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Determinants of Export Services of USA with its Asian Partners: A Panel Data Analysis

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Abstract

Trade in services has accounted for 20 per cent of global trade. Despite the increasing importance of services trade in global economy, there has been limited research on service trade which uses determinants driving such trade. The present paper has examined the export potential in service sector of USA with its Asian trade partners (Japan, China, India, Singapore, South Korea and Hong Kong) by taking into account geographic, economic and other features. The approach is based on gravity model, widely used to analyze trade in goods and has more recently been applied to service sector. Being a nature of study is of panel data i.e. for 9 years (2000-2008) and six cross sections, the study used panel data methodology. The study revealed that USA has export potential in services for India and Japan. Regarding the convergent and divergent economies, USA had convergence in exports with three Asian countries (Hong Kong, India and Korea) and divergence with three Asian countries (Japan, China and Singapore). There is a large scope for export expansion for Hong Kong, India and Korea.

Keywords: *Services, International Trade, Gravity Model*

JEL Code Classification: *F13, F15, F17, L80*

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1. Introduction

Due to technological progress, since 1980s, international trade in services has been increasing rapidly. It has now accounted for twenty per cent of globe trade. Globally, the share of primary sector and secondary sector has been declining while the share of service sector is growing rapidly. Through the internet and e-commerce, many communications and information processing activities have opened new opportunities for cross border service trade, which has strengthened the importance of international service trade. Trade in services can improve not only the performance of the service sector but also the whole economy (Arnold et al., 2006, François and Woerz, 2007).Despite the increasing importance of services trade in global economy, there has been limited research on service trade which uses determinants driving such trade.

As per IMF Eurostat (2009), EU is having highest share in total world trade in services in 2008(26 percent). It was followed by USA (17.3 %), Japan (5.8 %), China (5.6 %), India (3.5 %) and South Korea (3.1 %). USA is among the topper economies whose having highest share in trade of services. In USA's exports of services, the highest average share is of China (16.44 %) followed by non OECD economies (13.11 %), UK (12.03 %) and NAFTA (11.92 %). Other Asian countries like India, Hong Kong and Singapore is having average share near about one to two per cent during 2000-2008. In imports of services from USA, the Asian economies have near about similar share (Figure A1 & A2). Amongst the Asian economies, the highest growth of USA's export of services has been found in India, China and Korea and in imports, India, China and Singapore's growth in services is the highest (Table A1 & A2 and Figure A3 & A4).

If we talk about position of USA' trade partners from Asia in trade of services, India's export of services grew at a highest rate i.e. 29.38 per cent followed by China (22.84 %), Singapore (17.16 %), South Korea (13.30 %), Hong Kong (11.91 %)and Japan (11.72 %) during 2000-2008 (Table A3 and Figure A5).While in imports, India and china are having first and second position in imports of services and grew at a rate 23.27 per cent and 21.11 percent respectively. They followed by South Korea (15.32 %), Singapore (14.57 %), Hong Kong (8.99 %)and Japan(5.33 %) (Table A4 and Figure A6).

When USA's position in Asian economies' export of services has been analyzed, the highest average share of it is in South Korea (25.14 %) followed by Japan (23.38 %), India (10.16 %), China (9.04 %), Hong Kong (8.59 %) and Singapore (6.90 %) during 2000-2008. In imports, its highest average share is in Japan (16.86 %) followed by Singapore (14.59 %), South Korea (14.53 %), India (13.32 %), Hong Kong (13.15 %) and China (11.71%) (Table A5 & A6 and Figure A7 & A8).Thus among Asian economies, it is clear through India and China are growing in trade of services but their share of USA in trade of services is not as large as other bigger economies.

As USA is one of the renowned economies in service trade and Asian economies are growing in service trade. Therefore the present study analyses the determinants of USA's services export potential with its Asian partners (Japan, China, India, Singapore, Korea and Hong Kong) for the period 2000-2008 during panel data methodology. The paper begins by presenting an overview of service trade in USA as well as in Asianeconomies in introductory section. Section II reviews the existing literature on gravity model applications to services and presents the gravity model approach used in the paper. And in last Section, Section III, the standard gravity model is estimated for services trade and results are discussed with some conclusions.

2. Review of Literature

Grunfeld and Moxnes (2003) identified the determinants of service trade and foreign affiliate sales in a gravity model, using recently collected bilateral data for the OECD countries and their trading partners, as well as new indicators for barriers to service imports and foreign affiliate sales. The study found that trade barriers and corruption in the importing country have a strong negative impact on service trade and foreign affiliate sales. The study also found a strong home market effect in service trade, and rich countries do not tend to import more, which may indicate that rich countries have a competitive advantage in service trade. The study suggested that free trade agreements contribute to increased service trade. A full liberalization of international trade in services lifts exports by as much as 50% for some countries, and no less than 30%

Kimura and Lee (2004) assessed the impact of various factors on bilateral services trade using the standard gravity model from 10 OECD member countries to other economies (including OECD and non-OECD member countries) for the years 1999 and 2000. The study has taken GDP, distance, remoteness, population for exporter as well as importer country. The results showed that the gravity equation for services trade is as robust as (if not more robust than) the gravity equation for goods trade, and that there are some differences between services and goods trade, with regard to the elasticities of the explanatory variables. Among others, geographical distance is consistently more important for services trade than for goods trade. This result may indicate that the cost of transport for tradable services is "in general" higher than that for goods. But there is a need of further investigation using the disaggregate services trade data to find out why geographical distance is more important for the flows of traded services than for goods trade. Membership in the same regional trade arrangement has a significant impact on both services trade and goods trade. The results suggest that even though many of the regional trade arrangements to date fail to include services explicitly, they certainly facilitate services trade at least as much as it facilitates goods trade. Another interesting result is that both goods trade and services trade are positively affected by economic freedom but the effect is much stronger for services trade. This implies that as countries moves toward economic liberalization,

services trade will grow faster than goods trade, and hence services trade will play even more important role in the global economy. Lastly, the study suggested that service exports and goods imports are not complements while goods exports and service imports are complements. This result may reflect the existence of trade in factor services which helps increase the exports of goods.

Francois et al (2007) with a panel dataset on trade and FDI across a number of detailed service sectors for 178 countries estimated degrees of service sector openness. The study developed a two-stage estimator suitable for available balance-of-payments based services trade data, which lacks bilateral detail. The result is a set of comparable, detailed trade and FDI restriction indices that spans time, sector, and country dimensions. The study's estimates of service sector openness and related trade cost equivalents are invariant to domestic regulatory structure in the OECD.

Brandicourt et al (2008) estimated the potential for trade in services in a 2-step approach using a gravity model for a sample of bilateral service trade flows in individual service categories between 65 countries over the period 2000 to 2005. In particular, there has been found substantial Austrian economy's potential for untapped trade in services. While Austria's travel services are reaching their potential, there is still ample room for exports of commercial services.

There are a very few studies in service trade which have calculated trade potential using gravity model or any other. So, the present study is an attempt towards this approach for USA economy, which has a good share in trade of services.

Data Base: The study has collected the data from following different sources for the different variables forthe period 2000-2008:

1. Bilateral exports OECD Statistics on International Trade in Services, 2009.This data is based on mode -1[1] .
2. Total exports and imports of services for Asian countries have been taken from United Nations Service Trade Statistics Data Base.
3. GDP of different countries has been taken from World Development Indicators, World Bank.
4. The Corruption Perceptions Index, measure of the level of corruption of a country, constructed by transparency international has been taken from www.transparency.org and distance between two countries taken from CEPII'S bilateral database[2]

[1] WTO defines trade to span four modes of supply: mode 1, mode 2, mode 3 and mode 4. Mode 1 includes cross border supply of services. Buyers and sellers are separated geographically. Transportation of the service occurs through an electronic network, for example via phone or email, or, if the service can be embodied in a physical good via traditional means of transportation.

[2] the simple distance calculated following the great circle formula which uses latitudes and longitudes of the most important city (in term of population) or of its official capital (www.CEPII.com). These distances are expressed as the distance (in kms) between the capital cities.

3. Methodology

The study has used the gravity model to find out the export potentials of USA with its Asian partners. The gravity model applies Newton's universal law of gravitation in physics, which states that gravitational attraction between the two objects is proportional of their masses and inversely relate to square to their distance (Zhang and Kristensen, 1995 and Chritie, 2002). The gravity model is expressed as follows:

$$F_{ij} = \frac{M_i M_j}{D_{ij}^2}$$

F_{ij} is the gravitational attraction.
M_i and M_j are mass of two objects.
D_{ij} is the distance.

Later on an astronomer, Stewart, and a sociologist, Zipf transferred his law to the social sciences and attempted to apply it to spatial interactions, such as trips among cities

$$I_{ij} = G\ (Pop_i, Pop_j)/ D_{ij}$$

Where I_{ij} is the number of trips between cities i and city j.

$Pop_{i(j)}$ is population in city i(j).
D_{ij} is distance between city i and city j.
G is coefficient.

The gravity model for trade is analogous to this law. The analogy is as follows, "The trade flows between two countries is proportional to the product of each country's economic mass generally measured by GDP, and each to the power of quantities to be determined divided by the distance between the countries respective economic centers of gravity, generally their capitals, raised to the power of another quantity to be determined." (Christie, 2002).

The present study has used the following gravity model specification to calculate USA export potential for its Asian partners:

$$Ln\ E_{ijt} = C + L_n\ GDP_t + Open_{it} + SIM_t + CI_{jt}$$

C=Constant
E_{ijt}= Exports of service flows in year t from country i(USA) to country j(Asian countries)
GDP_t =Gross Domestic Product=Y_{it} +Y_{jt}
$Open_{it}$= Openness of i country=Y_{jt}/dis_{ij}
Sim=Similarity=Ln{1-(y_i / y_i+y_j)2-(y_j/y_i+y_j)2}
CI= Corruption Index in country i based on the index developed by Transparency International.
Y_{it}= Country i's GDP in year t (measured in US $ millions)
Y_{jt}= Country j's GDP in year t(measured in US $ millions)

Dis_{ij}= Distance between importing and exporting country,
Ln= natural log

A panel framework is designed to estimate the above equation during a period of 2000-2008. Panel estimation reveals several advantages over cross section data and time series data as it controls for individuals heterogeneity (whereas time and cross section studies do not control for this heterogeneity and it may give biased estimated results). Furthermore, more degree of freedom reduces the co linearity among explanatory variables, therefore improving the efficiency of econometric estimates. More importantly, panel data can measure effects that are not detectable in cross sections and time series data (Baltagi, 1995).

Some early studies usually investigate the gravity model with single year cross sectional data or time series data. These methods are probably affected by problem of misspecification and yield biased estimation of volume of bilateral trade because there is no controlling for heterogeneity (Cheng and Wall, 2005). Matyas et al (1997), Egger (2000) etc.suggestapplying panel data in gravity model because panel data is a general case of cross sectional data and time series data.

Panel estimation can be done using pool estimation, fixed effect and random effect (Gujrati, 2003). Pool estimation is the simplest approach. Its function is as follows:

$$Y_{it} = \beta_1 + \beta_2 X_{2it} + \beta_3 X_{3it} + e_{it}$$

Where i stands for cross sectional unit, t stands for time period and error term is normally distributed with mean zero and constant variance. Pooled estimation assumes there is one single set of slope coefficients and one overall intercept. It disregards the time and space dimension of panel data; the error term captures the differences overtime and individuals. The pooled estimation however, may provide inefficient and biased estimated results because it assumes there are no individual effects and time effects.

The fixed effects takes into account the individuals and time effects by letting the intercept varies for each individual and time period, but the slope coefficients are constant. The model is

$$Y_{it} = \beta_{1i} + \beta_2 X_{2i,t} + \beta_3 X_{3i,t} + e_{it}$$

Where it is usually assumed that eitis independent and identically distributed over individuals and time with mean zero and variance $\sigma 2$ and all Xit are independent of all error terms. By introducing different intercept dummies one can allow for intercept to vary according to individuals and time.

Another approach applies to estimate panel data is random effect estimation. The random effect treats the intercept as a random variable and the individuals included in the sample are drawn from a larger population. The model is written as follows:

$$Y_{it} = \beta_1 + \beta_2 X_{2it} + \beta_3 X_{3it} + W_{it}$$

Where$W_{it} = \varepsilon_i + U_{it}$

The composite error term Witconsists of two components, εi,which is the cross section or individual specific, error component and Uit, which is combined time series and cross section error component. It is assumed that the individual error components are not correlated with each other and are not auto correlated across sections and time series units.

$\varepsilon_i \sim N(0, \sigma^2_\varepsilon)$
$U_{it} \sim N(0, \sigma^2_u)$
$E(\varepsilon_i u_{it}) = 0,\ E(\varepsilon_i \varepsilon_j) = 0 (i \neq j)$
$E(u_{it} u_{is}) = 0,\ E(u_{it} u_{jt}) = E(u_{it} u1) = 0 (i \neq j;\ t \neq s)$

Equations 1has been estimated by all three methods (restricted model, one-way fixed effect model (only cross section vary) and one-way random effect model (only cross section vary). And then F statistic test and Hausman test (Verbeek, 2004)have been run to select the most efficient method for interpreting the estimate results.

Restricted F-test

$H_o : u_i = \ldots\ldots\ldots\ldots u_{n-1} = 0$
H_1 : not H_0

If null hypothesis is rejected, fixed effect model is better than the pooled OLS model.

3.1. Hausman Test (Verbeek, 2004)

Ho: Explained variables are uncorrelated with individual effects
H1: Explained variables are correlated with individual effects

$$H = \left(\hat{\beta}_{FE} - \hat{\beta}_{RE} \right)' \left[\hat{V}\left(\hat{\beta}_{FE} \right) - \hat{V}\left(\hat{\beta}_{RE} \right) \right]^{-1} \left(\hat{\beta}_{FE} - \hat{\beta}_{RE} \right)$$

Where $\hat{\beta}_{FE}, \hat{\beta}_{RF}$ are estimated coefficients from the fixed and random effect estimators. $\hat{V}$'s are the covariance matrices of fixed and random effect. If the computed statistic H is larger than a chi-squared distribution with k degrees of freedom (k is the number of elements inβ) then we reject the null hypothesis and conclude that random effect is not appropriate and it is better to use fixed effect.

3.2. Export Potentials

Calculating exports potential is a line of research that has been used intensively with the gravity model (Batra, 2004). Most of the studies apply the point estimated coefficient to data on the explanatory variables to calculate trade potential predicted by gravity model. The study has calculated export potentials with the help of three formulas:

1. Predicted Export Flows – Actual Export Flows (P-A)[3]:

Predicted export flows are based on gravity model of exports. Positive value of P-A shows that there is future possibility of export expansion while negative values shows that USA has exceeded its export potential with Asian economies.

2. Predicted Export Flows / Actual Export Flows (P/A)[3]:

If this ratio exceeds one, there is an implication in terms of potential expansion of USA's exports with the respective country and vice versa

There is uncertainty of calculating export potential based on above point estimates. There is another method (speed of convergence) which avoids this uncertainty.

3. Speed of Convergence

Jakob et al. (2000) has proposed the concept of speed of convergence to replace the old method to calculate potential trade. Speed of convergence is defined as the average growth rate of potential trade divided by average growth rate of actual trade between the years of observations.

$$Speed\ of\ Convergence = \left(\frac{Average\ growth\ \ rate\ of\ potential \exp orts}{Average\ growth\ rate\ of\ actual \exp orts}\right) \times 100 - 100$$

4. Results of Gravity Model

The estimation results of bilateral exports of USA with six Asian countries (Japan, China, India, Singapore, South Korea and Hong Kong) have been reported in Table 1. The gravity model of USA's exports have been estimated by restricted (pooled) model, fixed effect model and random effect model. The restricted model is the pooled model with the restrictive assumptions of single intercept and with the same parameter over time and across trading partners. The unrestricted model (fixed effect model), however is the same behavioral equation but allows the intercept to vary across trading partners. Formally, F-test has been carried out to test for the null hypothesis that the country specific effects are jointly zero. In Table 1, the value of F test was 13.44 at (5, 44) d.f. which was larger than tabulated value and supported the alternate hypothesis indicating Asian countries had different propensities to export with USA. The pooled estimation gives biased results due to omitted variables. Next, the Hausman test has also been performed to compare the fixed and random effect estimators. The statistic result had a value of 19.39 at 4d.f. which was also far larger than the critical value. This suggested that the fixed effect is a better choice than the random effect. Therefore, the direction of the study focuses on the fixed effects estimation.

Export equation has run through above mentioned three estimation methods. Estimated coefficients had nearly all the expected signs except for openness. However, the magnitudes of the coefficients in pooled and random effect

[3] These have been used by Batra (2004) for trade in goods.

estimation were notably different from those in the fixed effect method suggesting that there might be biased results due to ignoring country individual effects in pooled estimation and inconsistent estimates because of correlation between the individual effects and other regressors in random effect method. Even F-test and Hausman test had also supported the same argument for the present data. Gravity model results given in Table 1 shows the following results:

Table 1: Results of Gravity Model

Variable	Restricted/ Pooled Estimation		Fixed Effects Estimation		Random Effects Estimation	
	Coefficient	Z-statistics	Coefficient	Z-statistics	Coefficient	Z-statistics
Constant	-7.41**	-4.94	-1.95	-1.21	-6.12	-5.84
Gross Domestic Product	1.57**	7.33	0.61**	2.26	1.34**	8.15
Openness	-0.28**	9.27	0.50**	3.49	0.03	0.34
Similarity	2.88**	16.05	0.77*	1.96	1.53**	4.61
Corruption Index	0.03**	6.35	0.11**	3.35	0.05**	2.74
R^2	0.80		0.92		0.86	
Restricted F-test			13.7** (5,44)			
Hausman Test					19.39 (4)	

Source: Based on data given in *OECD Statistics on International Trade in Services* &*World Development Indicators.*

**Significant at one per cent level.

*Significant at five per cent level. Figures in parentheses are degrees of freedom.

Gross Domestic Product: Since many studies have shown Yi and Yj as different explanatory variables. But both are perfectlycollinearwith each other. Egger (2000) and Di Mauro (2000) have faced the same problem. Therefore, theysuggested the variable should be as a sum of exporter and importer's GDP. This is also followed by Grunfeld and Moxnes (2003) .Following them, it is expected to have positive sign as GDP of countries increase, the market will also increase. The coefficient of this variable in Table 1 is positive and significant showing that with increase of GDP of USA and also of its Asian partners, export in services of USA to these economies will increase.An increase by one percent of sum of GDP of exporter as well as importer country will go in increasing USA's service exports by an average index of 0.61 percent

Openness: It measures a country 's exposure to trade with its trading partners Anderson and Wincoop (2005)show that bilateral trade depends on bilateral trade barriers between two countries relative to the product of multilateral openness trade. The coefficient of this variable is positive and significant showing that one country will trade more with another if it is close from its alternative trading partners

Similarity: This variable has been taken by Grunfeld and Moxnes (2003). It is bound between 0 and (absolute divergence in size) and .5(equal country size). It is expected to be positive as economy size increase trade is maximized when

countries have similar income levels. Inpresent case, the coefficient of this variable is positive and significant showing that as Asian countries and USA will be closer in income level, the trade will also be increased in between them.

Corruption Index of Importer Country: It is measure of level of corruption in importer country based on index developed by transparency international. It varies between 0 and 10 where 10 represent the least possible corrupt regime. It has been expecting that corruption in the importing country is determined of imports since it increases trading costs and complicates the distribution and sales of services. However that isaccustomed to highly corruption condition at home should be less bothered by corruption among its trading partners. Actually there is no clear cut conclusion as to whether corruption discourages services trade through foreign affiliate sale (Field, Sosa and Wu, 2003). In presentcase, it is significant and positive as the importing country's corruption increasesthe exporter increases the services. This may be due to easy trading of services.

Table 2 reports the export potential by calculating the difference between the potential (P) and actual level of exports (A) i.e. value of P-A. A positive value indicates future possibilities of export expansion while a negative value shows USA has exceeded its export potential with the particular Asiancountries .The average of export potential had been calculated to find out the export potentials of Asian nations with USA over a period of time. The average of P-A was highest for India(212.44) followed by Japan (77.02) during 2000-2008showing that for India and Japan ,USA had export potential with these nations where for China and Singapore, it was negative showing that USA has exceeded its export potential with these nations.

Table 2: Service Export Potentials of USA with Asian Economies (P-A Approach)

Year	Japan	China	Hong Kong	India	Singapore	Korea
2000	3024.104	720.796	485.481	-607.221	1394.191	312.376
2001	-2001.590	208.882	-11.926	-171.607	961.885	-615.399
2002	-512.123	38.111	-540.651	-79.429	411.547	-381.17
2003	-3072.815	-591.31	-281.926	-90.613	275.661	218.949
2004	709.866	-50.090	-359.109	10.261	-723.681	-2.925
2005	3030.166	364.633	-336.569	-62.434	-1264.46	-580.782
2006	263.440	214.594	29.306	223.911	-1065.61	382.250
2007	279.743	-497.195	494.395	762.279	-556.529	616.918
2008	-1027.604	-1965.75	991.952	1926.772	-181.02	492.086
Average	77.020	-173.036	52.328	212.435	-83.112	49.145

Source: Calculated from Gravity Results

Export potential had also been calculated with the help of ratio method. The ratio of export potential (P) as predicted by the model and actual trade (A) was also used to analyze the future direction of export for USA. If the value of P/A exceeds one, there is a potential expansion of exports with the respective country (Batra, 2004).

The results of this ratio are given in Table 3. The average of this ratio was near about same for all Asian countries in 1.00.

Table 3: Service Export Potentials of USA with Asian Economies (P/A Approach)

Year	Japan	China	Hong Kong	India	Singapore	Korea
2000	1.097	1.160	1.146	0.809	1.270	1.040
2001	0.938	1.038	0.996	0.946	1.186	0.925
2002	0.983	1.006	0.858	0.976	1.075	0.958
2003	0.907	0.910	0.923	0.976	1.046	1.025
2004	1.019	0.993	0.907	1.002	0.889	0.999
2005	1.077	1.042	0.925	0.988	0.827	0.950
2006	1.006	1.020	1.006	1.034	0.869	1.030
2007	1.006	0.964	1.094	1.092	0.938	1.046
2008	0.976	0.889	1.192	1.221	0.980	1.033
Average	1.002	1.003	1.006	1.005	1.009	1.001

Source: Calculated from Gravity Results

5. Speed of Convergence

There is a convergence if growth rate of potential is lower than that of actual exports and the computed speed of convergence is negative. There is a divergence in the opposite case. The argument for the prominent efficiency of this method over the point estimated method is that the speed of convergence exploits the dynamic structure of the data during estimation, which offers more reliable than the analysis of point estimates.

The results of potential exports using speed of convergence are reported in Table 4. USA's exports with six Asian partners presents an interesting situation separating trade partners into two groups, the first group characterized by an overtrade situation and the second one reflecting potentials to develop export. USA had convergence in exports with three Asiancountries (Hong Kong, India and Korea) and divergence with three Asian countries (Japan, China and Singapore). There is a large scope for export expansion for Hong Kong, India and Korea.

Table 4: Speed of Convergence

Content	Japan	China	Hong Kong	India	Singapore	Korea
Actual Growth	4.388	15.501	7.575	19.399	4.607	9.487
Predicted Growth	4.461	17.676	6.222	15.102	8.870	8.736
Speed of Convergence	1.675	14.029	-17.856	-22.147	92.532	-7.918

Source: Calculated from Gravity Results

6. Conclusions

The present paper has examined the export potential in service sector of USA with its Asian trade partners (Japan, China, India, Singapore, Korea and Hong Kong) by

taking into account geographic, economic and other features. The approach is based on gravity model, widely used to analyze trade in goods and has more recently been applied to service sector. Being a nature of study is of panel data i.e. for 9 years (2000-2008) and six cross sections, the study used panel data methodology . The study revealed that USA has export potential in services for India and Japan. USA had convergence in exports with three Asian countries (Hong Kong, India and Korea) and divergence with three Asian countries (Japan, China and Singapore). There is a large scope for export expansion for Hong Kong, India and Korea. As these economies especially India is one of the growing economies, if USA's export of services increase, its growth would be stable.

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Appendices

Table A1: USA's Service Exports to Asian Economies

Year	Japan	China	Hong Kong	India	Singapore	Korea
2000	33991	5224	3800	2588	6547	8025
2001	30706	5671	3506	3055	6121	7603
2002	30939	6034	3290	3294	5896	8592
2003	30172	5997	3386	3837	6221	9068
2004	36245	7659	3538	4521	5836	9759
2005	42225	9041	4185	5237	6080	11203
2006	41141	10924	4877	6740	7127	13040
2007	40532	13476	5714	9006	8496	13830
2008	41911	15901	6136	10632	9204	15364
Growth Rate	**4.39**	**15.50**	**7.58**	**19.40**	**4.61**	**9.49**

Source: OECD Statistics on International Trade in Services, 2009

Table A2: USA's Service Imports from Asian Economies

Year	Japan	China	Hong Kong	India	Singapore	Korea
2000	18873	3278	4355	1911	2405	6169
2001	17939	3666	3788	1836	2118	5647
2002	18628	4146	3649	1827	2185	6265
2003	18799	3959	3085	2000	2404	6791
2004	21480	5864	4768	2887	2902	7655
2005	23837	6657	5399	5057	3963	7677
2006	25347	7744	6236	7739	4497	8182
2007	25544	8862	7040	9668	4207	8910
2008	26460	9862	7853	12164	4966	9608
Growth Rate	**5.59**	**15.84**	**10.24**	**31.00**	**12.19**	**6.53**

Source: OECD Statistics on International Trade in Services, 2009

Table A3: Exports of Total Services in Asian Countries

Year	India	Japan	China	Hong Kong	Singapore	South Korea
2000	16685	69238	30431	40430	28171	30534
2001	17337	64516	33334	41135	27428	29055
2002	19478	65712	39745	44601	29556	28388
2003	23902	77621	46734	46555	36347	32957
2004	38281	97611	62434	55160	46860	41882
2005	52527	110210	74404	63709	53234	45129
2006	69730	117298	91999	72735	64139	49891
2007	86965	129117	122206	84706	80712	63349
2008	102949	148755	147112	92115	83196	77179
Growth Rate	**29.38**	**11.72**	**22.84**	**11.91**	**17.16**	**13.30**

Source: UN Service Statistics, 2009

Table A4: Imports of Total Services in Asian Countries

Year	India	Japan	China	Hong Kong	Singapore	South Korea
2000	19188	116864	36031	24698	29506	33381
2001	20099	108249	39267	24899	31822	32927
2002	21039	107940	46528	25964	33506	36585
2003	24878	111528	55306	26126	40016	40381
2004	35641	135514	72133	31138	49752	49928
2005	47287	134256	83796	33979	55061	58788
2006	58696	135556	100833	37060	64835	68851
2007	70545	150367	130111	42591	74979	83116
2008	87906	169544	158924	47062	79203	93851
Growth Rate	**23.27**	**5.33**	**21.11**	**8.99**	**14.57**	**15.32**

Source: UN Service Statistics, 2009

Table A5: Average Share of USA in Asian Economies' Export

Year	Japan	China	Hong Kong	India	Singapore	Korea
2000	27.26	10.77	10.77	11.45	8.54	26.28
2001	27.81	11.00	9.21	10.59	7.72	26.16
2002	28.35	10.43	8.18	9.38	7.39	30.26
2003	24.22	8.47	6.63	8.36	6.61	27.51
2004	22.01	9.39	8.64	7.54	6.19	23.30
2005	21.63	8.95	8.47	9.63	7.44	24.82
2006	21.61	8.42	8.57	11.10	7.01	26.13
2007	19.78	7.25	8.31	11.12	5.21	21.83
2008	17.79	6.70	8.53	11.82	5.97	19.90
Average	23.38	9.04	8.59	10.11	6.90	25.14

Source: UN Service Statistics, 2009

Table A6: Average Share of USA in Asian Economies' Export

Year	Japan	China	Hong Kong	India	Singapore	Korea
2000	16.15	14.50	15.39	13.49	22.19	18.48
2001	16.57	14.44	14.08	15.20	19.24	17.15
2002	17.26	12.97	12.67	15.66	17.60	17.12
2003	16.86	10.84	12.96	15.42	15.55	16.82
2004	15.85	10.62	11.36	12.68	11.73	15.33
2005	17.75	10.79	12.32	11.07	11.04	13.06
2006	18.70	10.83	13.16	11.48	10.99	11.88
2007	16.99	10.36	13.42	12.77	11.33	10.72
2008	15.61	10.00	13.04	12.09	11.62	10.24
Average	16.86	11.71	13.15	13.32	14.59	14.53

Source: UN Service Statistics, 2009

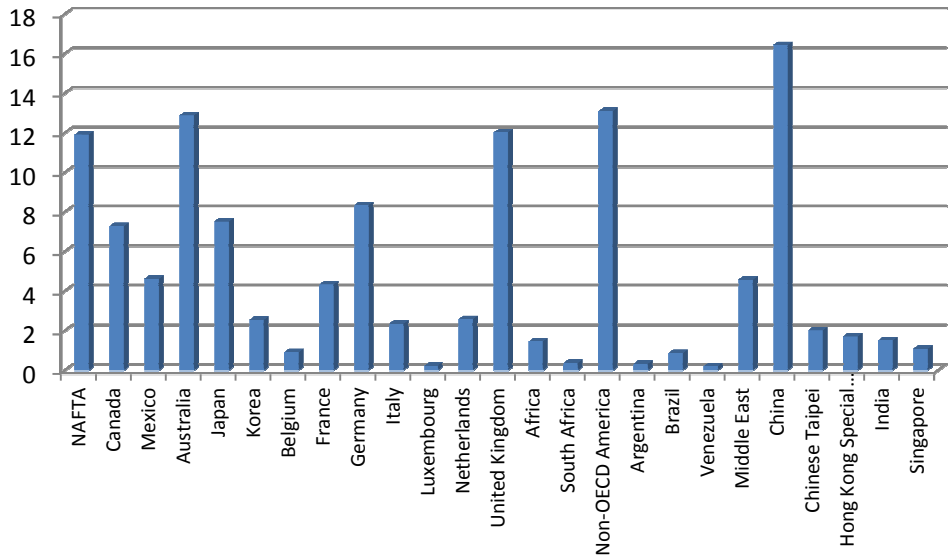

Figure A1: Average Share in US's Exports of Services (Percent)

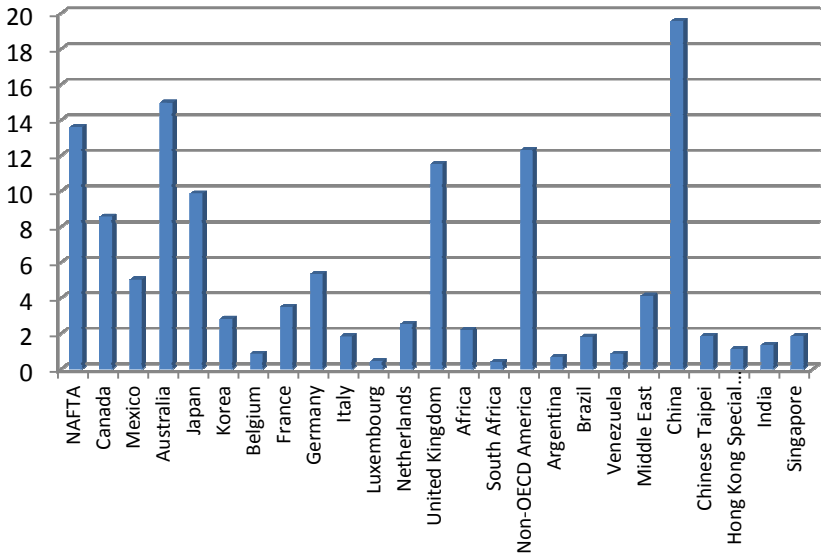

Figure A2: Average Share in US's Import of Services (Percent)

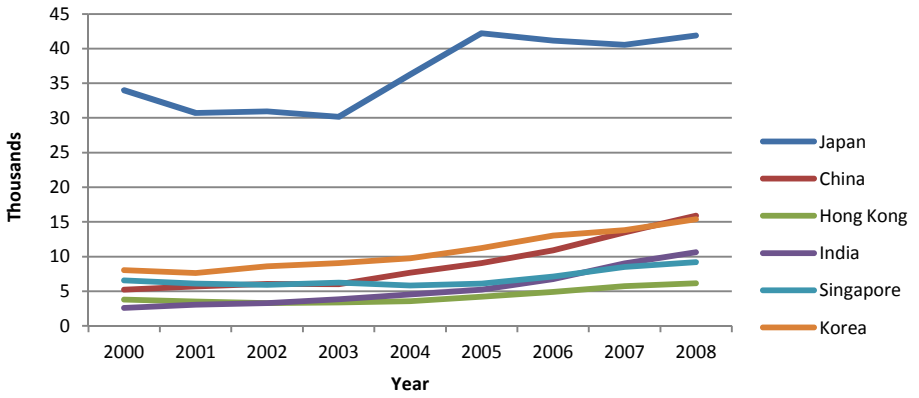

Figure A3: US's Services Exports to Asian Economies

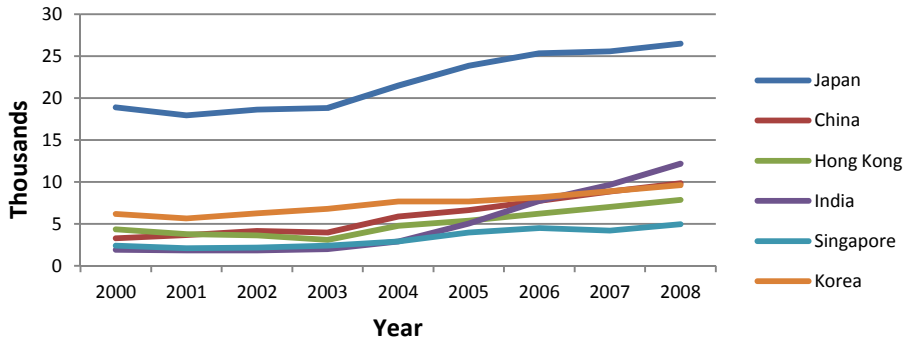

Figure A4: US's Services Imports from Asian Economies (USD)

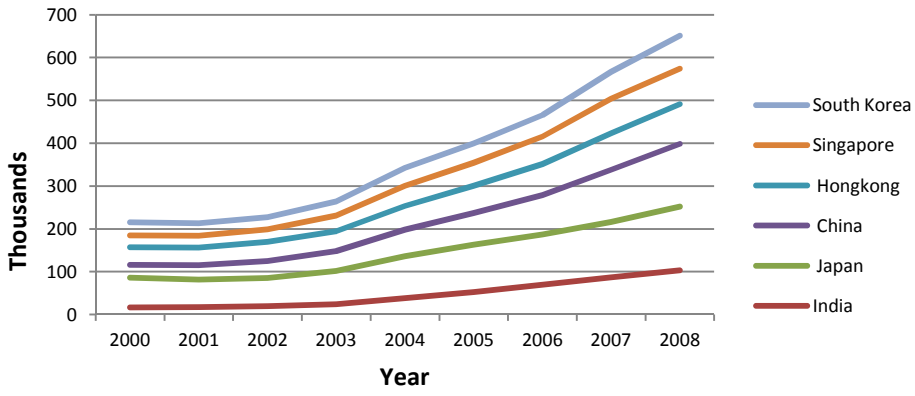

Figure A5: Exports of Services (USD)

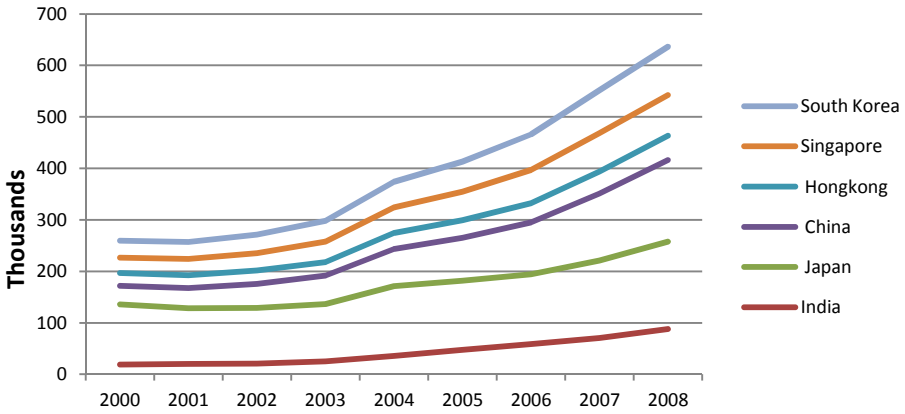

Figure A6: Import of Services (USD)

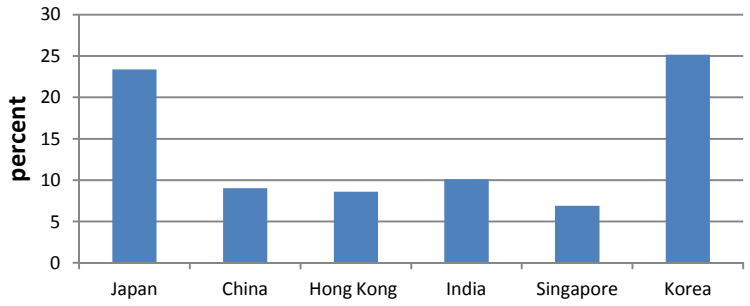

Figure A7: Average Share of US in Asian Economies' Exports of Services

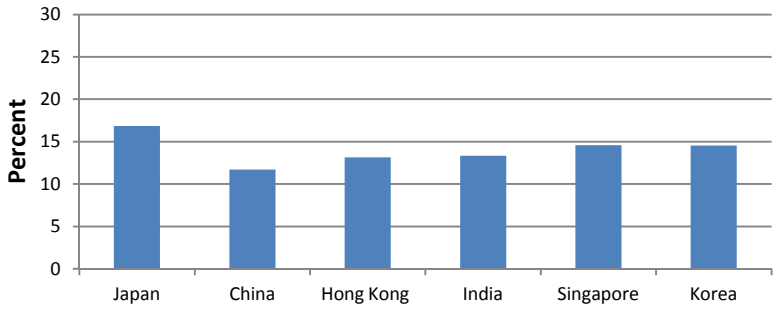

Figure A8: Average Share of US in Asian Economies' Imports of Services