

India's Bilateral Trade in Services: Patterns, Determinants and Role of Trade in Goods

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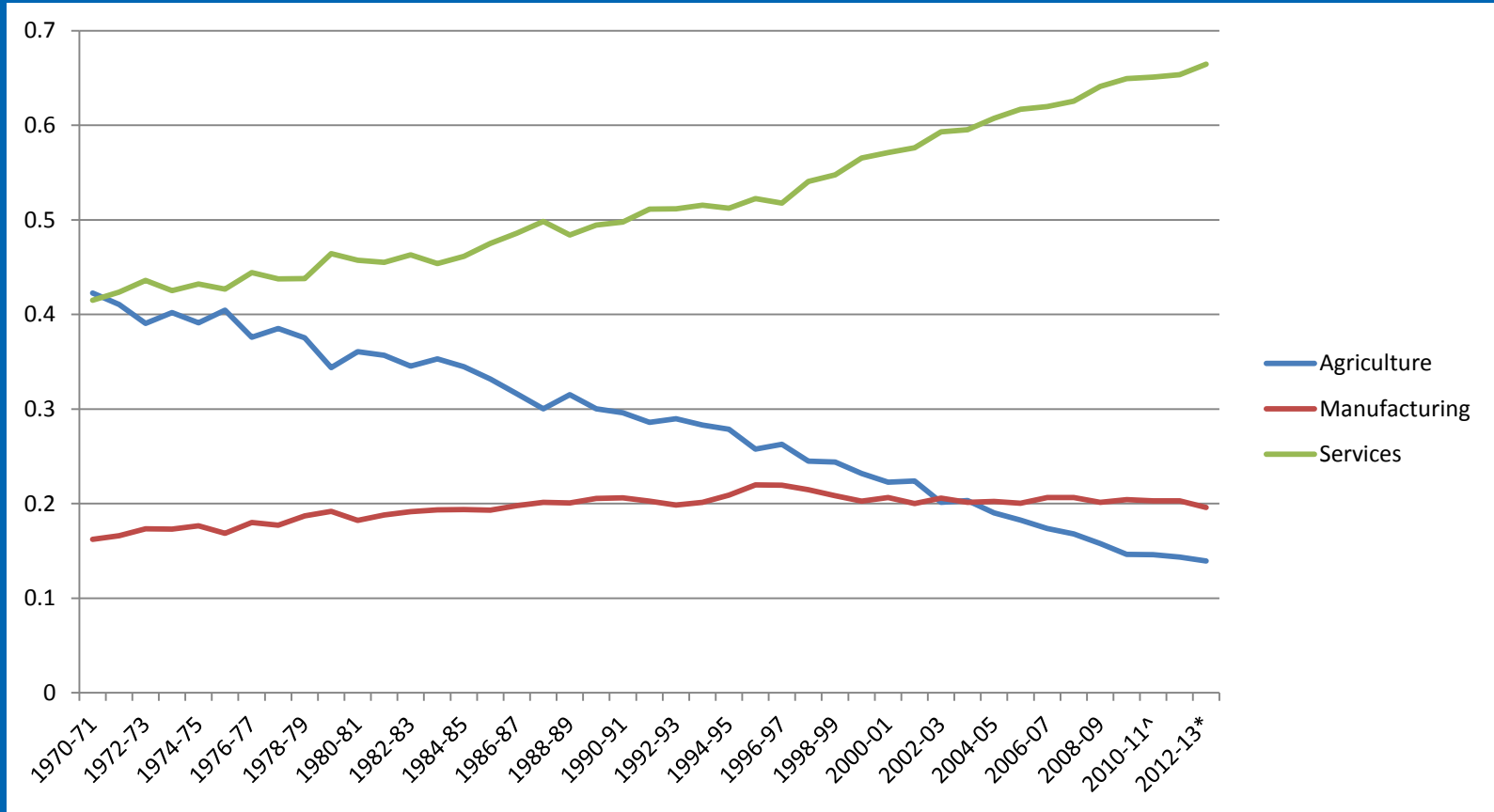
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Objectives

- The patterns of India's bilateral trade in services.
- The determinants of trade in services.
- The effect of commodity trade on trade in services.
- The determinants of extensive and intensive margins of trade in services.

Consistent Growth of the Service Sector in India

Share of Sectors in the Indian Economy



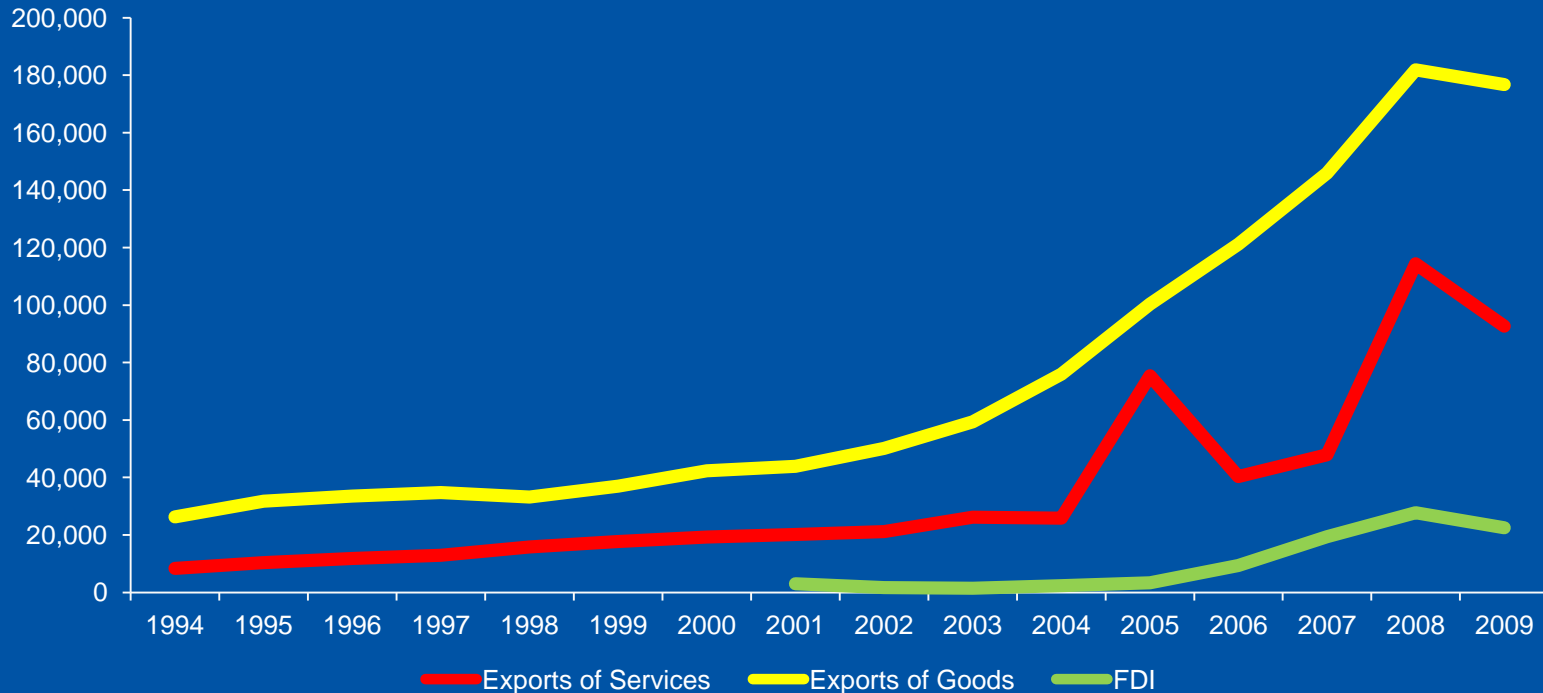
Source: NAS

New Bilateral Trade in Services Dataset

- Francois and Pindyuk (2013)
- Compiles data from OECD, Eurostat, UN and IMF
- Adds mirrored flows to enhance the dataset.
- Time frame 1994 to 2010
- More than 200 countries
- Shortcomings of this dataset

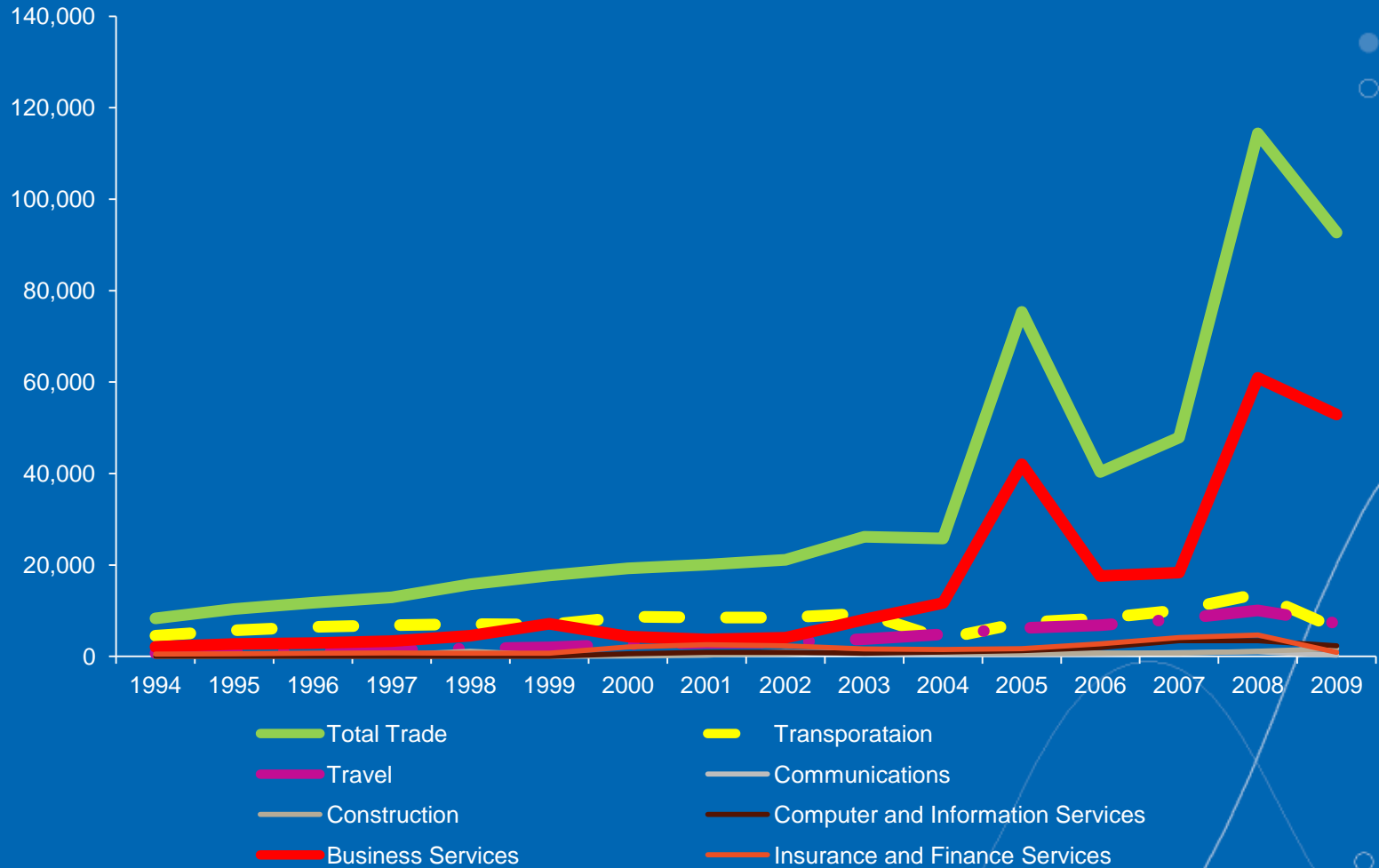
Rising Exports

India's exports of services, goods and FDI inflows (million USD)



Source: Francois and Pindyuk (2013); UNCTAD, OECD

Exports of Services of Various Sectors (million USD), 1994–2009



Source: Francois and Pindyuk (2013)

Top Ten Import partners from India (2008)

Importer of Services from India	Importer of Commodities from India
United States	United States
Switzerland	United Arab Emirates
Singapore	China
Great Britain	Singapore
China	Hong Kong
Germany	Great Britain
Ireland	Netherlands
Australia	Germany
Hong Kong	Saudi Arabia
Japan	Belgium

Source: Francois and Pindyuk (2013)

Top Importers of Services from India (2008)

Transportation	Travel	Business Services	Computer and Information Services	Insurance Services	Financial Services
United States	United States	United States	Finland	Singapore	United States
Singapore	Australia	China	Sweden	Germany	Singapore
Germany	Great Britain	Hong Kong	Germany	United States	Hong Kong
Construction	Royalties and License Fees	Communication	Personal, Cultural, Recreational Services	Government Services	Other Services
Poland	United States	Italy	Canada	Great Britain	United States
Japan	Japan	Netherlands	Great Britain	Netherlands	Switzerland
Germany	Singapore	Belgium	United States	Germany	China

Source: Francois and Pindyuk (2013)

Determinants of Trade in Services: Gravity Model

Basic Gravity Model framework:

$$Trade_{ij} = \alpha GDP_i^{\beta_1} GDP_j^{\beta_2} / Distance_{ij}^{\beta_3}$$

- GDP of the exporter reflects the productive capacity
- GDP of the importer reflects the purchasing power
- Distance reflects the trading costs

Estimation Equation

The log linear version of the gravity model

$$\ln Exports_{ijt} = \alpha + \beta_1 \ln GDP_{it} + \beta_2 \ln GDP_{jt} + \beta_3 \ln Distance_{ij} + \varepsilon_{ijt}$$

- i refers to India
- j refers to the importer of India's service exports (more than 200 countries)
- Hypothesis: β_1 and β_2 would be positive and
- β_3 would be negative in standard gravity model.
- However, In case of Trade in Services, β_3 is ambiguous.

Datasets

- Bilateral Services: Francois, J & Pindyuk, O. (2013).
- The GDP data: World Bank dataset
- Gravity and distance variables: CEPII
- The bilateral trade: OECD Statistics



Impact of Export of Goods on Export of Services for India

Dep Variable: Export Services	1
GDP Partner	2.361 (0.787)***
GDP India	2.419 (0.453)***
Distance	5.656 (3.444)
Colony	0.267 (1.418)
Common Lang/Ethnicity	-5.054 (3.268)
Contiguity	5.916 (6.865)
Export of Goods	
Constant	-173.758 (26.927)***
N	465

Role of Trade in Commodities

- NCAER Business Expectation Survey Experience
- Dencin and Tekin-Koru (2014):
 - Almost 46% of firms in their sample from Turkey export both goods and services.
 - commodity exporters are now diversifying to export services as well.
- Global Value Chains (UNCTAD (2013))
 - Global investment and trade are intertwined through the networks of firms trading inputs and outputs in cross-border value chains of various degrees of complexity.
 - About half (47%) of the value added of exports comes from services sector
- This idea is tested in context of bilateral trade in services in India

Estimation Equation

Extended Gravity Model including *Trade in Goods*

$$\ln Exports_{ijt} = \alpha + \beta_1 \ln GDP_{it} + \beta_2 \ln GDP_{jt} + \beta_3 \ln Distance_{ij} + \beta_4 \ln ExpGoods_{ijt} + \varepsilon_{ijt}$$

Hypothesis: exports in goods have positive linkages with exports in services - expect β_4 to be positive.

Impact of Export of Goods on Export of Services for India

Dep Variable: Export Services	1	2
GDP Partner	2.361 (0.787)***	2.089 (0.877)**
GDP India	2.419 (0.453)***	2.018 (0.477)***
Distance	5.656 (3.444)	6.944 (3.590)*
Colony	0.267 (1.418)	0.337 (1.498)
Common Lang/Ethnicity	-5.054 (3.268)	-6.147 (3.342)*
Contiguity	5.916 (6.865)	8.441 (7.144)
Export of Goods		0.318 (0.142)**
Constant	-173.758 (26.927)***	-169.780 (26.852)***
N	465	461

Determinants of Extensive and Intensive Margins of Trade

- This analysis is typically done for varieties of goods using the methodology that was first suggested by Hummels and Klenow (2005).
- Extensive margin of trade = participation in trade in a wider range of subsectors
- Intensive margin = larger volume of trade in the existing subsectors.
- The highly disaggregated bilateral service trade data is unreliable.

The subsectors considered in extensive and intensive margin of trade in services

- 205 Transportation
- 236 Travel
- 245 Communication Services
- 249 Construction Services
- 253 Insurance Services
- 260 Financial Services
- 262 Computer and Information Services
- 266 Royalties and License Fees
- 268 Other Business Services
- 287 Personal, Cultural and Recreational Services
- 291 Government Services
- 981 Other Services
- 983 Services Not Allocated

Determinants of Extensive and Intensive Margins of Trade

Dep Variable:	EMT	EMT	IMT	IMT
GDP Partner	0.667 (0.800)	0.536 (0.885)	1.033 (0.559)*	0.928 (0.621)
GDP India	0.732 (0.439)*	0.272 (0.481)	0.648 (0.307)**	0.407 (0.337)
Distance	-6.382 (3.197)**	-5.351 (3.351)	6.992 (2.236)***	7.641 (2.349)***
Colony	-3.194 (1.402)**	-3.329 (1.491)**	0.639 (0.981)	0.619 (1.045)
Common Lang/Ethnicity	5.339 (2.990)*	4.394 (3.074)	-6.702 (2.091)***	-7.276 (2.155)***
Contiguity	-15.983 (6.366)**	-13.963 (6.660)**	14.273 (4.452)***	15.548 (4.669)***
Export of Goods		0.323 (0.151)**		0.178 (0.106)*
Constant	11.224 (24.644)	15.191 (24.655)	-104.893 (17.234)***	-102.833 (17.284)***
N	439	435	439	435

Conclusions

- The trade in services in India is concentrated among the western economies in 2008.
- What has happened since then? Need for latest bilateral trade in services data.
- The GDP of India and that of partner country has a positive effect on trade in services, but the effect of distance and other gravity variables is ambiguous.

Conclusion

- There seems to be a complementary relationship between patterns of bilateral trade in exports of goods and services in India.
- Exports of goods also helps increase trade in services both at an extensive margin and also at an intensive margin
- Need to conceptualize the economic policy (including trade policy) framework for industry and services in an integrated manner.

Future work

- Ways to improve collection, access and quality of the data
- Develop a better understanding of trade surplus/deficit at a bilateral partner level
- Disaggregated Sectoral Analysis
- Using this dataset to undertake analysis of bilateral trade policy analysis

APPENDIX



PPML – Slide 1

	1	2
GDP Partner	0.204 (0.014)***	0.035 (0.020)*
GDP India	0.641 (0.062)***	0.436 (0.065)***
Distance	-0.163 (0.049)***	0.031 (0.049)
Colony	0.087 (0.044)**	0.102 (0.041)**
Common Lang/Ethnicity	0.228 (0.036)***	0.031 (0.039)
Contiguity	-0.474 (0.195)**	-0.302 (0.137)**
Export of Goods		0.170 (0.021)***
Constant	-21.073 (1.920)***	-14.517 (1.911)***
R^2	0.54	0.61
N	442	441

PPML – Slide 2

	IMT	EMT	IMT	EMT
GDP Partner	0.218 (0.066)***	0.541 (0.022)***	0.121 (0.112)	0.468 (0.046)***
GDP India	3.724 (0.500)***	1.710 (0.160)***	3.606 (0.536)***	1.555 (0.193)***
Distance	-0.176 (0.562)	0.031 (0.072)	-0.043 (0.553)	-0.191 (0.084)**
Colony	-1.204 (0.293)***	0.521 (0.222)**	-1.202 (0.294)***	0.440 (0.219)**
Common Lang/Ethnicity	0.217 (0.249)	-0.683 (0.125)***	0.107 (0.242)	-0.734 (0.123)***
Contiguity	-0.860 (0.823)	-1.567 (0.412)***	-0.689 (0.787)	-1.808 (0.390)***
Export of Goods			0.101 (0.083)	0.086 (0.049)*
Constant	-115.458 (17.109)***	-65.889 (4.430)***	-111.911 (18.274)***	-58.555 (5.506)***
R^2	0.11	0.26	0.11	0.28
N	439	2,415	435	2,045

Addressing Endogeneity

- Instrumental Variable Approach
- Fugazza and Nicita (2011) present an index called tariff trade restrictiveness index (TTRI)
- Good instrument: Applicable to exports of goods and not services

Dep Var: Trade in Services	Panel	Panel - IV
GDP Partner	0.139 (0.160)	-0.085 (0.639)
GDP India	2.614 (0.281)***	2.493 (1.217)**
Distance	0.765 (0.476)	0.621 (0.673)
Colony	1.091 (1.346)	0.419 (0.717)
Common Lang/Ethnicity	-0.101 (0.443)	-0.133 (0.764)
Contiguity	-0.143 (0.957)	-2.190 (1.108)**
Export of Goods	0.826 (0.118)***	1.187 (0.603)**
Constant	-91.873 (9.434)***	-85.834 (39.304)**
N	461	326

Some data sources

- Bilateral Services: Francois, J & Pindyuk, O. (2013), “Consolidated Data on International Trade in Services,” *IIDE Discussion Papers 20130101*, Institute for International and Development Economics.
- IV source: Fugazza and Nicita (2011) UNCTAD POLICY ISSUES IN INTERNATIONAL TRADE AND COMMODITIES, STUDY SERIES No. 50) http://www.unctad.info/upload/TAB/docs/Research/stud50_tab51_dec2011.pdf