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## COMMUNICATION FROM SWITZERLAND

### Methodology to assess Schedules of commitments under the GATS

The following communication, dated 21 September 2005, from the delegation of Switzerland, is being circulated to the Members of the Council for Trade in Services.

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#### SUMMARY

This paper presents a methodology developed by Switzerland to assess Members' schedules of specific commitments in the framework of the GATS. This methodology is a quantitative tool that makes it possible to translate commitments – either at sectoral level or for all sectors – into one single index between 0 and 100. The methodology does not only measure whether commitments are undertaken or not, but it measures the actual density of restrictions inscribed in the schedule. It does that in great detail, sub-sector by sub-sector and, within each sub-sector, for all modes of delivery. The index is therefore an indicator of the overall level of commitment in a schedule or in a sector.

In practice, the methodology allows to track in detail the improvements made by Members in initial and/or revised offers. The methodology's key added value consists in establishing transparency and comparability. Comparative analysis is facilitated because it is easier to compare two (or more) simple figures rather than whole schedules and because those figures are computed on exactly the same basis. Comparisons can be made over time, i.e. between initial and revised offers, or across Members, or across sectors.

To ensure a neutral approach, the index is computed with an arithmetic formula. It is a simple, straightforward formula based on the number of limitations in each mode of supply. The formula is expressed by a coefficient raised to the number of limitations: the more limitations in a given commitment, the smaller the "score" associated with that commitment. This "score" is then weighted with the actual sectoral coverage of the commitment to reach an even greater level of accuracy.

The average of the "scores" of sub-sectors form an aggregated index for every services sectors. A graphic presentation displays the level and the improvement of commitments on an aggregated basis and for the twelve services sectors.

Weaknesses of the methodology are highlighted in the paper. However, the simplicity of the formula and the arithmetically significant and unbiased results obtained make it a convenient, reliable and accurate analytical tool. The transparency obtained from this analysis will contribute to promote effective liberalisation of international trade in services.

## I. INTRODUCTION

1. This paper aims at presenting the methodology developed by the Swiss delegation to translate Members' specific commitments into quantified indexes in the framework of the GATS.<sup>1</sup> With the objective to increase transparency and comparability, the methodology allows to assess and compare whole schedules of commitments of Members. The main feature of the methodology is that it is formula-based; the formula is a simple continuous function, which is normalized between 0 and 1. The formula takes into consideration each single limitation inscribed in a schedule in accordance with Art. XX of the GATS. Then the "score" obtained is weighted by the coverage of the commitment. The outcome is a single index number (between 0 and 100) on an aggregated level, either for all sectors or on a sector by sector basis. A graphic presentation displays the level and the improvement of commitments. Since the methodology is formula-based, it can easily be extended beyond the basic formula shown below. This paper presents such possible extensions and fine-tunes.

2. It should be underlined that the present methodology is built on the sectoral part of schedules only. Switzerland has worked on an instrument quantifying horizontal commitments, but research thereon still needs to be completed. For instance, a horizontal index can be devised. The two indexes could then be either multiplied or used in parallel to get a full analysis of Members' schedules.

## II. METHODOLOGY

### (a) Terminology used in the methodology

3. The terminology used in the methodology draws on the structure of document MTN.GNS/W/120.

<i>Sector</i>	1.	BUSINESS SERVICES
<i>Sub-sector</i>	A.	Professional services
<i>Group</i>	c.	Accounting, auditing and bookkeeping services
<i>Category</i> (CPC 4 digit code)	-	Accounting and auditing services (CPC 8621)
<i>Service</i> (CPC 5 digit code)	-	Financial auditing services (CPC 86211)

### (b) Structure

4. The methodology encompasses 146 non-overlapping services sub-sectors and groups. The classification is identical to the Services Sectoral Classification List (document MTN.GNS/W/120, hereafter "W/120") and is based on the Provisional Central Product Classification List (CPC), except for financial, maritime and air transport services. In those sectors, the Annex on Financial Services,

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<sup>1</sup> Nothing in the methodology or in the examples shown shall be understood or construed as prejudicing Switzerland's or Members' interpretation of any classification issues, scheduling issues or commitments.

the Schedule on Maritime Transport Services and a combination of the "W/120" and the Annex on Air Transport Services are used.<sup>2</sup>

5. For each sector, there are 4 modes of supply and 2 categories of limitation: market access (MA) and national treatment (NT). Therefore, a commitment in one of the 146 specific group or sub-sector consists of 8 entries. As a result, a total of 1168 entries exist for each Member. To each entry corresponds a numerical "score" according to the formula detailed below (point c).

6. In addition to MA and NT restrictions, the methodology discounts limitations of the sectoral coverage. Coverage indicators are constructed for each group or sub-sector (point e) and combined with their 8 numerical "scores" to form aggregated indexes (point f).

7. The analysis is performed for existing GATS commitments, the initial and revised offers, allowing to track improvements in the offered commitments.

(c) Formula

8. Each Member's specific commitments are entered into an excel sheet according to an arithmetic formula (continuous function) defined as follows:

$$f(n) = C^n \in [0,1]$$

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.

9. The formula tries to encapsulate two facts. First, each limitation to market access and/or national treatment is an additional burden for the service supplier. This can be modeled by taking each limitation inscribed in a schedule into account in the formula.

10. Second, it is fair to assume that the marginal burden that falls on the service supplier due to each additional limitation is decreasing. Indeed, imposing one or two limitations compared with "free access" does have a great impact for a service supplier who considers entering a market. However, the additional marginal burden caused by the n<sup>th</sup> limitation is not that important given the impediment caused by the (n-1) limitations. This is modeled by the non-linear shape of the formula chosen. Unlike the formula, a basic counting system would not reflect this reality.

11. The simplicity of the formula allows to calculate indexes for all services sub-sectors and groups following a single approach. Eight numerical "scores" (corresponding to 8 entries) are assigned to each Member's commitment according to the formula (see table below).

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<sup>2</sup> The sub-sectors and groups "Other" listed in the "W/120" *without* any CPC reference are disregarded, since in practice no Member has undertaken any commitment. This explains why the methodology does not encompass the 155 sub-sectors and groups to be found in the "W/120".

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	$f(3) = 0.5^3 = 0.125$
...	...

12. Where Members chose not to grant market access or national treatment with respect to a given mode of supply ("Unbound"), a "score" of 0 is assigned. In the cases where Members indicate "Unbound due to lack of technical feasibility", a "nil" is assigned to the corresponding entry, which is not taken into account when calculating the indexes.

13. If no commitment is undertaken for a given group or sub-sector, all 8 entries are assigned a "score" of 0.

**Example (fictive):**

Sector or Subsector	Limitations on Market Access	Limitations on National Treatment
3. CONSTRUCTION AND RELATED ENGINEERING SERVICES  A. General construction work for buildings  - For one- and two-dwelling buildings (CPC 51210)	1) Unbound due to lack of technical feasibility [nil] 2) None [ $0.5^0=1$ ] 3) None except that: - Branches are not permitted. - Limits on amount per contract are applied. [ $0.5^2=0.25$ ] 4) Unbound except as indicated in Part I [=1]	1) Unbound due to lack of technical feasibility [nil] 2) Unbound [=0] 3) None [ $0.5^0=1$ ] 4) Unbound except as indicated in Part I [=1]

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<sup>3</sup> Mode 4 commitments are listed in a positive way in the horizontal part. However, if they were to be translated in a negative listing (like horizontal commitments on modes 1, 2 and 3), the inscription "Unbound except as specified in the horizontal part" would become "none". The formula captures the limitations scheduled in the sectoral part, which apply in addition to horizontally scheduled commitments and limitations, for all modes of supply. The approach used in the methodology concerning mode 4 is therefore similar to modes 1 to 3: the formula is applied for each limitation listed in addition to the horizontal part.

(d) Formula extensions

14. Because it is formula-based, the methodology can easily be extended in order to fine-tune it even more. Among such possible extensions, the following are of particular relevance:

(i) For commitments or limitations concerning a limited number of local or sub-federal entities, the formula can easily be extended in the following way:

$$\frac{[(\# \text{ of entities with } n \text{ limitations} \times 0.5^n) + (\# \text{ of entities w/out limitation} \times 0.5^0)]}{(\text{total } \# \text{ of entities})}$$

(ii) There are cases where a limitation relates only to part of the category or service covered in an entry. This can be taken into account by slightly extending the formula, along the same lines as for locally applicable measures. In this case the limitation is discounted on a *pro rata* basis based on the CPC coverage.

(iii) If desirable, the formula can also be expanded in order to take account of different degrees of severity of various measures. It suffices to use a higher C-value (e.g. 0.75) for benign measures (e.g. an exam requirement) and a lower C-value (e.g. 0.25) for stringent measures (e.g. a nationality requirement).

(e) Coverage

15. The coverage is defined between 0 and 100, where 0 means that no commitment is undertaken and 100 means that the commitment is applied on the full sub-sectoral coverage according to the "W/120" list. Where applicable, the references to the CPC are counted at 5-digit level, which ensures a great level of precision. For example, the sub-sector 10.D. "Sporting and other recreational services" (CPC 964) gets a coverage of 100 if the commitment includes the 7 CPC references 96411 to 96419 (4) and 96491 to 96499 (3) and a value of  $(4/7)*100 = 57.14$  if the commitment only covers the sporting services classified under CPC 9641. In cases where sectoral limitations are expressed in a way that cannot be translated into CPC references, a value of 50 is assigned (i.e. "best guess").

(f) Indexes and averages

16. Indexes are computed in the following way:

- Sub-sectoral and group indexes are constructed using the average of the formula's result for the 8 entries, weighed with their coverage indicator;
- Sectoral indexes are the average of the sub-sectoral indexes;
- A single global index for the entire schedule of commitments is obtained by taking the average of the 12 sectoral indexes.

17. The formula being a simple continuous function, normalized between 0 and 1, it allows to compute any type of aggregate average while ensuring arithmetically significant and unbiased results.

### **III. STRENGTHS AND WEAKNESSES OF THE METHODOLOGY**

18. The formula is simple and straightforward. It is flexible since it can easily be extended to capture more details. The arithmetical properties of the formula make it possible to average out, aggregate, combine and compare results.

19. Translated into graphic form, the methodology provides a clear and concise view of (i) the sectors which are most committed and (ii) the sectors in which commitments have most improved (see Annex III). The transparency obtained from this analysis will contribute to promote effective liberalisation of international trade in services.

20. The comparability of commitments is the most important value added brought about by the methodology.

21. Although there is inevitably an arbitrary component in this exercise, results are statistically robust given the large number of entries (law of large numbers). The aggregated indexes are therefore reliable.

22. The methodology does not give more weight to restrictions of bigger economic importance and does not differentiate between categories of services based on their relative importance in trade. However, this is not a severe limitation in itself, since the intended use of the methodology is to increase transparency of the schedules, not to proceed to an economic assessment of the impact of trade liberalisation.

23. The quality of the results rely critically on the quality of the scheduling. The methodology can not – and does not have the purpose to – make poor scheduling more clear and precise.

### **IV. RESULTS**

24. Results for Switzerland (chapter 1 of the sectoral part of the revised offer) are shown in Annex I. Aggregated indexes for Switzerland's commitments in force, initial and revised offers can be found in Annex II. A graphical presentation of these indexes is displayed in Annex III.

### **V. PROPOSAL**

25. Switzerland proposes to Members to take note of this methodology, to discuss its value and to consider its merits. Members may consider how they can best use this new tool to enhance their overview of commitments undertaken. Members are encouraged to share views on possible improvements to this methodology or further extensions (e.g. horizontal commitments).

Annex I: Results for Switzerland, chapter 1 (revised offer)

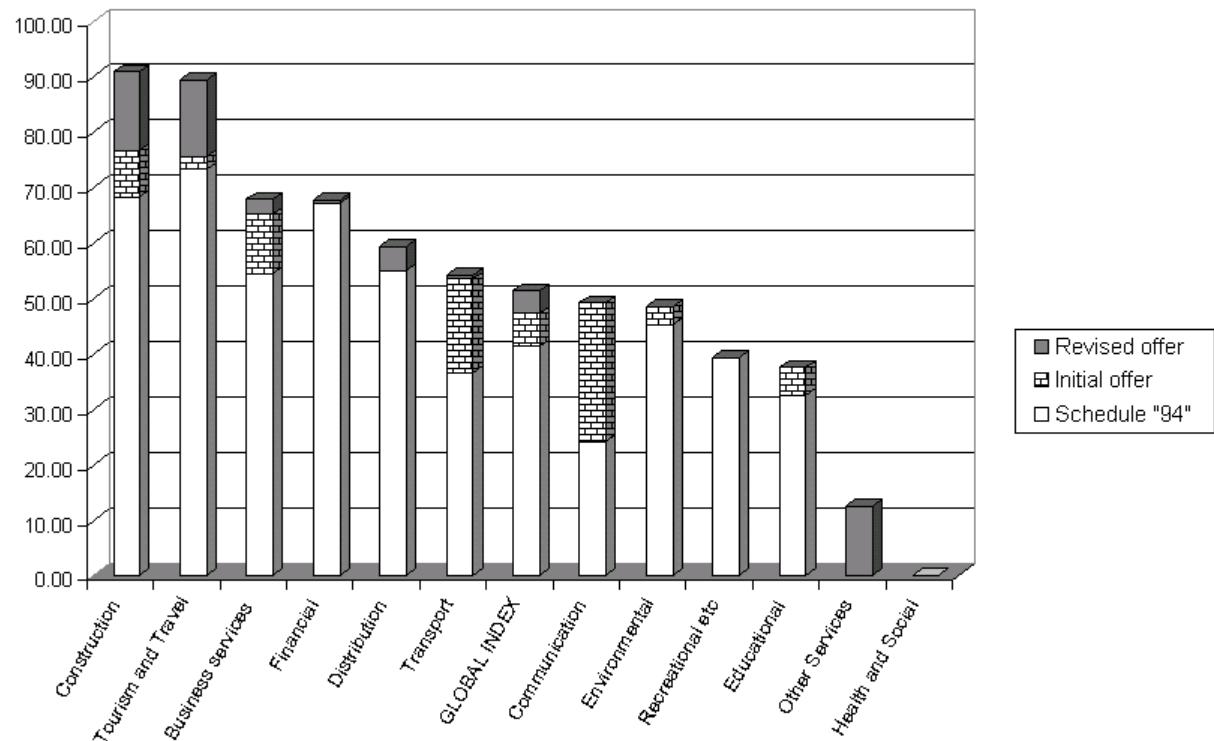
L.1	L.1	L.3	sector or sub-sector	cover	ma1	ma2	ma3	ma4	nt1	nt2	nt3	nt4	average index L.3	index L.2	index L.1
<b>1</b>			<b>BUSINESS SERVICES</b>	<b>100</b>											<b>67.873</b>
<b>A.</b>			<b>Professional services</b>	<b>100</b>											72.5106
a.			Legal services	60	1	1	1	1	0.87	0.87	0.87	0.87	0.9351	56.1058	
b.			Accounting auditing (5 CPC)	90	1	1	1	1	0.9	1	1	1	0.9	0.975	87.75
c.			Taxation services	100	1	1	1	1	1	1	1	1	1	1	100
d.			Architectural services	100	1	1	1	1	1	1	1	1	1	1	100
e.			Engineering services	100	1	1	1	1	0.5	1	0.5	0.5	0.5	0.8125	81.25
f.			Integrated engineering	100	1	1	1	1	1	1	1	1	1	1	100
g.			Urban planning and landscape	100	1	1	1	1	1	1	1	1	1	1	100
h.			Medical and dental services	100	1	1	0	0	1	1	0	0	0	0.5	50
i.			Veterinary services	100	1	1	0	0	1	1	0	0	0	0.5	50
j.			Para-medical	0	0	0	0	0	0	0	0	0	0	0	0
k.			Other		nil										
<b>B.</b>			<b>Computer services</b>	<b>100</b>											96.6667
a.			Consultancy related to hardware	100	1	1	1	1	1	1	1	1	1	1	100
b.			Software implementation	100	1	1	1	1	1	1	1	1	1	1	100
c.			Data processing services	100	1	1	1	1	1	1	1	1	1	1	100
d.			Data base services	100	1	1	1	1	1	1	1	1	1	1	100
e.			Other (3 CPC)	83.33	1	1	1	1	1	1	1	1	1	1	83.3333
<b>C.</b>			<b>Research and Development</b>	<b>100</b>											50
a.			Natural sciences	50	1	1	1	1	1	1	1	1	1	1	50
b.			Social sciences	50	1	1	1	1	1	1	1	1	1	1	50
c.			Interdisciplinary	50	1	1	1	1	1	1	1	1	1	1	50
<b>D.</b>			<b>Real estate services</b>	<b>100</b>											50
a.			Involving own or leased property	0	0	0	0	0	0	0	0	0	0	0	0
b.			On a fee or contract basis	100	1	1	1	1	1	1	1	1	1	1	100
<b>E.</b>			<b>Rental and leasing services</b>	<b>100</b>											65.7813
a.			Relating to ships	50	0	1	0.5	1	0	1	0.375	0.75	0.57813	28.9063	
b.			Relating to aircraft	50	1	1	1	1	1	1	1	1	1	1	50
c.			Other transport equipment	100	1	1	1	1	1	1	1	1	1	1	100
d.			Other machinery and equipment	100	1	1	1	1	1	1	1	1	1	1	100
e.			Other (5 CPC)	50	1	1	1	1	1	1	1	1	1	1	50
<b>F.</b>			<b>Other business services</b>	<b>100</b>											72.2796
a.			Advertising (3 CPC)	33.33	1	1	1	1	1	1	1	1	1	1	33.3333
b.			Market research	100	1	1	1	1	1	1	1	1	1	1	100
c.			Management consulting	100	1	1	1	1	1	1	1	1	1	1	100
d.			Serv rel to managt consulting	100	1	1	1	1	1	1	1	1	1	1	100
e.			Technical testing and analysis	100	1	1	1	1	1	1	1	1	1	1	100
f.			Incidental to agriculture	100	0.75	0.75	1	1	0.75	0.75	1	1	0.875	87.5	
g.			Incidental to fishing	100	1	1	1	1	1	1	1	1	1	1	100
h.			Incidental to mining	50	1	1	1	1	1	1	1	1	1	1	50
i.			Incidental to manufacturing	100	1	1	1	1	1	1	1	1	1	1	100
j.			Incidental to ener distribution	0	0	0	0	0	0	0	0	0	0	0	0
k.			Placement of personnel	0	0	0	0	0	0	0	0	0	0	0	0
l.			Investigation + security (6 CPC)	16.67	1	1	1	1	1	1	1	1	1	1	16.6667
m.			Related scientific consulting	50	1	1	1	1	1	1	1	1	1	1	50
n.			Maintenance and repair	100	1	1	1	0.5	1	1	1	0.5	0.875	87.5	
o.			Building cleaning	75	nil	1	1	0.5	nil	1	1	1	0.5	0.83333	62.5
p.			Photographic services	100	1	1	1	1	1	1	1	1	1	1	100
q.			Packaging services	100	nil	1	1	0.5	nil	1	1	0.5	0.83333	83.3333	
r.			Printing, publishing	100	1	1	1	1	1	1	1	1	1	1	100
s.			Convention services	100	1	1	1	1	1	1	1	1	1	1	100
t.			Other (8 CPC)	75	1	1	1	1	0.994	0.994	0.994	0.994	0.99679	74.7596	

## Annex II: Aggregated indexes for Switzerland

	<b>Indexes</b>	Schedule "94"	Initial offer	Revised offer
<b>1</b>	Business services	54.51	65.10	67.87
<b>2</b>	Communication	24.17	49.17	49.17
<b>3</b>	Construction	68.27	76.67	90.83
<b>4</b>	Distribution	55.08	55.08	59.38
<b>5</b>	Educational	32.50	37.50	37.50
<b>6</b>	Environmental	45.31	48.44	48.44
<b>7</b>	Financial	67.26	67.26	67.79
<b>8</b>	Health and Social	0.00	0.00	0.00
<b>9</b>	Tourism and Travel	73.26	75.61	89.42
<b>10</b>	Recreational etc	39.29	39.29	39.29
<b>11</b>	Transport	36.63	53.48	54.20
<b>12</b>	Other Services	0.00	0.00	12.50
<b>GLOBAL INDEX</b>		41.36	47.30	51.37

Annex III: Graphs for Switzerland

**Switzerland: Ranking by aggregated sectoral indexes**



**Switzerland: Ranking by improvements (initial + revised offers)**

