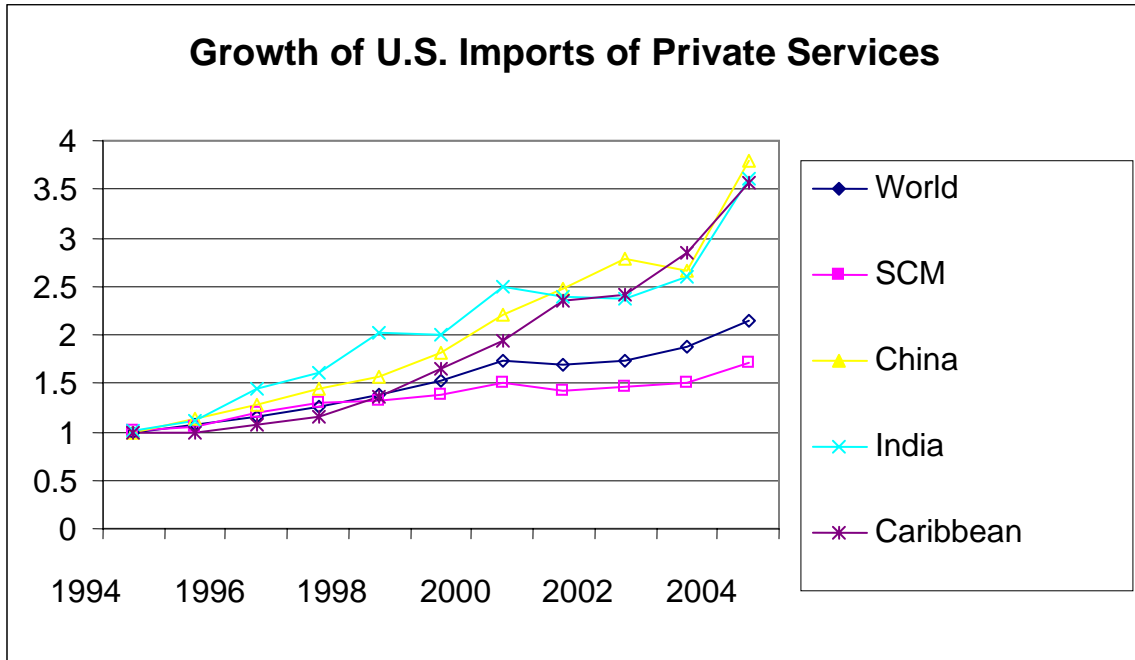


Figure 3: Growth in U.S. Imports and Exports of Travel Services

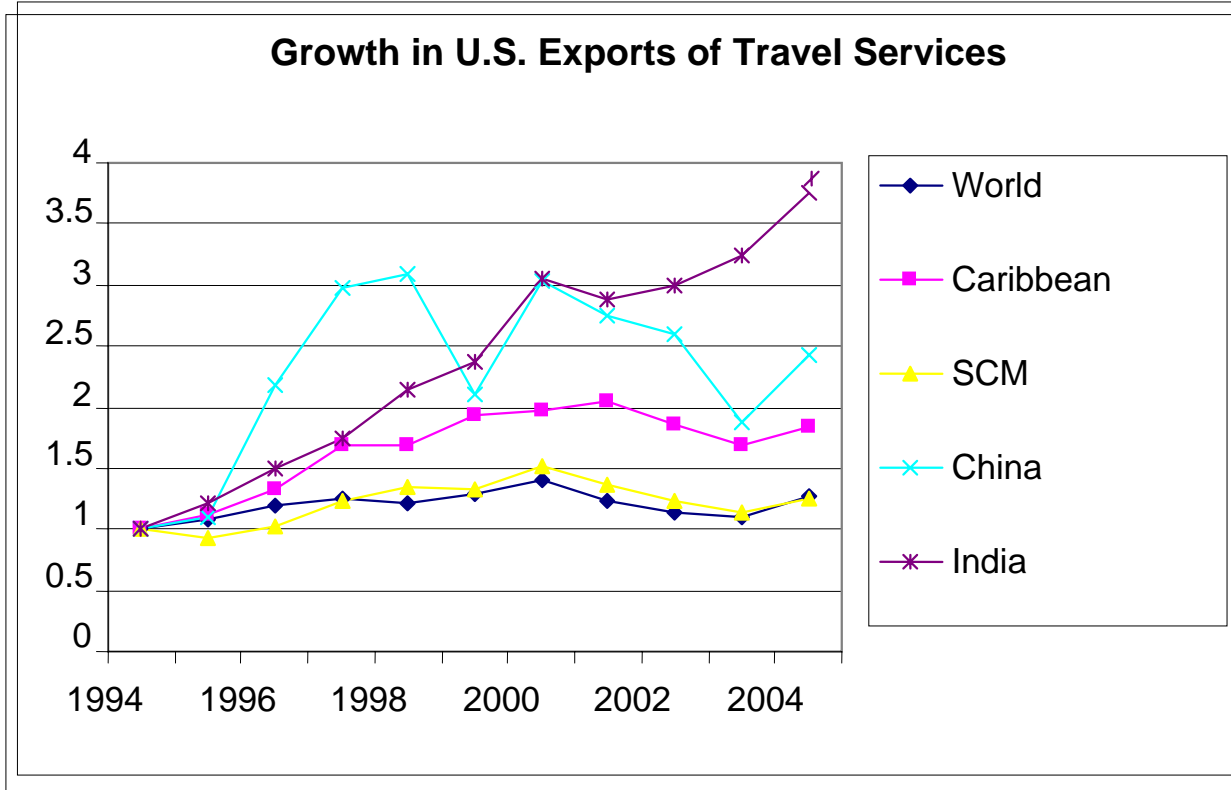
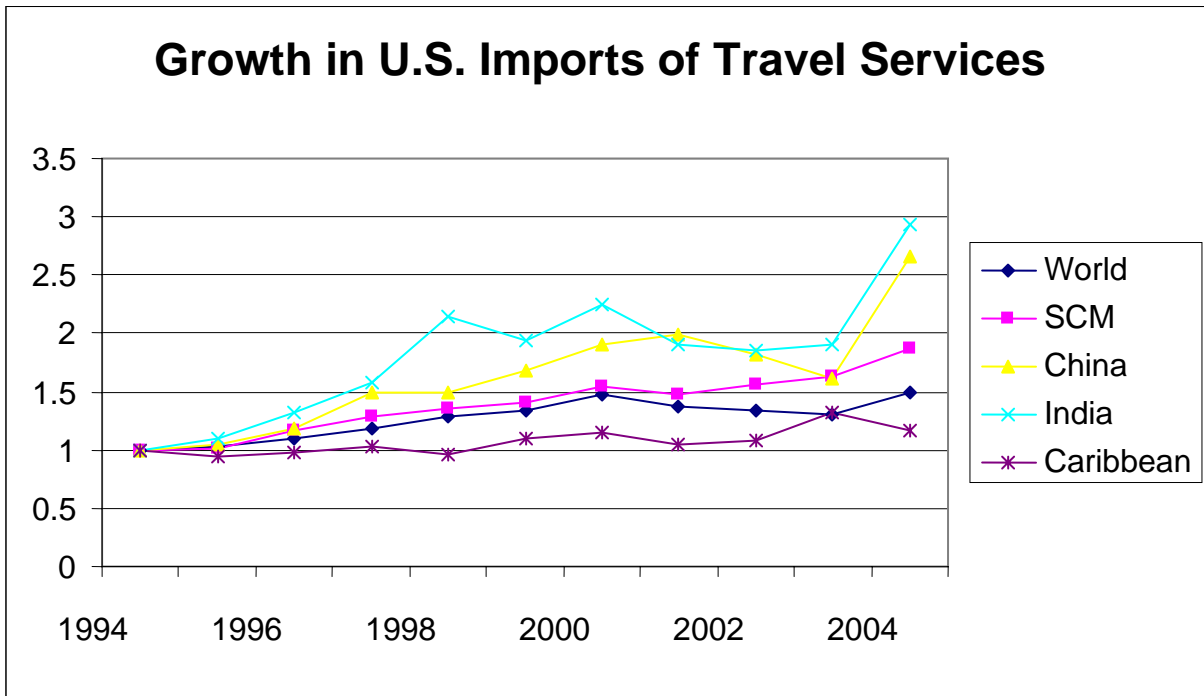


Figure 4: Growth in Imports of Passenger Fares

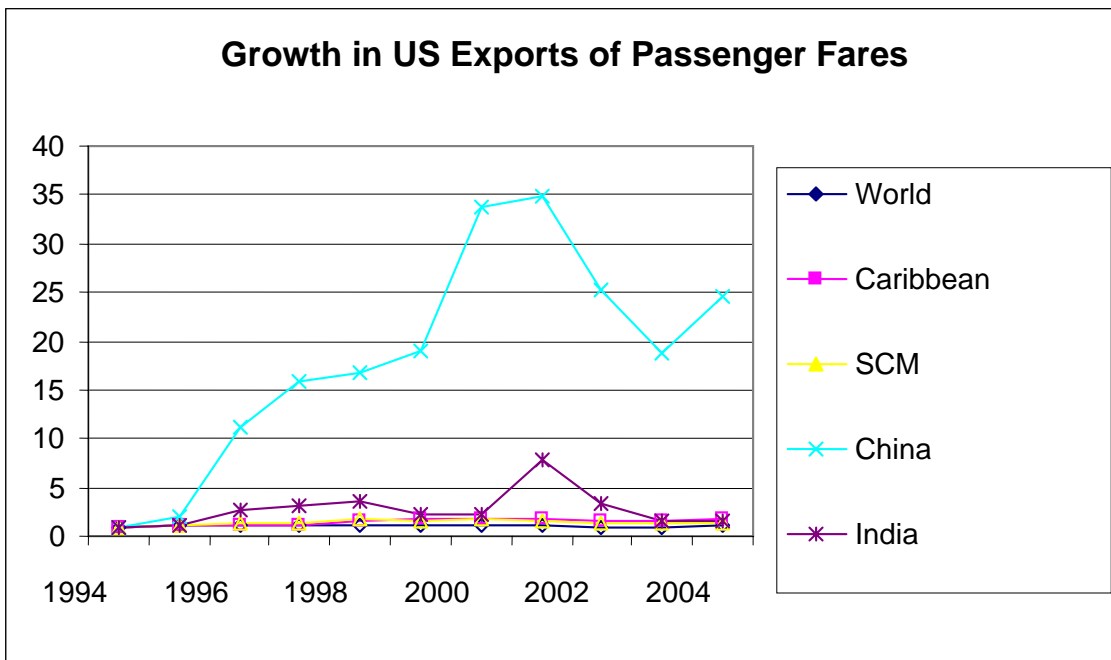
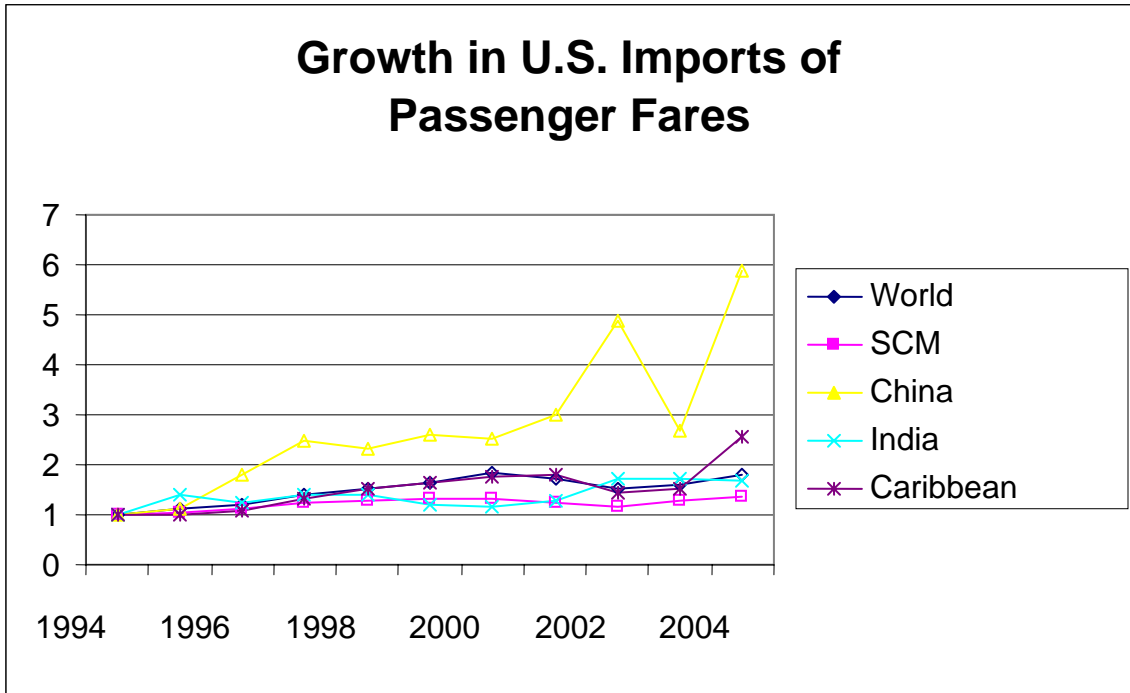


Figure 5: Growth in Trade of Other Transport Services

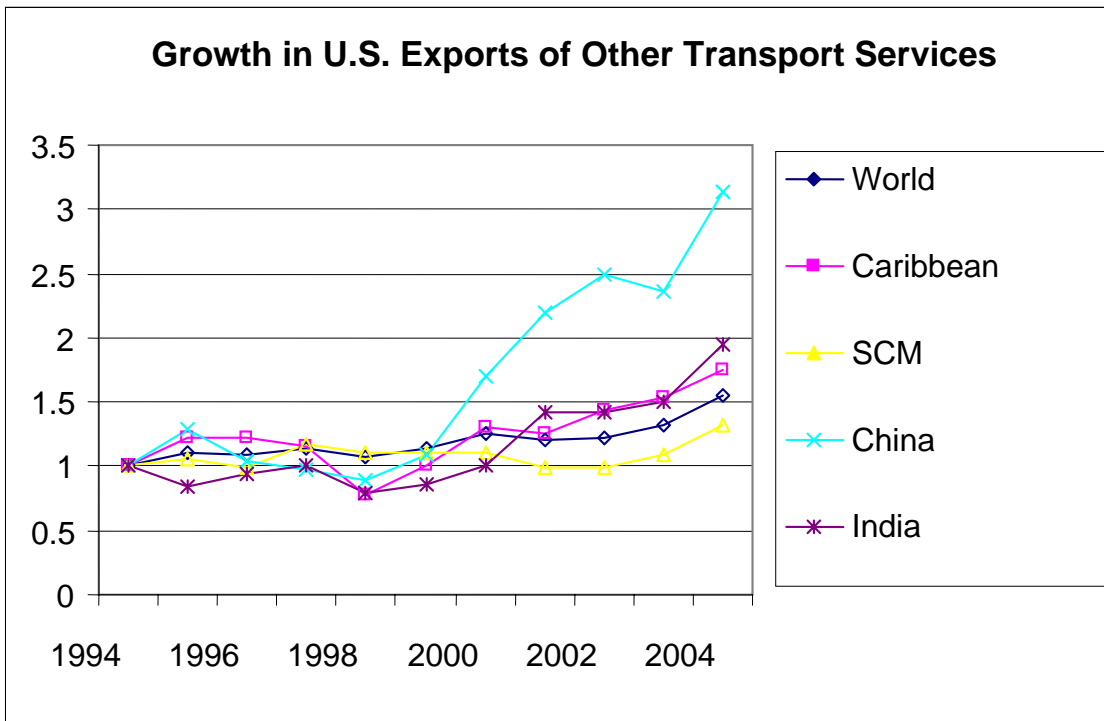
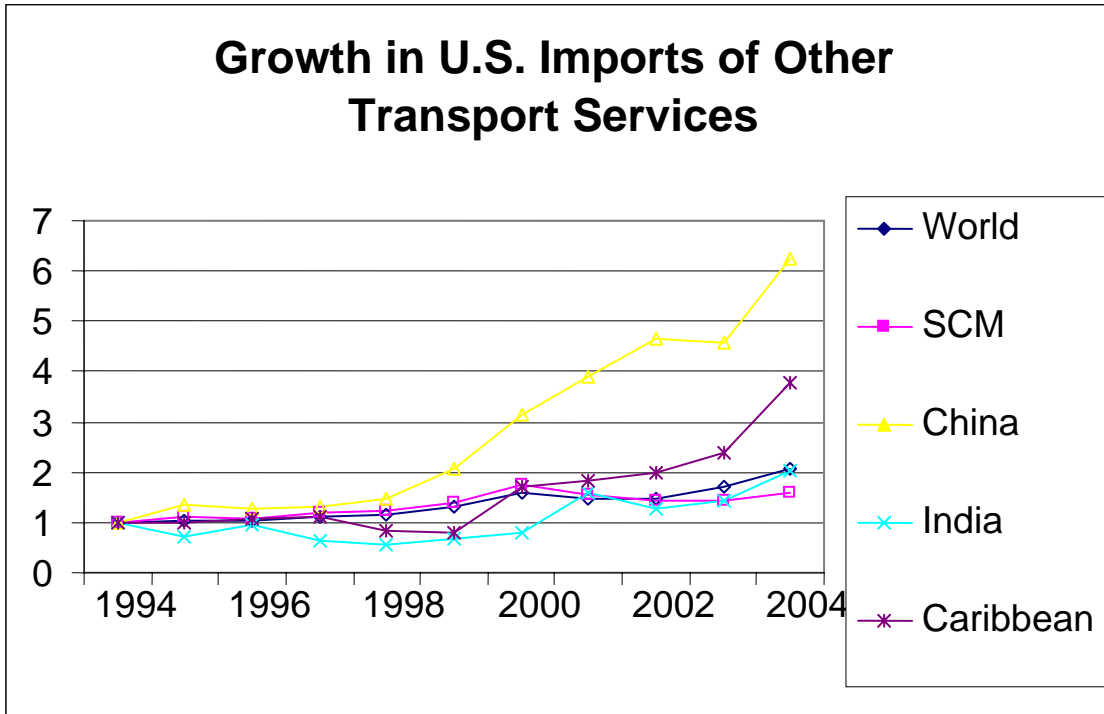


Figure 6: Growth in Trade in Royalties and License Fees

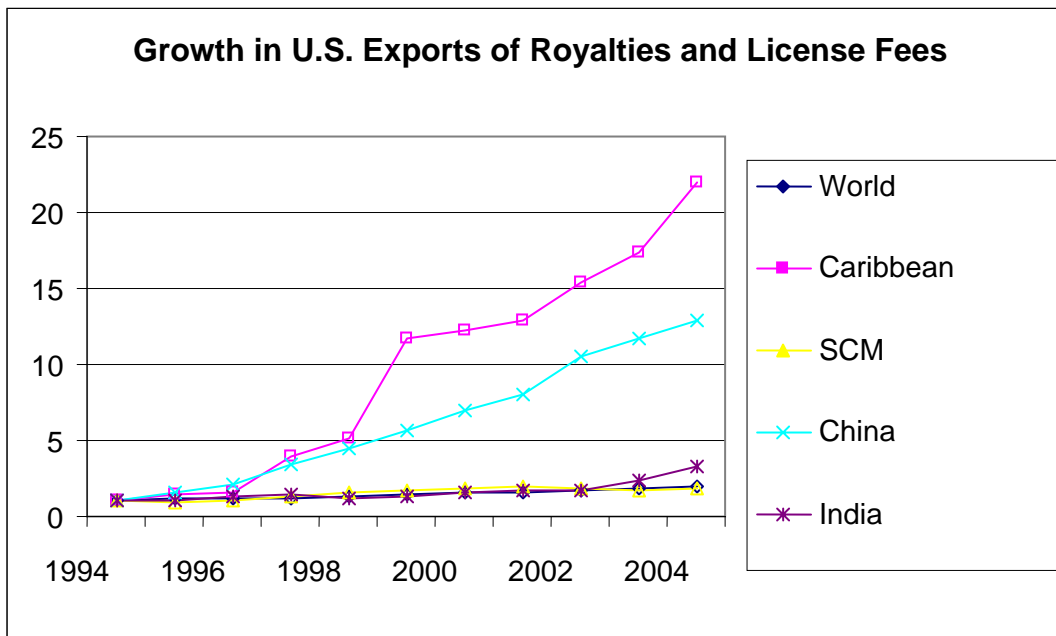
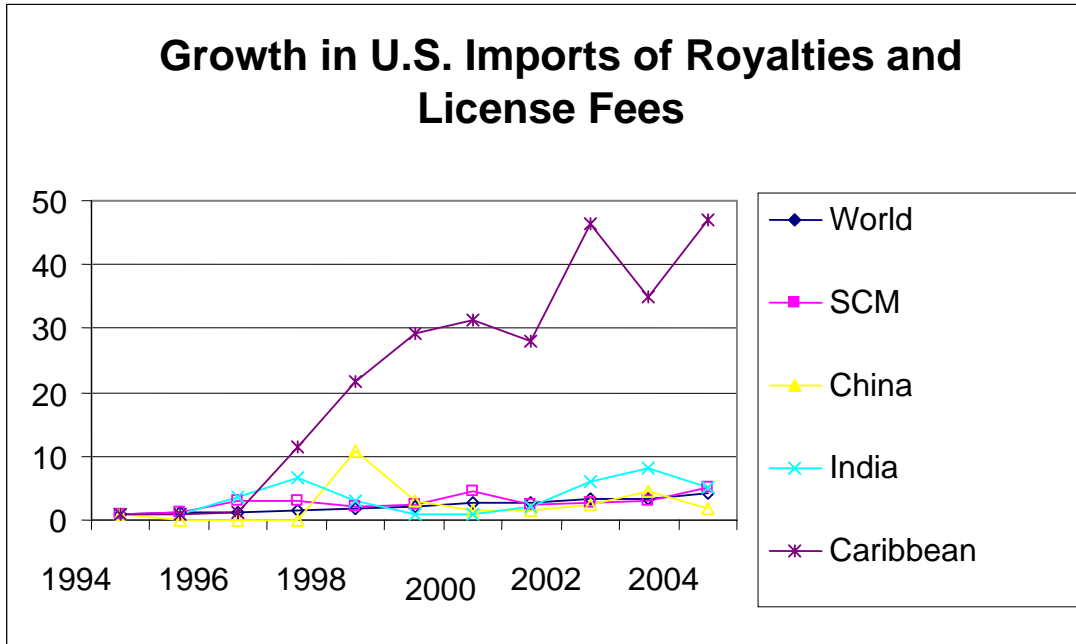


Figure 7: Growth in U.S. Trade in Other Private Services

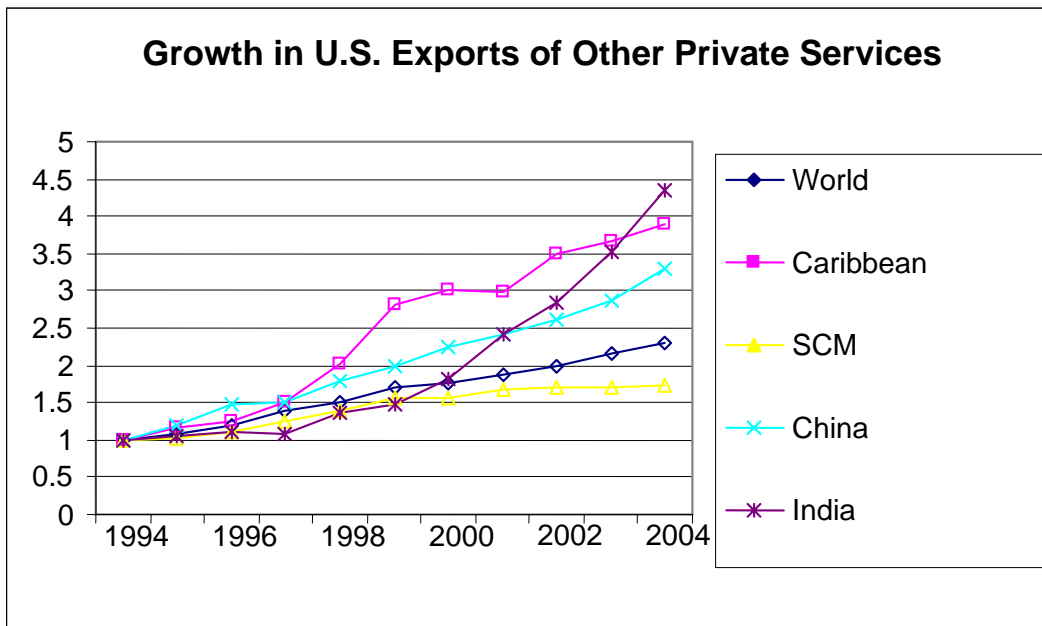
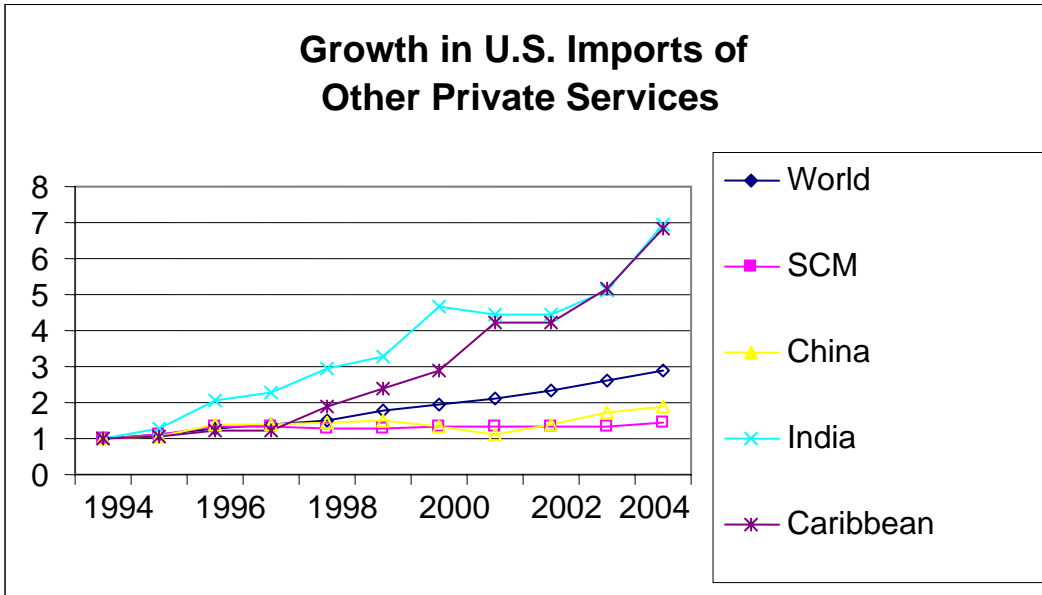


Figure 8: Growth of Total and Unaffiliated Other Private Service Trade by Country



Figure 9: Growth in Business Professional and Technical Services Trade 1994-2004

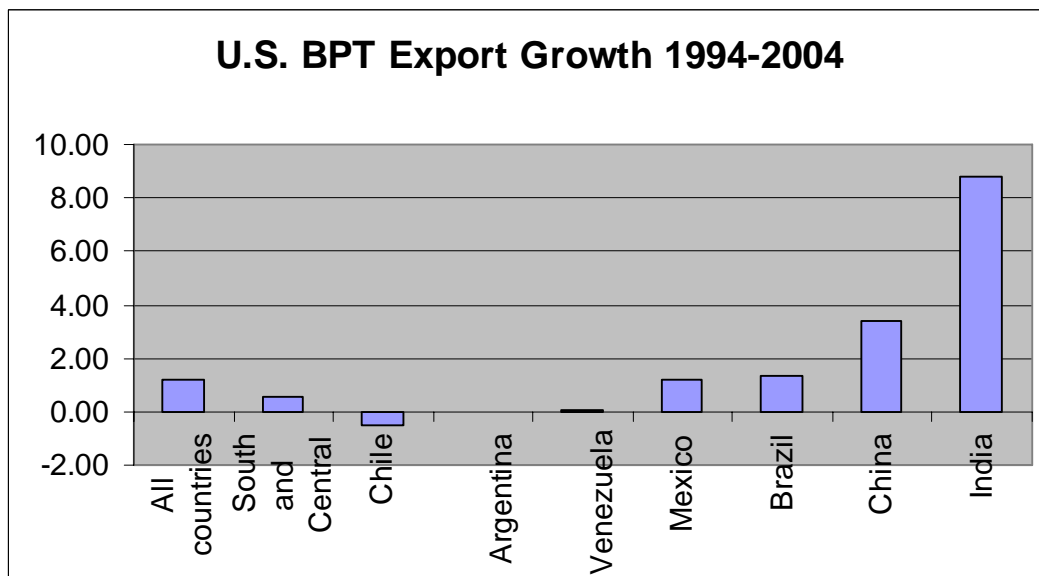
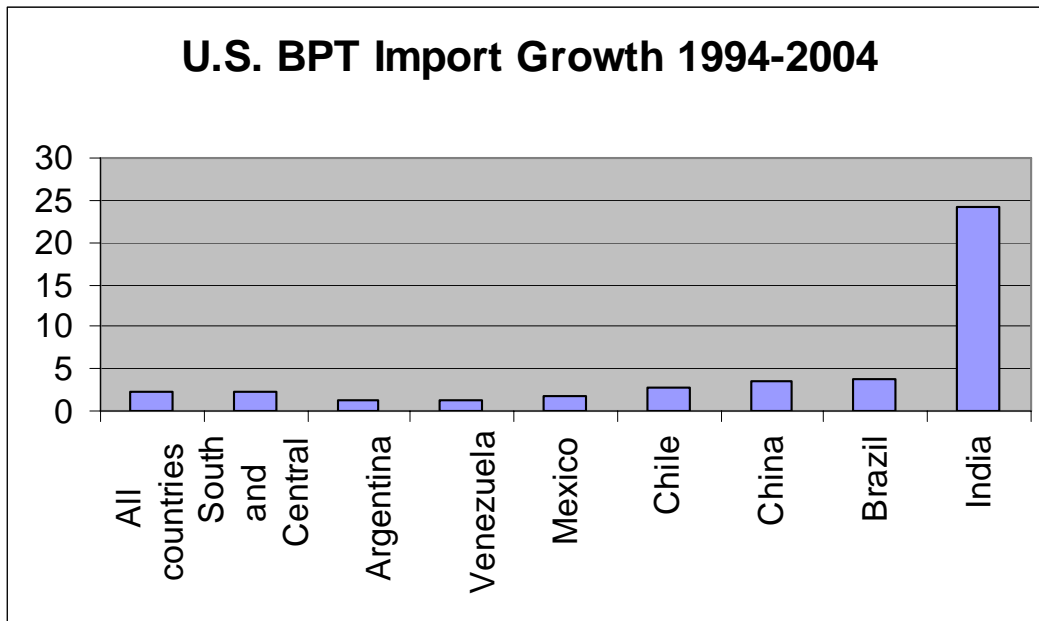


Figure 10: Broad Indices of U.S. Service Trade Similarity with India

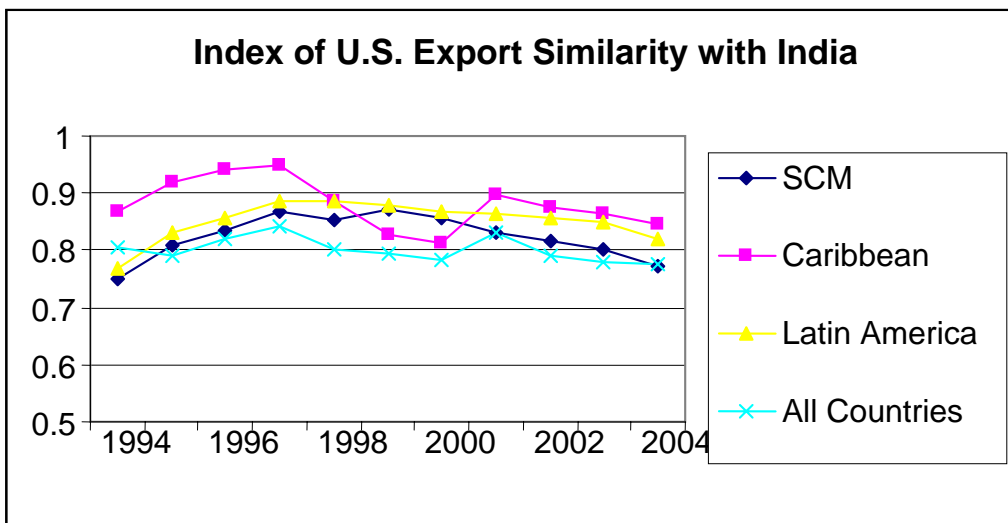
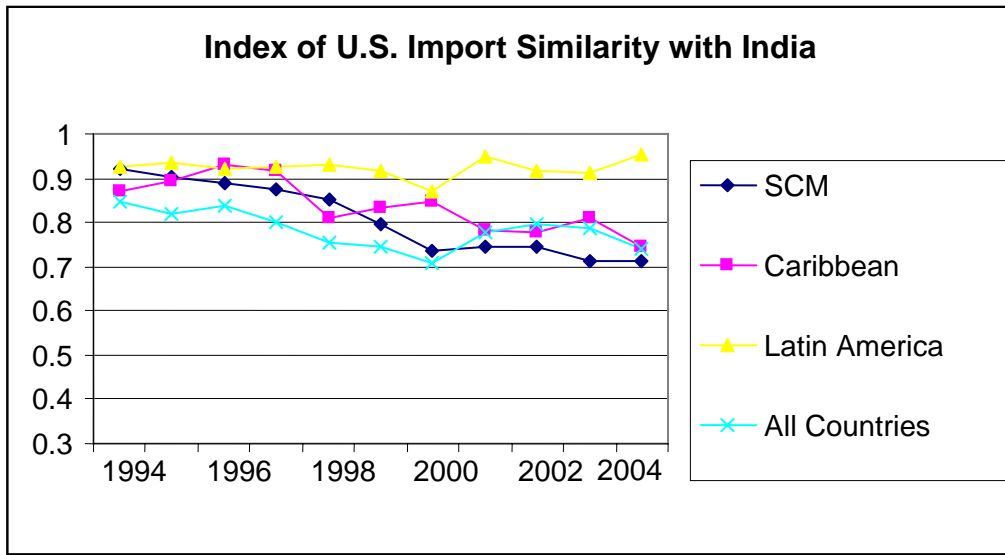


Figure 11: Broad Indices of U.S. Service Trade Similarity with China

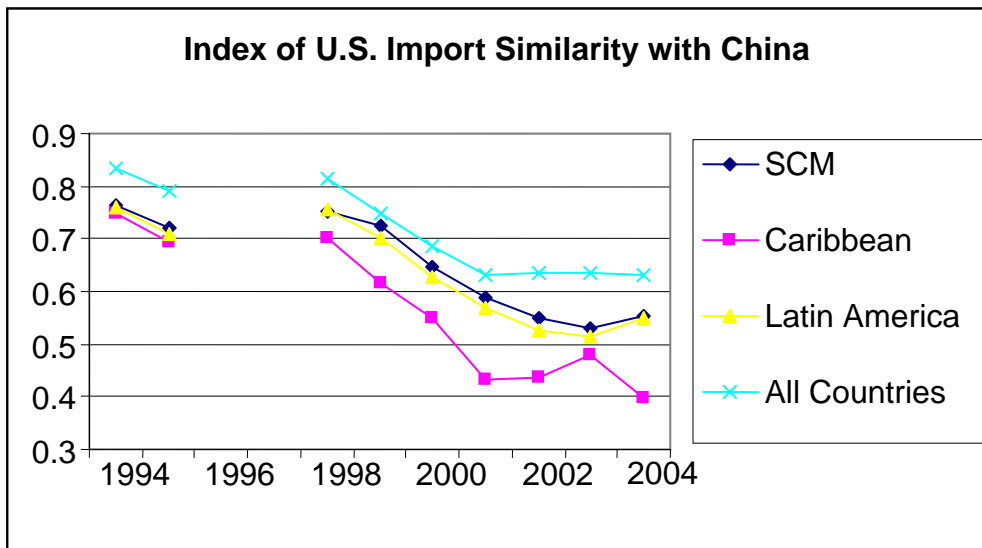
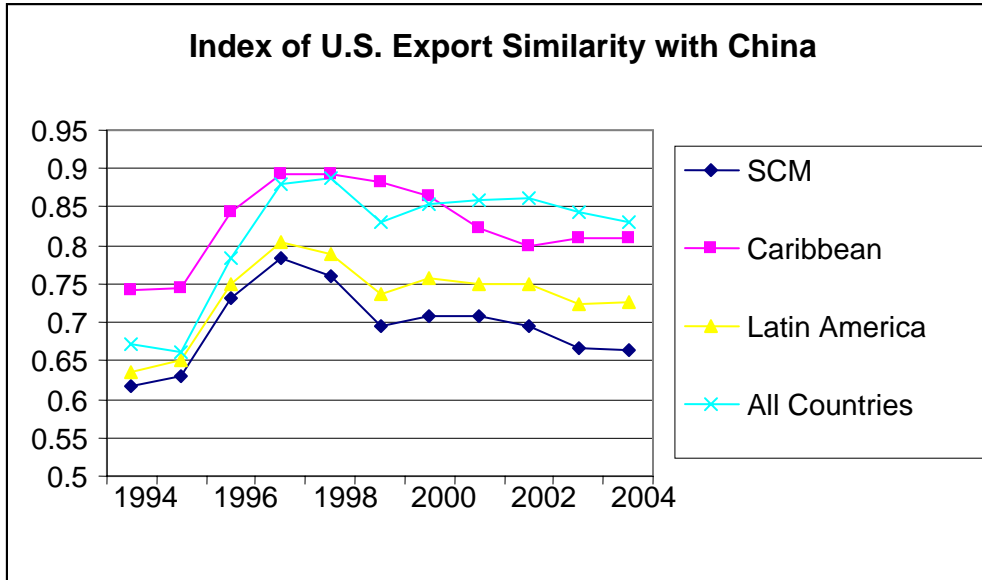
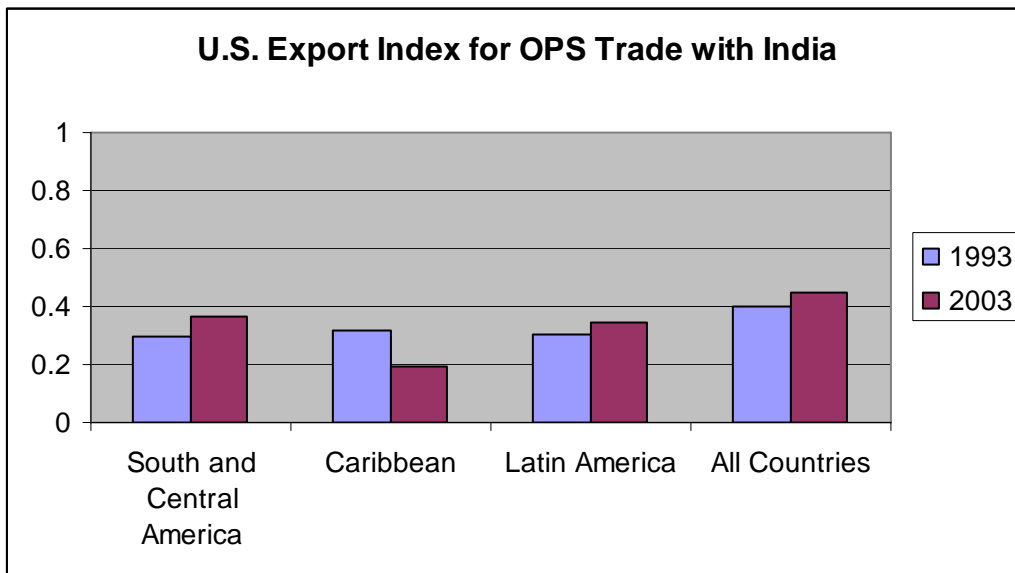
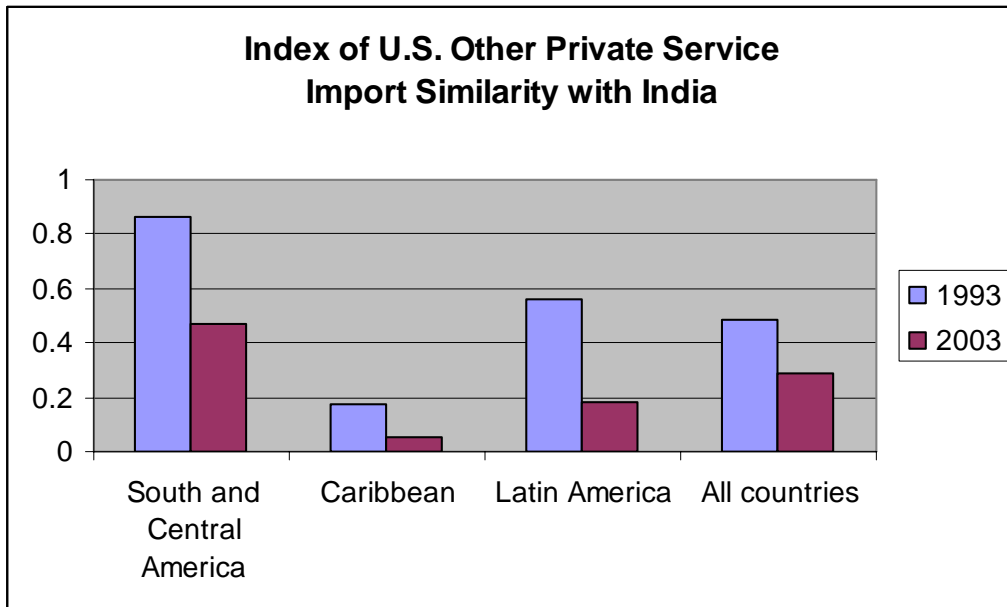
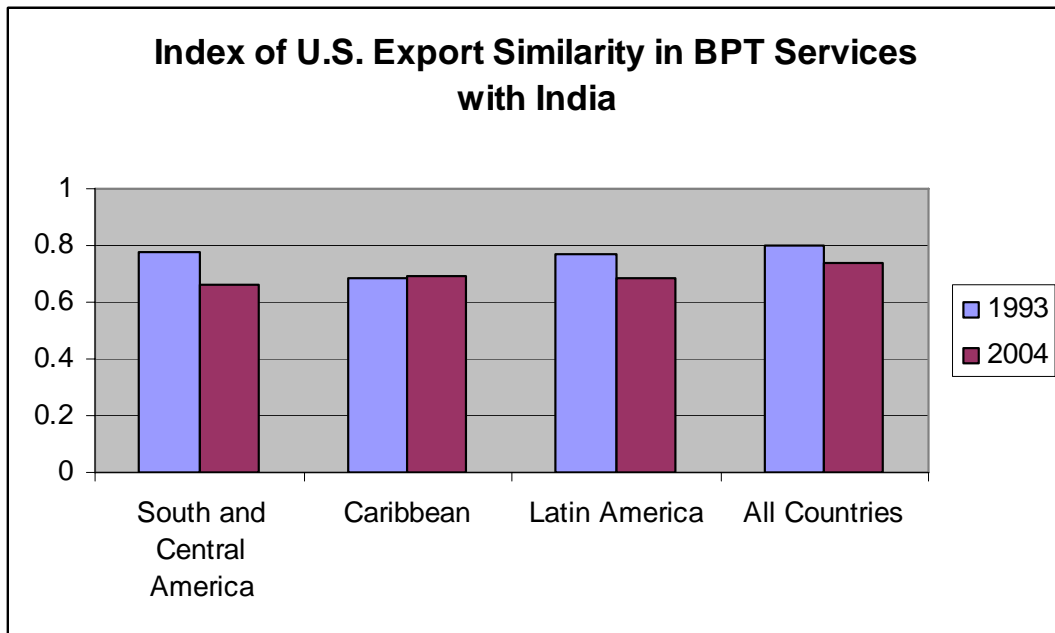
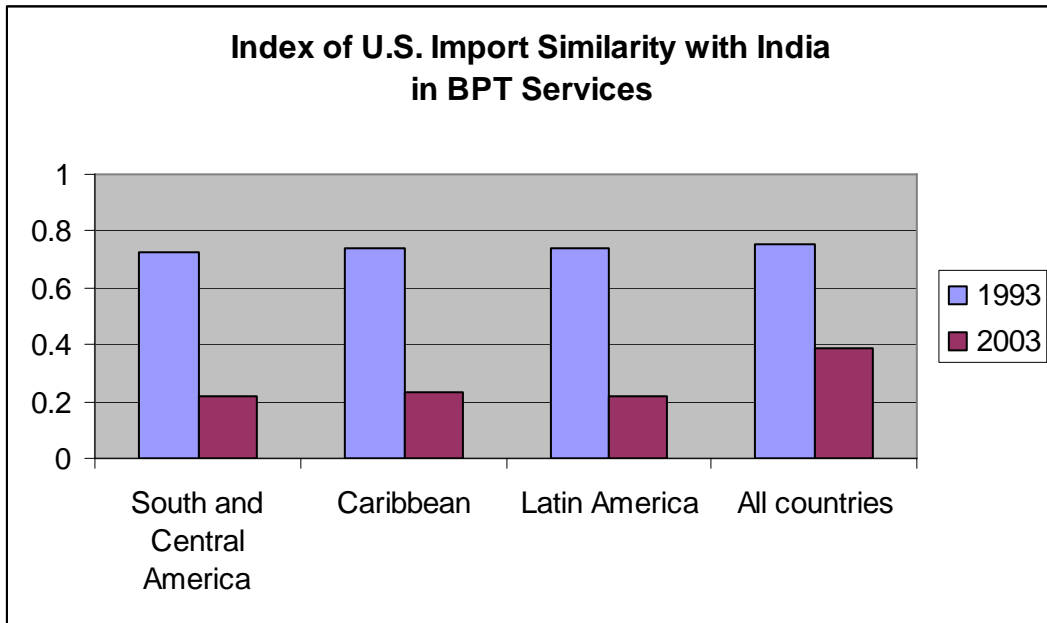


Figure 12: Similarity of OPS Trade with India



Note: South and Central America includes Mexico

Figure 13: Similarity of BPT Trade with India



Note: South and Central America includes Mexico