

## APEC Workshop on Environmental Services

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An analysis of the relation between the non-tariff barrier of waste disposal treatment service and foreign capital companies

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Venue: National Convention Centre, Hanoi, Viet Nam

Date: 11 May 2017

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1. Research background
2. The index of the degree of waste disposal treatment service trade liberalization
3. The entry situation of foreign capital companies in relation to waste disposal treatment service
4. The result of analysis of the relationship between the index and foreign capital companies

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Research background

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# Differences in regulations of foreign capital companies



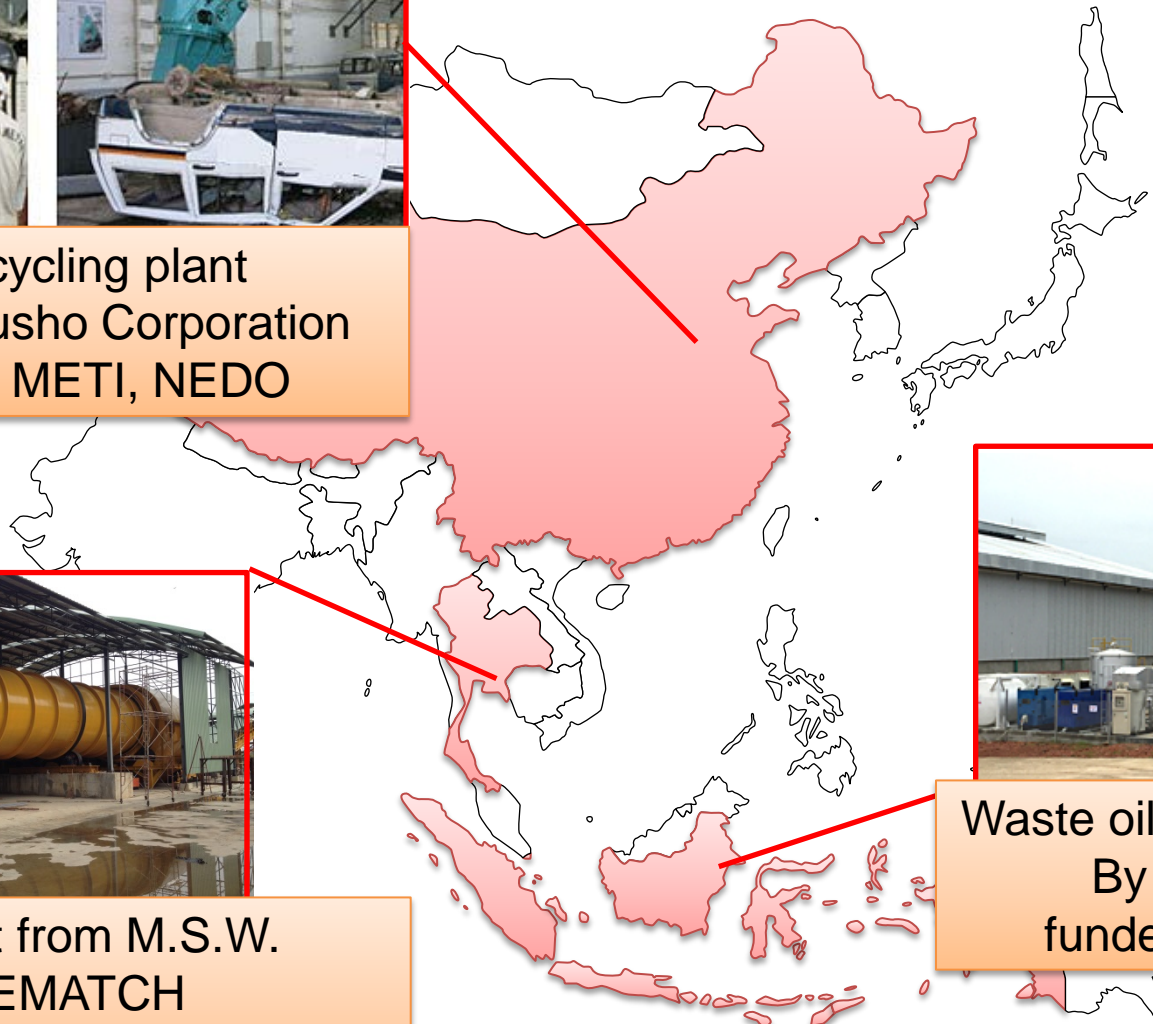
ELVs recycling plant  
By Toyota Tsusho Corporation  
funded by METI, NEDO



RDF plant from M.S.W.  
By REMATCH  
funded by METI, MOE, NEDO



Waste oil recycling plant  
By TOA OIL  
funded by NEDO



# Mode 3 is important

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The definition of services trade under the GATS covers four modes of supply,

(Mode 1 — Cross border trade)

- from the territory of one Member into the territory of any other Member

(Mode 2 — Consumption abroad)

- in the territory of one Member to the service consumer of any other Member

(Mode 3 — Commercial presence)

- by a service supplier of one Member, through commercial presence, in the territory of any other Member

(Mode 4 — Presence of natural persons)

- by a service supplier of one Member, through the presence of natural persons of a Member in the territory of any other Member

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The index of the degree of waste disposal  
treatment service trade liberalization

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# The excellent report!

## APEC Policy Support Unit published the *“Survey of Regulatory Measures in Environmental Services”*



Table 7. Summary of measures by type of control

Type of measure	Applies	Environmental service (CPC code) and number of measures	Total no.
Limits on foreign investment	✓	General (94) - 1	1
Restrictions on type of legal entity	×		-
Restrictions on scope of service	×		-
Economic needs tests	✓	General (94) - 1	1
Licensing and approval procedures	✓	General (94) - 1; Sewerage(941) - 1; Waste collection (942) - 3; Waste treatment and disposal (943) - 2; Remediation (944) - 1	8
Nationality requirements	✓	General (94) - 1	1
Controls on workers	✓	General (94) - 1	1
Professional qualification requirements	✓	Waste collection (942) - 1	1
Government procurement restrictions	✓	General (94) - 1	1
Controls on use of land	✓	General (94) - 1	1
Local content requirements	×		-
Existence of state owned enterprises	✓	Sewerage(941) - 1	1
Other (preferential subsidies)	✓	General (94) - 1	1
TOTAL (Central and sub central)			17

Key: × indicates no restrictions ✓ indicates restrictions exist

# Hoekman Index?

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- Methodological difficulty
- Hoekman Index
  - This method assigns values to each of 8 cells (4 modes and 2 aspects--market access (MA) or National Treatment (NT)--), as follows:  $N=1$ ,  $L=0.5$ ,  $U=0$ ; then calculates the average value by service sector and by country.
- The problem of Hoekman Index is to uniformly calculate the level of limitation at 0.5.
- Hoekman Index can not properly evaluate the APEC report.



# The Swiss Index

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- The Swiss Index makes an attempt to refine Hoekman Index (*please see the annex for details*).
  - can be applied by taking each limitation inscribed in a schedule into account in the formula
  - is fair to assume that the marginal burden that falls on the service supplier due to each additional limitation is decreasing
- The Swiss Index can properly evaluate the APEC report.

(Source) Hikari Ishido (2013) “Report on Trade in Services”, ERIA Project: Study on FTA Comparison (Phase 3) + RCEP

# The results of the Swiss Index

	No Restrictions	Restrictions Exist	Index
Australia	3	13	0.188
Brunei Darussalam	4	17	0.190
Canada	3	18	0.143
Chile	7	12	0.368
China	4	17	0.190
Hong Kong, China	8	12	0.400
Indonesia	2	21	0.087
Japan	3	21	0.125
Korea	2	27	0.069
Malaysia	1	20	0.048
Mexico	4	18	0.182
New Zealand	6	8	0.429
Papua New Guinea	2	13	0.133
Peru	5	7	0.417
Philippines	2	22	0.083
Russia	5	12	0.294
Singapore	7	10	0.412
Chinese Taipei	4	21	0.160
Thailand	2	19	0.095
United States of America	7	19	0.269
Viet Nam	1	33	0.029

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The entry situation of foreign capital companies  
in relation to waste disposal treatment service

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# Analysis method

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- The waste disposal treatment service companies data from ORBIS (a commercial dataset provided by Bureau Van Dijk) are used to identify services, GUO (Global Ultimate Owners), operating revenue, and total assets.
- The waste disposal treatment service companies have “US SIC 4953 - Refuse systems” as Primary code and/or Secondary code.
- The number of companies analyzed are 75,827 in APEC members.
  - (The number of companies registered in ORBIS are 411,938)

# The result of the entry situation of foreign capital companies

members	Foreign capital companies			Domestic capital companies			Foreign capital companies ratio	Comparison of Average Operating Revenue (Foreign/Domestic)	Comparison of Average Total assets (Foreign/Domestic)
	Number of companies analyzed	Average of Operating revenue (Turnover) 000 USD Last avail. Yr.	Average of Total assets 000 USD Last avail. Yr.	Number of companies analyzed	Average of Operating revenue (Turnover) 000 USD Last avail. Yr.	Average of Total assets 000 USD Last avail. Yr.			
AUS	35	208,787	222,288	374	36,249	62,934	9%	5.76	3.53
BRN	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
CAN	10	20,198	64,476	346	9,805	32,387	3%	2.06	1.99
CHL	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
CHN	475	34,820	26,594	1,420	1,104,005	17,424	25%	0.03	1.53
HKG	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
IDN	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
JPN	8	281,683	293,383	7,173	5,746	8,541	0%	49.03	34.35
KOR	1,441	4,685	4,629	2,718	3,036	2,871	35%	1.54	1.61
MYS	2	36,713	139,865	12	6,646	11,101	14%	5.52	12.60
MEX	7	2,061	1,251	6	1,951	1,555	54%	1.06	0.80
NZL	5	1,963	2,516	8	1,425,768	1,080,049	38%	0.00	0.00
PNG	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
PER	1	35,728	64,508	0	n.a.	n.a.	100%	n.a.	n.a.
PHL	2	10,326	1,452	37	3,542	3,036	5%	2.92	0.48
RUS	5,950	712	367	55,395	1,502	1,654	10%	0.47	0.22
SGP	5	68,108	44,429	9	182,083	48,846	36%	0.37	0.91
TWN	2	42,725	88,399	3	7,254	16,466	40%	5.89	5.37
THA	4	9,442	9,766	39	2,411	6,333	9%	3.92	1.54
USA	35	1,047,284	1,681,253	24	270,736	751,461	59%	3.87	2.24
VNM	n.a.	n.a.	n.a.	277	399	389	n.a.	n.a.	n.a.

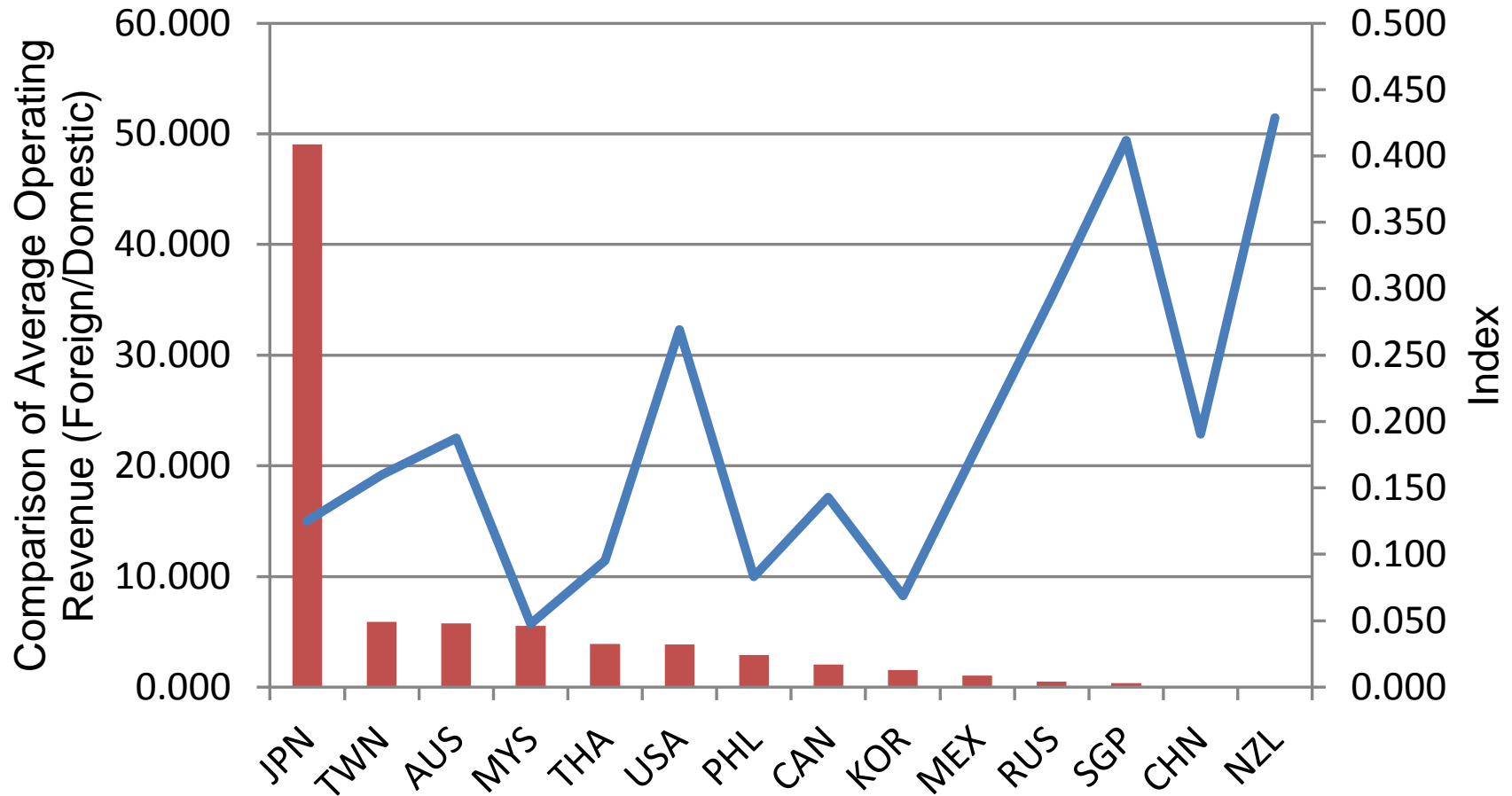
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The result of analysis of the relationship  
between the index and foreign capital  
companies

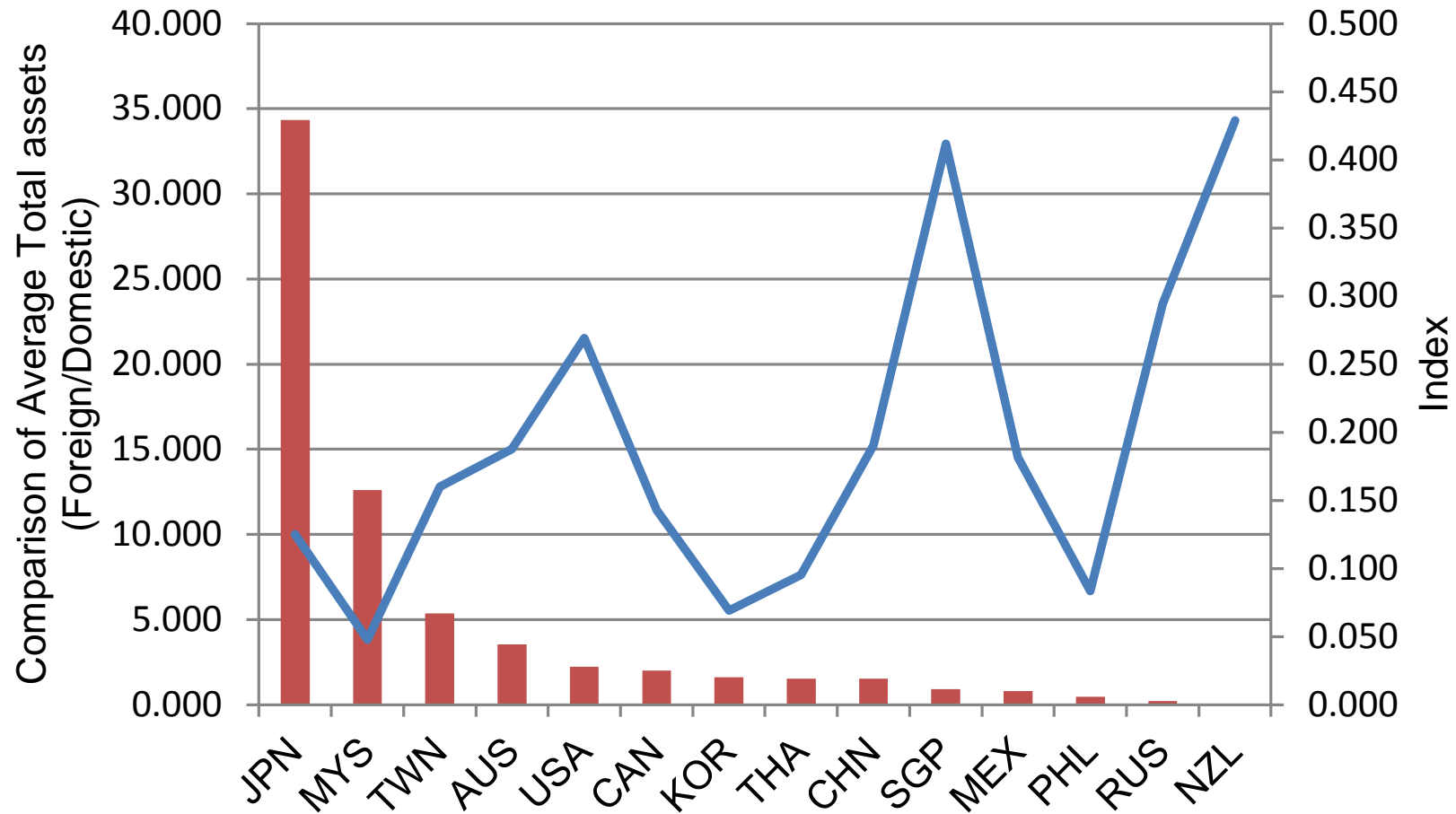
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# Relationship between the index and comparison of average operating revenue (foreign/domestic)



# Relationship between the index and comparison of average total assets (foreign/domestic)



# Conclusion

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1. The results of the Swiss Index regarding the degree of waste disposal treatment service trade liberalization are quite different between APEC members.
2. Foreign capital companies have a greater average operating revenue and total assets compared with domestic capital companies.
3. If the Swiss Index is higher, the gap of average operating revenue and total assets between the foreign capital companies and domestic companies tends to decrease.

# Further research opportunities

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## 1. Companies data accessibility.

- Because most waste disposal treatment service companies are small and medium-sized businesses

## 2. What happens when we apply the same analysis to US SIC: 4952 - Sewerage systems?

- The size of the company is larger for waste water treatment service than for waste disposal treatment service.

## 3. What kind of companies have “US SIC 4953 - Refuse systems” as a Secondary code?

- Potential for improving the definition of waste disposal treatment service in WTO(2010)
  - *WTO(2010), BACKGROUND NOTE ON ENVIRONMENTAL SERVICES*, Council for Trade in Services Special Session, S/C/W/320

# Acknowledgements

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- I would like to thank **Dr. Shin-ichiro MUNAKA**, Mitsubishi UFJ Research and Consulting Co., Ltd. and **Mr. Ayumu MASUDA**, Bureau van Dijk Electronic Publishing for the analysis of waste disposal treatment companies in APEC members.
- This presentation is funded by the Japan Society for the Promotion of Science (JSPS), **“JSPS KAKENHI Grant Number JP 17H04722”**

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Thank you for your attention!

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# The Annex of the Swiss Index

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- Each Member's specific commitments are entered into an excel spreadsheet according to an arithmetic formula (continuous function) defined as:

$$f(n)=C^n$$

- where
  - n = number of scheduled restrictions in one entry (i.e. additional to horizontal commitments and restrictions);
  - C = any coefficient between 0 and 1. For practical purposes, the coefficient is set at 0.5.
  - However, it could be any number between 0 and 1 without altering the arithmetic properties of the methodology or the comparability of the results. The value of the coefficient is not of substantial relevance since the same value is used for all schedules of all Members.

(Source) World Trade Organization (2005), Methodology to Assess Schedule of Commitments under the GATS, TN/S/W/51.

# The Annex of the Swiss Index

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Number of limitations	Formula-based score
n = 0 ("none" or "unbound except as specified in the horizontal part" <sup>3</sup> )	$f(0) = 0.5^0 = 1$
n = 1	$f(1) = 0.5^1 = 0.5$
n = 2	$f(2) = 0.5^2 = 0.25$
n = 3	$f(3) = 0.5^3 = 0.125$
...	...

- For commitments or limitations concerning a limited number of local or sub-federal entities, the formula can easily be extended in the following way:
- $$\frac{[(\# \text{ of entities with } n \text{ limitations} \times 0.5^n) + (\# \text{ of entities w/out limitation} \times 0.5^0)]}{\text{total \# of entities}}$$

(Source) World Trade Organization (2005), Methodology to Assess Schedule of Commitments under the GATS, TN/S/W/51.