



A Gravity Analysis of Food and Beverage Trade Flows of Sri Lanka

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*Paper presented at the IATRC summer meetings, Seoul, Korea, June 30 -
July 01, 2008.*



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Regionalism in South Asia

- South Asia is the least integrated region in the world
- South Asian Association of Regional Cooperation (SAARC) in 1985
- South Asian Preferential Trading Agreement (SAPTA) in 1995
- South Asian Free Trade Area (SAFTA) in 2013



Regionalism in South Asia (Ctd.)

Not been considered as a success story....

- Few complementarities in production and consumption
- Political friction among some member countries
- Limited tariff reductions among SAPTA member countries
- Trade diverting union

Regionalism in South Asia (Ctd.)

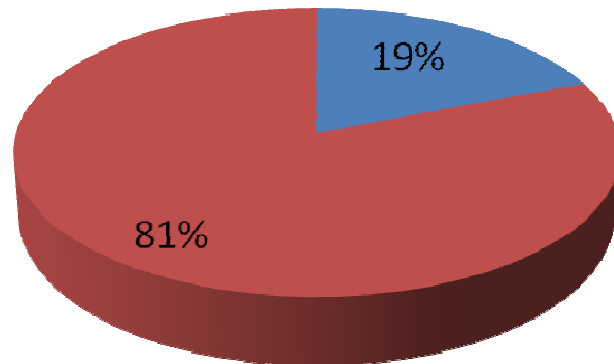
- Sizable improvement in intra-country trade within SAARC in the recent past

- Regionalism as one of the avenues to achieve food security
- Sri Lanka: Special case
 - India has become the largest import source and third largest export destination

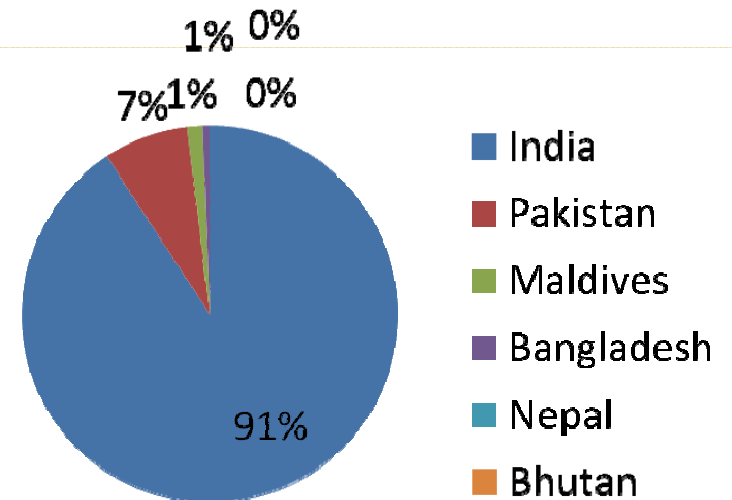
Imports into Sri Lanka

**Total Imports: 8,307,068
USD '000**

■ SAARC ■ Rest



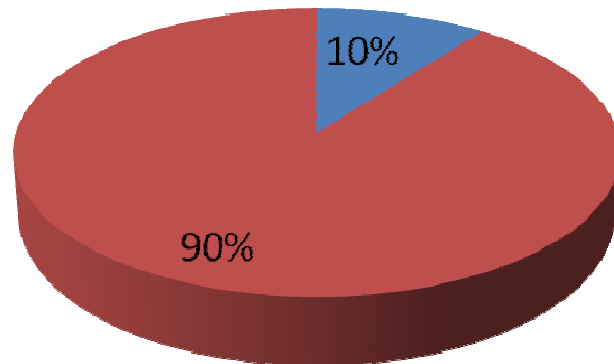
**Imports from SAARC:
1,584,910 USD '000**



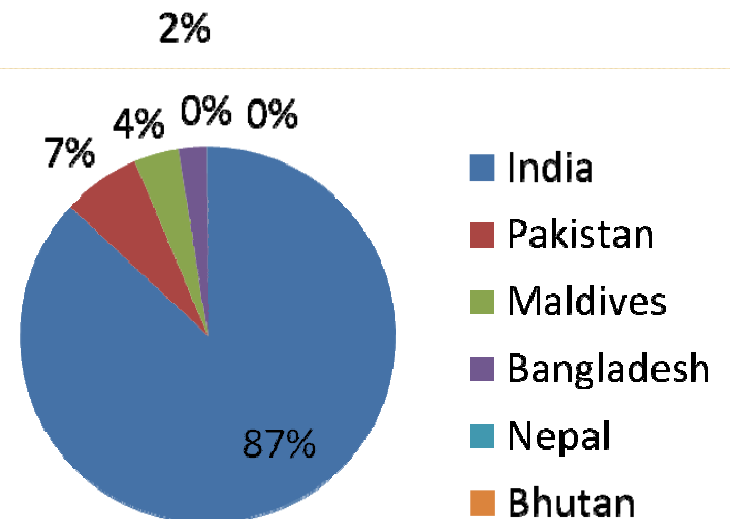
Exports from Sri Lanka

**Total Exports: 6,159,855
USD '000**

■ SAARC ■ Rest



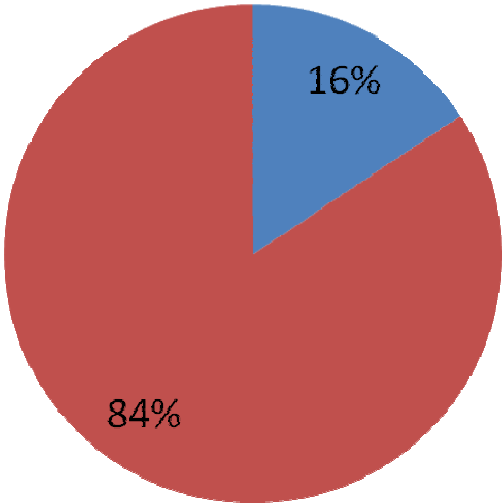
**Exports to SAARC: 642,358
USD '000**



Trade by Products

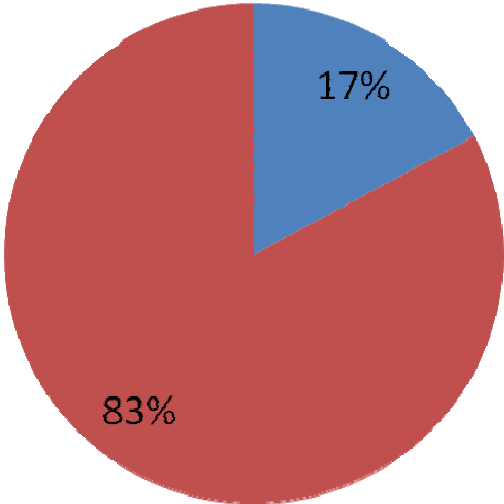
**Value of Imports:
7,364,974 USD '000**

■ Food/Agri ■ Others



**Value of Exports:
6,395,918 USD'000**

■ Food/Agri ■ Others





Trading Partners: Agri-Food Trade

- Key import sources
 - India (HS07)
 - Singapore (HS15)
 - New Zealand (HS04)
- Key export destinations
 - India (HS15)
 - Russian Federation (HS09)
 - United Arab Emirates (HS09)



Objectives

- Broad objective: To examine the pattern of food and agricultural trade in Sri Lanka over the recent past so as to determine whether regionalism as a worthwhile strategy
- Specific objective: An assessment of the determinants of value of trade in Sri Lanka using a gravity model.

Past studies using gravity models

- Rajapakse and Arunatilake (1997): Sri Lankan perspective
- Hassan (2001): Viability of SAARC
- Clarete et al. (2003): Asian regionalism
- Jugurnath et al. (2007): Asia Pacific RTAs
- Bhattacharya and Bhattacharyay (2007): BIMSTEC
- Sarker and Jayasinghe (2007): Agri-food trade

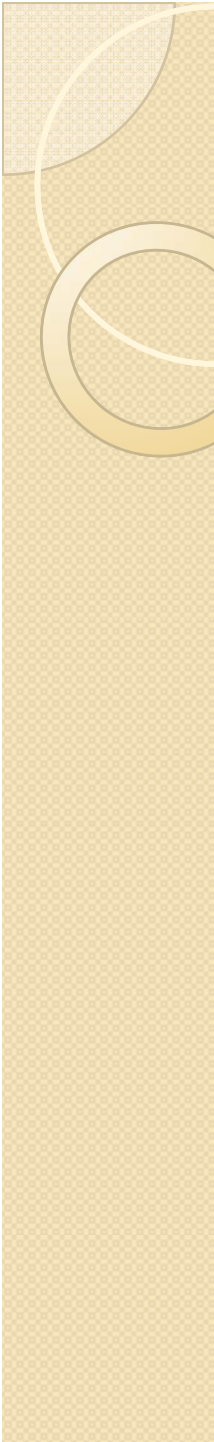
Gravity model

- Total trade, Value of Imports and Value of Exports as the dependent variables
- Conventional/natural variables
 - Size of the country (GDP)
 - Development of the country (PC GDP)
 - Physical distance
- Extensions
 - Country dummy variables
 - Product type dummy variables

Data and specification

- Bilateral trade flows from UNComTrade (2001-2005)

- Food and beverages (primary/processed, industrial/household)
 - dairy, edible vegetables, edible fruits, coffee, tea, spices, cereals, oil seeds, fats and oils, sugars and other beverages.

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- Trade partners of Sri Lanka
 - Bangladesh, India, Maldives, Nepal, Pakistan
 - Top 10 importers and exporters of Sri Lanka
 - Functional forms: Long-log, Linear
 - Handling of zero observations
 - With zeros in linear form using OLSQ
 - Tobit model
 - 391 observations

Dept variable: Value of trade

Variable	Linear: OLSQ Rsq = 0.32	Tobit LL = -6955
GDP	6.59e-17*	6.58e-17*
Per capita GDP	0.0096	0.05168
Distance	-1155.44**	-1195.95**
India	3.69e+07***	3.79e+07***
Pakistan	-3849981	-2897155
Bangladesh	-1.50e+07***	-1.51e+07***
Maldives	-1.20e+07**	-1.12e+07**
Nepal	-1.56e+07**	-1.47e+07**
Primary_industrial	-4974555*	-5347664*
Primary_household	1.82e+07***	1.84e+07***
Processed_industrial	-3042131	-3666910
Constant	1.73e+07***	1.67e+07***

Dependent variable: Value of Imports

Variable	Linear: OLSQ Rsq = 0.36	Tobit LL = -5973
GDP	1.99e-17	2.76e-17
Per capita GDP	1.59e-17	2.11e-17
Distance	-457.68	-540.57*
India	3.16e+07***	3.22e+07***
Pakistan	567398.2	855622.6
Bangladesh	-5909342**	-1.20e+07***
Maldives	-3604345	-5014972*
Nepal	-6738199	-6533112
Primary_industrial	-3445032**	-4838882**
Primary_household	-2220392	-1887409
Processed_industrial	-1401446	-1939521
Constant	7810833***	7649596**

Dependent variable: Value of Exports

Variable	Linear: OLSQ Rsq = 0.23	Tobit LL = -6994
GDP	5.51e-17*	6.77e-17**
Per capita GDP	-0.052	.078
Distance	-819.54	-1159.01**
India	3817896	6250942
Pakistan	-5825941	-3813702
Bangladesh	-1.06e+07**	-8966070**
Maldives	-9875586**	-8053630*
Nepal	-1.27e+07**	-1.05e+07*
Primary_industrial	-339252.1	-1032673
Primary_household	2.02e+07***	2.09e+07***
Processed_industrial	69521.57	-1909568
Constant	1.00e+07**	8737294**

Trade Patterns

- Traditional variables
 - Positive and significant effect of GDP
 - Negative and significant effect of distance
- Commodity effects
 - Primary household commodities: Positive
 - Primary industrial commodities: Negative
- Country effects
 - Positive and significant coefficient for India
 - Negative and significant coefficients for Bangladesh, Maldives and Nepal

Conclusions and Implications

- After controlling for GDP, distance, type of product, compared to non-SAARC partners:
 - Special preference to import from India
 - Bangladesh is considered as an inferior partner
 - Maldives and Nepal are considered as inferior export destinations
 - Preferences towards Pakistan is neutral



Comments..