Recent Trade Patterns and Modes of Supply in Computer and Information Services in the United States and NAFTA

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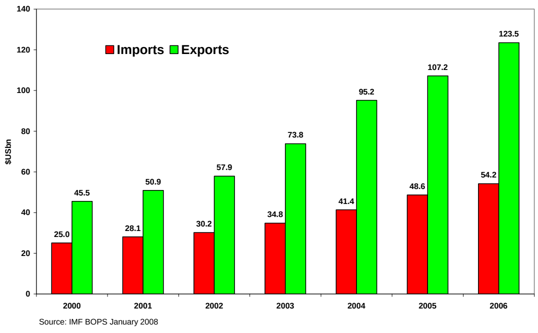
How the "Data Sausage" Is Made Really Does Matter in Computer and Information Services

- Mode 1: Most coherent data, but a $70bn global deficit
- Mode 2: Trivial in C&IS Trade
- Mode 3: US FATS data allows for estimates of affiliate "local market sales"; no FDI proxies

Figure 2: Global Computer and Information Services (Unaffiliated) Trade 2000-2006, As Reported in the IMF BOPS, $USbn



- Mode 4: US data on temporary workers (L-1 and H-1B) allows for a tentative separate approximation of C&IS trade

US Mode 1 C&IS Trade: The Rising Importance of Affiliated Imports

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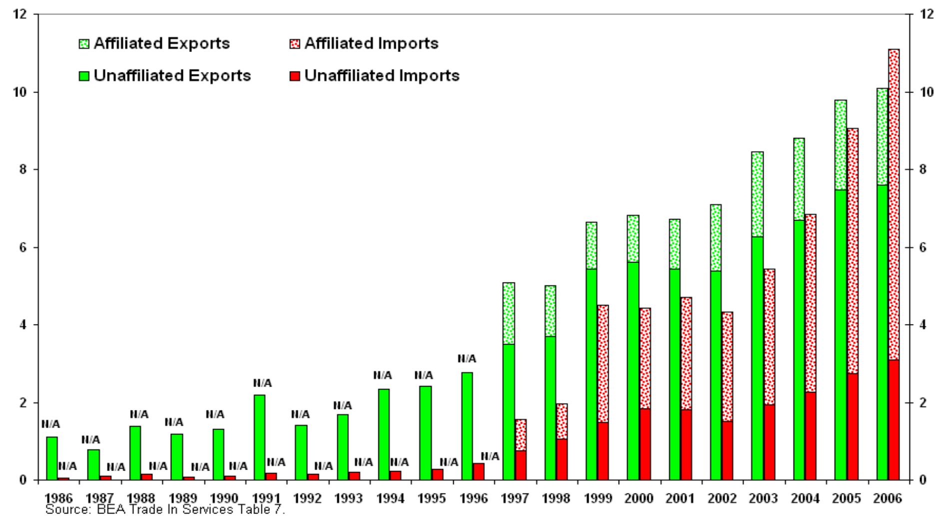
Figure 4: US Mode I Trade in Computer and Information Services, By Corporate Ownership 1992-2006, $USbn



Source: BEA Trade In Services Table 7.

US Mode 1 Affiliated C&IS Trade: Foreign MNCs Play a Bigger Role and No HQ Effect in US MNCs

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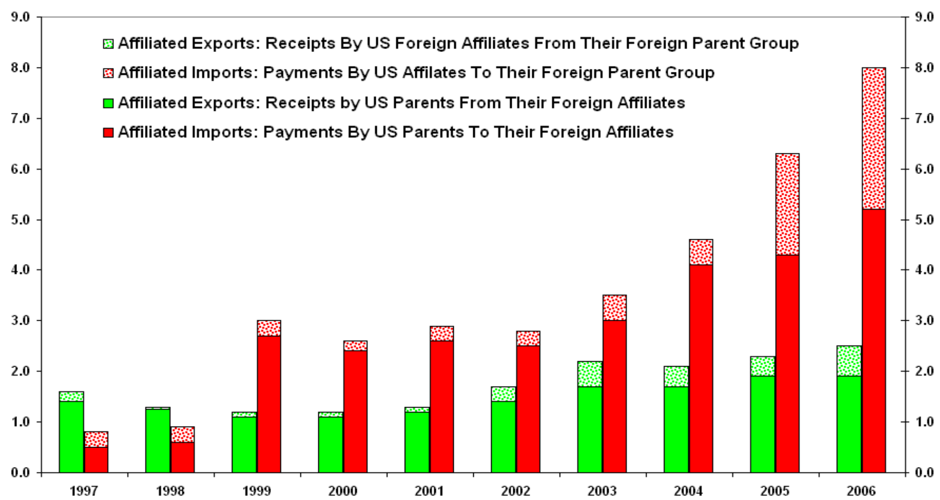
Figure 6: US Intra-Firm Trade in Computer and Information Services, By Corporate Ownership 1997-2006, $USbn

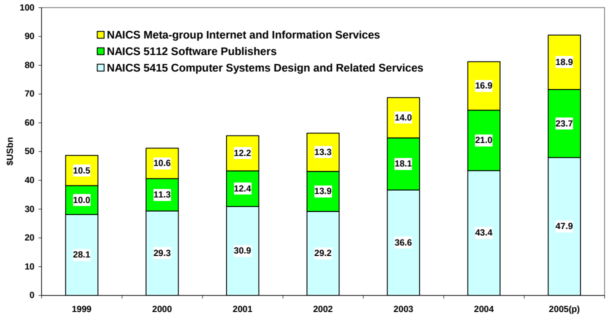


Source: BEA Trade In Services Table E.

US Mode 3 C&IS Exports; It's All About The Affiliates!

- Mode 3 dominates US C&IS exports
- Mode 3 is rising faster than cross-border mode 1 exports – few traces of a tradability revolution in US C&IS exports
- Indicative of Mode 3 as a substitute for mode 1 exports

Figure 7; US Mode III C&IS Exports - "Adjusted Local Services Sales" By US Foreign Affiliates in Computer Services Industries 1999-2005, by Industry of Affiliate, $USbn



Notes: NAICS 1997/2002 break is between 2003 and 2004. No NAICS based data available before 1999. Source: BEA Comprehensive Financial and Operating Data, Table III A2

Table 2: US C&IS Exports 1999-2005, Modes 1 and 3

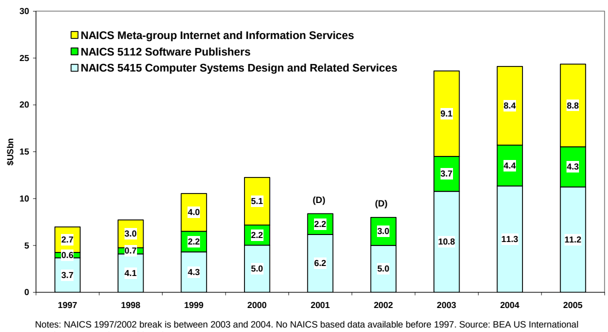
C&IS Exports	1999	2000	2001	2002	2003	2004	2005
Mode 3, $bn	48.7	51.2	55.5	56.4	68.7	81.2	90.5
Mode 1 Unaffiliated, $bn	5.4	5.6	5.4	5.4	6.3	6.7	7.5
Mode 1 Total, $bn	6.6	6.8	6.7	7.1	8.5	8.8	9.8
Ratio of Mode 3/ Mode 1 Unaffiliated	8.9	9.1	10.2	10.5	11.0	12.1	12.1
Ratio of Mode 3/ Mode 1 Total	7.3	7.5	8.3	7.9	8.1	9.2	9.2

Source: Author, based on annual BEA data

US Mode 3 C&IS Imports; Mode 3 Dominates, But Less Than in US Exports

- Mode 3 imports 2-3 times higher than mode 1
- Affiliated mode 1 imports rising as rapidly as mode 3 imports
- Indicative of affiliated mode 1 imports as complementary (input) to mode 3

Figure 8; US Mode III C&IS Imports - Sales of Services to U.S. Persons by Foreign MNC's Through Their Nonbank MOUSA's in Computer Services Industries 1997-2005, by Industry of Affiliate, $USbn



Notes: NAICS 1997/2002 break is between 2003 and 2004. No NAICS based data available before 1997. Source: BEA US International Services Transactions, table 11b.

Table 3: US C&IS Imports 1997-2005, Modes 1 and 3

C&IS Exports	1997	1998	1999	2000	2001	2002	2003	2004	2005
Mode 3, $bn	7.0	7.7	10.5	12.3	N/A	N/A	23.6	24.1	24.3
Mode 1 Unaffiliated, $bn	0.8	1.1	1.5	1.8	1.8	1.5	1.9	2.3	2.7
Mode 1 Total, $bn	1.6	2.0	4.5	4.4	4.7	4.3	5.4	6.9	9.0
Ratio of Mode 3/ Mode 1 Unaffiliated	9.1	7.2	7.1	6.7	N/A	N/A	12.2	10.7	8.9
Ratio of Mode 3/ Mode 1 Total	4.5	3.9	2.3	2.8	N/A	N/A	4.3	3.5	2.7

Source: Author, based on annual BEA data

US Revealed Comparative Advantages in C&IS; Declining in Mode 1, Stable in Mode 3

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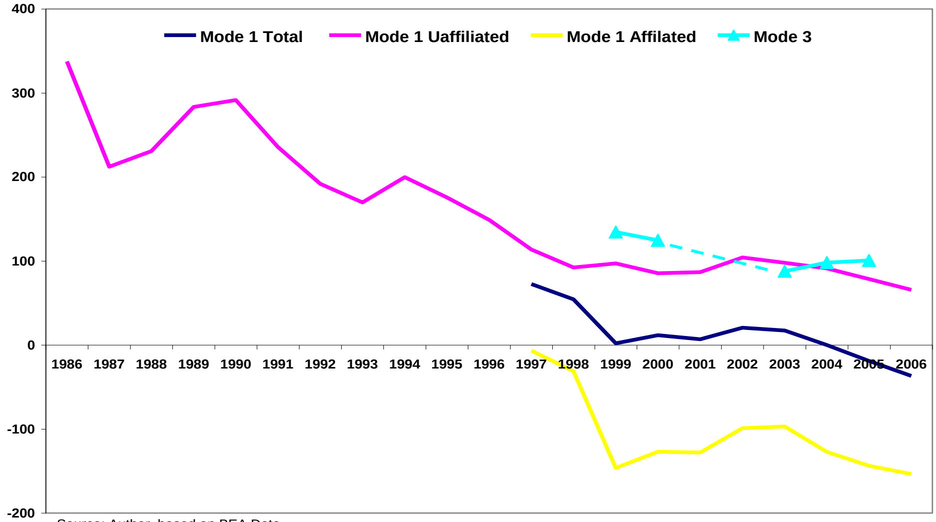
Figure 9: RCA in US C&IS Trade 1986-2006



Source: Author, based on BEA Data

Relative Importance of US Mode 3/Mode 1 C&IS Exports: Affected by Wealth, Language and Common Border

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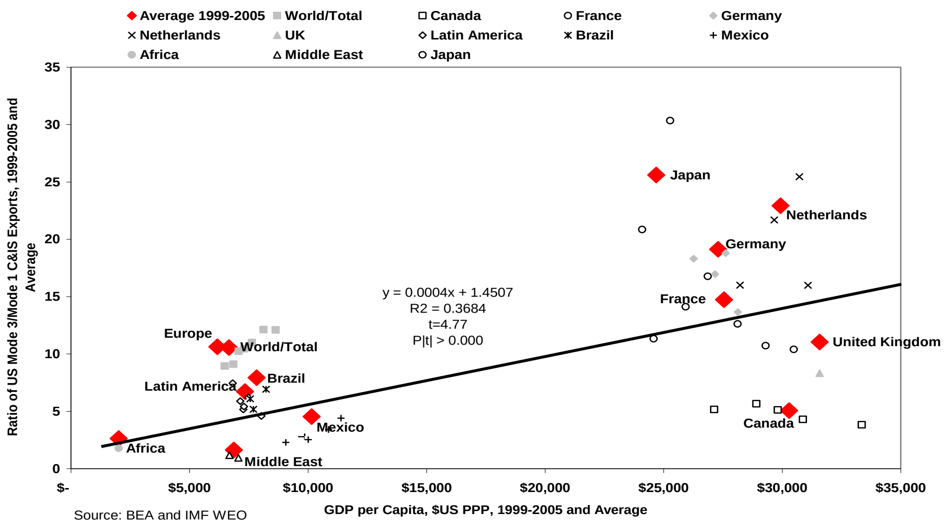
Figure 12: US C&IS Exports 1999-2005, By Modes and Country



Source: BEA and IMF WEO

US Mode 4 C&IS Imports: Dominated by C&IS (Approx. $20-23bn Annually), Creating Large Overlap with Mode 3

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Table 6: Top-25 Company Recipients of L-1 and H-1B Visas in FY2006, By Sector and Home Country

The Top-25 L-1 Employers of FY 2006					The Top-25 H-1B Employers of FY 2006			
Rank	Company	Sector	Home Country	No. of Visas	Company	Sector	Home Country	No. of visas
1	Tata Consulting Systems	IT Services/Software	India	5,408	Infosys Technologies	IT Services/Software	India	4908
2	Cognizant Technology Solutions	IT Services/Software	India	1,888	Wipro Limited	IT Services/Software	India	4002
3	Wipro Limited	IT Services/Software	India	1,187	Microsoft	IT Services/Software	US	3117
4	IBM	IT Services/Software	US	614	Tata Consulting Systems	IT Services/Software	India	3046
5	Hewlett-Packard	IT Hardware	US	417	Satyam Computer Services	IT Services/Software	India	2880
6	Satyam Computer Services	IT Services/Software	India	336	Cognizant Technology Solutions	IT Services/Software	India	2226
7	Intel Corporation	Semiconductors	US	314	Patni Computer Systems	IT Services/Software	India	1391
8	Caritor, Inc.	IT Services/Software	US	280	IBM	IT Services/Software	US	1130
9	Ernst & Young	Business Services	US	249	Oracle, Inc	IT Services/Software	US	1022
10	HCL Technologies	IT Services/Software	India	244	Larsen and Touboe Infotech	IT Services/Software	India	947
11	Infosys Technologies	IT Services/Software	India	235	HCL America, Inc.	IT Services/Software	India	910
12	Patni Computer Systems	IT Services/Software	India	221	Deloitte & Touche LLP	Accounting	US	890
13	Schlumberger	Oil Services	France	198	Cisco Systems, Inc.	ICT Hardware	US	828
14	Syntel	IT Services/Software	US	197	Intel Corporation	Semiconductors	US	828
15	M&E Group, Inc	N/A	N/A	194	I-Flex Solutions	IT Services/Software	India	817
16	Exxon-Mobil	Oil	US	187	Ernst & Young	Accounting	US	774
17	Kanbay, Inc.	IT Services/Software	India	178	Tech Mahindra America, Inc.	IT Services/Software	India	770
18	Halliburton	Oil Services	US	157	Motorola	ICT Hardware	US	760
19	PriceWaterhouseCoopers	Business Services	US	152	Mphasis Corporation	IT Services/Software	India	751
20	Oracle, Inc	IT Hardware	US	148	Deloitte Consulting LLP	Consulting	US	665
21	Nokia	Mobile Telephony	Finland	141	Lancesoft	IT Services/Software	India	645
22	Microsoft	IT Services/Software	US	133	New York City Public School System	Education	US	642
23	Perot Systems	IT Services/Software	US	121	Accenture LLP	Consulting	US	637
24	Deloitte	Business Services	US	112	JPMorgan Chase & Co.	Financial Services	US	632
25	HSBC	Financial Services	UK	103	Polaris Software lab India Ltd.	IT Services/Software	India	611

Grey cells indicates IT services company. Source: Office of US Senator Chuck Grassley, as described in Kirkegaard (2007); Author.

C&IS; A Lightly Regulated Sector With Few Trade Restrictions – But Large Indirect Effects

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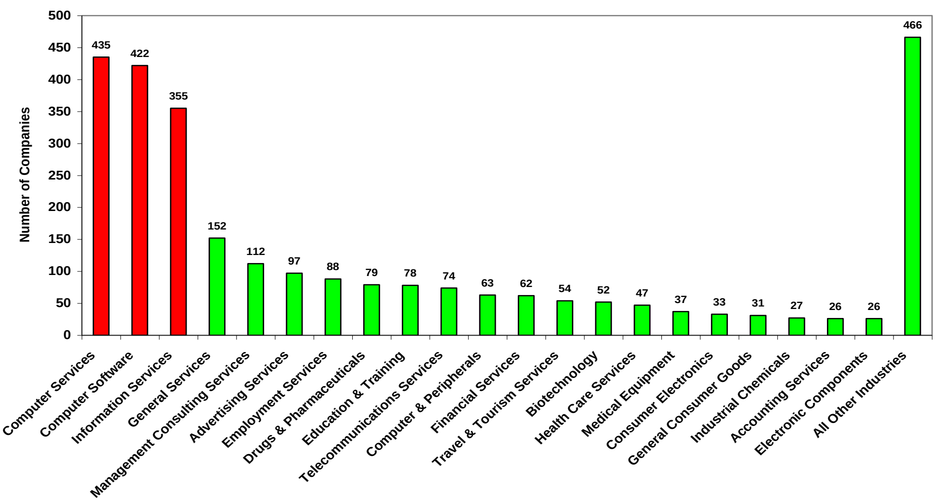
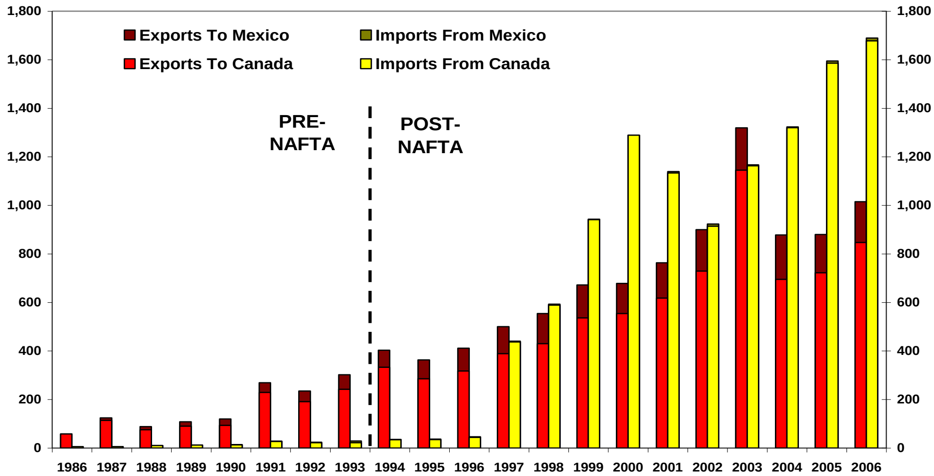
Figure 13: US Companies Registrered With Department of Commerce "Safe Harbour" List June 2007, By Top-20 Industries



Source: US Department of Commerce

NAFTA: Available Data Reveals No Impact on Regional C&IS Trade

Figure 15: US Bilateral Mode 1 Unaffiliated C&IS Trade with NAFTA Members, 1986-2006, $USmn



Source: US Bureau of Economic Analysis

Concluding Remarks

- Understanding of Services Trade To Evolve With Better Data For Analysis
- Increasing US C&IS Export Reliance on Mode 3 Qualifies any "Digital Tradability Revolution"
- Cyclicality of Mode 4 Trade Illustrates the Need for Dynamic "Market Oriented" Regulation of High-Skilled Immigration
- US C&IS Exports Indicates the Rising Importance of Mode 3 and BITs and the "Singapore Issues"