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Benign Neglect or Malign Select?: Entry Cost to GATS/WTO

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WTO was established in 1995 and as many as 36 new members joined WTO until December 2017. Thus it would be interesting to see if new members have committed higher or lower levels of market opening compared to the original members. In this regard, a sophisticated scoring scheme is needed to quantify market opening commitments. After proper econometric model is established for the original members, same model can be applied to the new members for comparison. It was found that new members committed a much higher level of commitment than the original members. In addition, it was also found that transition economies committed higher levels than the non-transition economies. More interesting finding is that among the new members, the larger the economies or the larger the trading volume are, the closer was the level of commitment to the predicted level. Then the question is whether this difference was due to benign neglect by the new members or due to malign select by the original members.

Keywords: GATS, WTO, Entry Cost, Specific Commitments, Newly Acceding Members
JEL Classification: F13, F14, L80

I. INTRODUCTION

It is generally acknowledged that a newly acceding member to any international institutions pays higher cost compared to the original members in order to accede to such an institution. World Trade Organization (WTO) was established in 1995 with 128 original members, and has accepted 36 new members until December 2017. Thus a question arises if those 36 members have committed higher level of market opening compared to the original members. It would be interesting if all commitments including tariff rates and other obligations under the WTO agreements are taken into consideration, but in this paper, the focus will be on the service sector commitments.

When reading the market opening commitment by the new members (in the National Schedules of commitment), one cannot avoid noticing that the level of commitment by the new members is comparatively higher than, and widely different from those of the original members. In this regard, in this paper, an attempt will be made to quantify the level of commitment by the new members in services sector and then to compare it to those of the original members. If the commitment level is relatively higher for the new members, then another question arises as to whether there is any variance in the level of commitment among the new members, and whether this was due to *benign neglect* by the new members, or due to *malign select* by the original members.

II. LITERATURE REVIEW AND METHODOLOGY

Market opening commitments in the services sector are inscribed in the National Schedules of commitment submitted by each WTO member. There are listed 155 detailed service sectors, and these can be grouped into 56 broader sectors and finally into very broad 12 sectors[1]. The sectors for market opening are to be chosen by the members, and government measures which restrict foreign suppliers in providing service to local consumers are to be listed in two columns (market access and national treatment columns). Provision of service under the GATS (General Agreement on Trade in Service) is allowed in 4 different modes; cross-border supply, consumption abroad, commercial presence and movement of natural persons. The restrictive measures for each sector are to be listed in negative format[2] in 8 categories since there are 4 different modes and 2 columns.[3]

[1] Sectoral classification List, Note by the Secretariat, MTN.GTS/W/120, 10 July 1991

[2] If there are no restrictions, then the entry is "none" or "no restrictions". Of course, this does not mean there are no regulations; instead it means that the regulations do not involve quantitative limitations nor discriminatory limitations against foreign service providers.

[3] For more detailed explanation of how commitments are recorded, please refer to Bernard Hoekman, "Assessing the General Agreement on Trade in Services", Chapter 4 in Martin, W. and L. A.

In order to quantify the commitment level, some scoring scheme should be developed. The first attempt was made by B. Hoekman[4] and he assigned the value of 1 for each mode of supply in each sector if there are no restrictions in the market access or national treatment columns. If there are no commitments at all (i.e. the entry inscribed "unbound"), then the value of 0 was assigned. All the remaining cases were assigned the value of 0.5. Thus, for each sector, there will be 4 values (one value for each mode of supply), and each value will be 0, 0.5 or 1[5]. It is true that assigning such values of 0.5 can be quite arbitrary, considering the different nature of the restrictions. Thus, a simpler scheme of just counting the number of entries where some commitments were made; that is, as long as the entry is not "unbound", then the value of 1 is assigned. Roman Grynberg, Victor Ognivtsev and Mohammad A Razzaque[6] (GOR hereafter) followed this scheme. This is simpler to implement, and the GOR claimed that the results from their scheme and Hoekman's were not much different.

The main purpose of Hoekman's paper was to analyze the level of liberalization, taking into consideration the level of economic development and the size of the economy, for 97 original members of the WTO. In contrast, GOR's main purpose was to measure the entry cost to the new members to GATS; that is, they estimated the commitment level by the new members, and then compared it to those of the original members. Their analysis covered the period from 1996 to 2001, a year before Doha Development Agenda (DDA) negotiation started. There were 16 new members until that year. Another attempt has been done by Adlung in 2005, assessing the progress of DDA negotiation in the services sector. His paper basically adopted GOR scoring scheme, but the nature of entries was also classified, although no scoring was attempted for these different entries. The paper also analyzed the level of commitment by the 20 new members until 2005. The main conclusion of these

Winters. (eds.), The Uruguay Round and the Developing Countries, 1996, Cambridge University Press.

[4] Bernard Hoekman, *op cit*

[5] Each column would have 4 values; if market access is analyzed, there will be 4 values for each sector, but if market access and national treatment are both analyzed, there will be 8 values.

[6] Roman Grynberg, Victor Ognivtsev and Mohammad A Razzaque, "Paying the Price for Joining the WTO; A Comparative Assessment of Services Sector Commitments by WTO Members and Acceding Countries", 2002, Economic Paper 54, Commonwealth Secretariat.

3 papers was that the original members did not commit high level of liberalization, commensurate to their level of development or the size of the economy, while new members were requested a much higher level of commitment.

In estimating the level of commitment, assigning values of 0 or 1 seems to ignore the differences in the entries (nature of restrictive measures). Thus, in this paper, basically Hoekman's scheme of assigning values 0, 0.5 or 1 is adopted, and same weight was given to market access and national treatment columns. For each column, there are 4 modes of supply, and each mode will be given 0, 0.5, or 1 depending upon the nature of the entry. Thus, as in Hoekman's paper, there were 620 entries in most detailed sectoral analysis (155 sectors and 4 modes)[7], but in this paper, there are 1,240 entries as there are 2 columns (and 155 sectors and 4 modes). The scoring scheme here would produce various values from 0 to 1 in the unit of 0.25, since market access and national treatment commitments were separately evaluated, while Hoekman scored market access and national treatment as one commitment; thus, 0, 0.25, 0.5, 0.75 and 1 scores were possible for each sector[8].

In this paper, European Union was not counted as a separate member; instead, all 12 members of the European Commission (at the time of accession) were considered as separate members[9]. Thus, there were 163 WTO members for consideration, and 36 of them were new members[10]. In Hoekman's paper, the data are mainly those of pre-1994, while they were mostly of 1997 in GOR's paper. In contrast, in this paper, all the data here are as of the date of their accession, using 2005 constant US dollars.

Main differences in this paper from previous studies include 1) all 164 WTO members' commitment was evaluated 2) Hoekman's scoring scheme was employed for all market access and national treatment columns, all modes of supply and all

[7] When either market access or national treatment is analyzed.

[8] See Annex I for Possible Scores under Different Schemes. Total number of cells is 202,120.

[9] EU as a whole is a huge economy, and can possibly distort the analysis the analysis. Also, when some members committed in full, but if some members did not, then appropriate scoring may not be given; in most cases, the scoring will be biased toward lower level of commitment. Careful reading of EU's national schedule allowed dis-aggregation into individual schedules. This disaggregation also provides a larger number of observations.

[10] Total number of pages for National Schedules for all WTO members is about 6,000.

subsectors, and 3) data used here are for the year accession (please refer to Table 1 below).

Table 1. Comparison with Previous Analysis

	Hoekman	GOR	Adlung	This paper
WTO members	97	144	128 and conditional DDA* offers	164
Scoring	0, 0.5, 1	0, 1	Qualitative	0,0.25, 0.5, 0.75, 1
Date of data	Same year before 1994	Same year as of 1997	n/a	Date of accession in constant 2005 dollars

*DDA: Doha Development Agenda

III. QUICK COMPARISON OF COMMITMENT LEVELS

As mentioned in the previous Section II, values of 0, 0.5 and 1 were assigned to each of 8 entries in each of 155 sectors for each member. The next task is to assign weights to each entry and sector. In this paper, first, equal weights were given to entries; that is, each mode and each column were given the same weight. In the case of sectors, equal weights were given within subsectors. For example, if there are 6 subsectors in a sector, then all subsectors were given 1/6 of weight. If there are 11 sub-subsectors in a subsector, then each 11 sub-subsector was given 1/11 weight in that subsector. Thus, when all 155 sectors were considered, each sector was given 1/155 weight. When 56 sectors were considered, then each 56 subsector was given 1/56 weight, and within each subsector, each sub-subsector was given the same weight. Hoekman proposed a different weight scheme, reflecting the volume of international trade in services, to 56 subsectors[11]. Such weights were also used in this paper for comparison. Thus, in all, there are 4 different scores of commitment, depending on the number of sectors for consideration; 12 sector, 56 sector, weighted 56 sector and 155 sector. Quantified level of commitment following the scoring scheme here will be called commitment scores.

[11] Hoekman, pp. 352-253, *op cit.*

In this section, commitments scores will be analyzed based on the average score. This analysis is simple and intuitive, and thus can give us directions for further analysis. But more rigorous analysis would wait until the following sections. Table 2 below is a quick view of comparing the average commitment scores of the original members (OMs) and new members (NMs), for each sectoral classification. Regardless of the sectoral classification, it is surprising to find that NMs, on average, committed more than twice the original members, and the ratios remained quite stable around 230%. As pointed out in previous studies, it is confirmed here again that new members paid higher price, although more rigorous analysis is needed.

Since GOR already pointed out that NMs (before DDA negotiation) committed higher levels of market opening, it would be interesting to see if this trend continued. In Table 2 below, there are NM (new members), NT[12] (new members in transition) and NN (new members not in transition); -A and -B mean (new) members after 2002 (after DDA), and -B means (new) members before 2002.

Rows 2 in Table 2 showed that the trend has been lowered slightly, about 5%, after 2002, but not obvious enough. In the course of reading the national schedules, it was also noted that NMs whose economies were in transition usually committed a higher level of commitment. Thus, a comparison was made among NMs between transition economies and non-transition economies (NT and NN), and the result is in the row 3 of Table 2. It turned out that transition economies showed more than 30% commitment scores than the non-transition economies. Regarding whether transition economies committed higher level after DDA, row 4 shows that there were some reductions in their commitment, not as high as before.

[12] From planned to market economies. China and Vietnam were not classified here as transition economies, since their economies turned toward market economies more than 20 years before accession. As one referee pointed out, China and Vietnam were classified as non-market economies during accession. Classifying these two economies, changed the ratios, but only slightly. In the fourth row of Table 2, the numbers were 1.23, 1.26, 1.24 and 1.33; in the last row, they were 0.84, 0.84, 0.93 and 0.86.

Table 2. Comparison of Commitment Scores with New WTO Members

Category	12 sector	56 sector	Weighted 56 sector	155 sector
Ratio=NM / OM	2.29	2.35	2.37	2.31
Ratio=NM-A/ NM-B	0.95	0.95	0.99	0.97
Ratio=NT / NN	1.30	1.33	1.29	1.41
Ratio=NT-A/ NT-B	0.80	0.80	0.90	0.82

Source: calculation by the author

Since the above comparison did not take the differences in economic development or size of the economy, we may not conclude that NMs really paid higher price. Table 3 is the comparison among OMs and NMs according to their level of development (in terms of per capita income) at the time of accession. It is quite evident that at all levels of economic development, NMs committed higher levels of market opening, and also that the lower the levels of income, the higher the levels of commitments.

Table 3. Comparison of Commitment Scores by Income Levels[13]

Category	Ratio	12 sector	56 sector	Weighted 56 sector	155 sector
High	Ratio=NM/OM	1.29	1.31	1.33	1.35
Upper Middle	Ratio=NM/OM	2.91	3.03	2.80	2.64
Lower Middle	Ratio=NM/OM	3.10	3.27	3.42	3.10
Low	Ratio=NM/OM	3.95	4.16	5.02	4.90

Source: calculation by the author

In summary, there are 5 observations for various commitment scores between OMs and NMs, and among NMs.

Observation 1: NMs generally committed higher levels than OMs did
Observation 2: NMs acceding after 2002 committed less than NMs acceding before 2002

[13] The classification is from World Bank, and changes year by year; here, the classification is at the year of accession.

Observation 3: Transition economies committed higher levels than non-transition economies among NMs
Observation 4: Transition economies acceding after 2002 committed less than other transition economies acceding before 2002 (among NMs)
Observation 5: Lower income members committed relatively more than the higher income members among NMs

IV. DEEPER ANALYSIS OF COMMITMENT LEVELS OF ALL MEMBERS

Tables in the previous section revealed interesting results; if you join as a new member, your commitment level will be higher; if your economies were in transition, you committed more; and if your level of income is lower, you committed more. Of course, simple comparison of commitment scores in the above with averages would not justify all such conclusions. More rigorous analysis is needed to substantiate such conclusions. Thus, for more rigorous statistical analysis, several possible factors were considered which may affect the level of commitment. Such factors included;

1. per capita income
2. gross domestic product (GDP)
3. amount or percentage of exports of goods and services to GDP
4. amount or percentage of imports of goods and services to GDP
5. amount or percentage of of total trade of goods and services to GDP
6. amount or percentage of services trade to GDP

Next step for statistical analysis is to set up a functional form[14] between these variables. Simplest functional form is linear equation, and more sophisticated one would be log-linear. Linear equation has statistical implication that it is a first-

[14] Statistical analysis requires underlying theoretical model, however, in this paper, only *ad hoc* modelling is pursued. Most of the literature above adopted this simple *ad hoc* modelling.

order approximation to any arbitrary function, while the log-linear equation is second-order approximation[15]. In this paper, only log-linear model was adopted[16], since it has statistical implication of general approximation of a higher degree. All the data are basically from Penn World Table 8.0 and World Bank Data, at the time of accession[17].

There are 4 different commitment scores depending on the sectoral classification (12 sector, 56 sector, weighted 56 sector and 155 sector), and 7 explanatory variables (or 11 depending on whether % or actual amount was used), thus numerous combinations of variables would produce different results. After several preliminary estimation works, it was found that the choice of different commitment scores (depending on sectoral classification) hardly produced different results[18]. Based on this, only weighted 56 sector scoring was used for further statistical analysis, which may make more sense since different weights reflected the world trading volume[19]. Among the explanatory variables, correlation coefficients among variables from 2 to 6 turned out very high, ranging from 0.89 to 1.00. Considering that a member with larger import volume has accumulated more experience in domestic regulation and been exposed to international trading, import value was chosen as other important variable to explain market opening commitments. Thus, personal income and import volume were chosen as explanatory variables, and weighted 56 sector scores as dependent variable. All the data for analysis are reported in the Annex III[20].

[15] In the literature, log-linear estimation is frequently used to calculate the elasticity of substitution. It is true that log-linear functional form assumes linear homogeneity, or constant elasticity of substitution. To be more precise, these are Taylor's series second-order approximation. For rigorous discussion, please refer to R. Fare and K. Sung, "Second-order Taylor's Series Approximation and Linear Homogeneity," September 1986, Mathematical Equations, Ontario, Canada.

[16] GOR paper mentioned in Section II employed linear-log model, claiming that log-linear model entails non-normality of error terms, let alone constant rate of substitution. GOR's linear-log model has been tested together during the econometric analysis here, but as has been pointed out by GOR, such a model could not satisfy Ramsey's RESET test for model specification.

[17] Some members' data are missing or not available, and in these cases, the data most adjacent years were used. Such cases were less than 1%. For details, please refer to Annex II, Data Collection.

[18] This may be rather encouraging, as this rather shows robustness of the scoring schemes.

[19] This was also true in Tables 2 and 3 in the previous section.

[20] Due to lack of data, Liechtenstein and Yemen were excluded. Thus from 163 members, 161 members were included for this estimation.

Log-linear model with two explanatory variables, separately and jointly, was tested for all WTO members. There would be three equations: Equation I only with personal income (PC), Equation II only with import volume (IM), and Equation III with personal income and import volume together.

$$log(56w) = \alpha + \beta * log(PC) + \varepsilon \quad \text{(Equation I)}$$

$$log(56w) = \alpha + \gamma * log(IM) + \varepsilon \quad \text{(Equation II)}$$

$$log(56w) = \alpha + \beta * log(PC) + \gamma * log(IM) + \varepsilon \quad \text{(Equation III)}$$

Table 4. Regression Result for All WTO Members

Coefficients	Equation I	Equation II	Equation III
Intercept α	0.233	-1.425***	-1.265***
	(1.28)	(-3.93)	(-3.47)
Estimate of β	0.325***	-	0.144***
	(6.30)		(2.32)
Estimate of γ	-	0.284***	0.217***
		(7.72)	(4.66)
Adjusted R^2	0.19	0.27	0.29

(t-values are in the parenthesis)

All three equations produced meaningful results, except the intercept was not significant in equation I (see Table 4). In contrast, equations II and III all showed reliable estimates. Since Equation III has higher R^2 and more variables, it was chosen, although the difference between equations is not big. In equation III, the coefficients for personal income and import volume are all positive; implying that the higher the personal income and the larger the import volume, the higher the level of commitment. This may confirm to the general impression prevailing in the profession.

One simple way of verifying whether NMs have made higher level of commitment is to introduce dummy variables for accession, and check the significance of the estimates. Equation III-1 introduced a dummy for the intercept, while Equation III-2 introduced dummies for intercept, slopes of personal income and import volume.

Following Table 5 is the summary of dummy variable test; all dummies showed significant estimates, except the slope of personal income.

$$log(56w) = \alpha + \beta * log(PC) + \gamma * log(IM) + \alpha_d + \varepsilon \quad \text{(Equation III-1)}$$

$$log(56w) = \alpha + \beta * log(PC) + \gamma * log(IM) + \alpha_d + \beta_d * log(PC) + \gamma_d * log(IM) + \varepsilon \quad \text{(Equation III-2)}$$

Table 5. Analysis of All Members with Dummy Variable

Coefficients	Equation III-1	Equation III-2
Intercept: α	-1.559*** (-5.61)	-2.039 (-6.89)
Dummy intercept: α_d	0.667*** (10.89)	3.592*** (5.10)
Estimate of β	0.186*** (3.93)	0.175*** (3.46)
Dummy slope of PC: β_d	-	-0.141 (-1.160)
Estimate of γ	0.217*** (6.15)	0.270*** (6.95)
Dummy slope of IM: γ_d	-	-0.252*** (-3.20)
Adjusted R^2	0.59	0.63

(t-values are in the parenthesis)

Since the dummies for intercepts in Equation III-1 and III-2 are positive and significant, we may conclude that NMs have made higher level of commitment than the OMs(Observation 1). Also interesting to note is that the dummy coefficients in Equation III-2 for personal income and import volume for NMs were negative[21]; this could mean that for NMs, the higher the level of income and the larger the level of import volume, the lower the level of commitment (Observation 5). The signs of coefficients were all positive when all WTO members were considered. But, this interpretation is too early to conclude, since NMs were also included for comparison, and dummy coefficient for personal income is not significant.

[21] Dummy coefficient for personal income was not significant.

V. ANALYSIS OF COMMITMENTS BY NEW MEMBERS

Since the primary objective of this paper to compare the commitment level between OMs and NMs, a proper estimation model for OMs should first be developed, and if successful, then that model should apply to NMs to check whether NMs have made higher level of commitment than the OMs. As mentioned in the previous section, Equation III turned out to be the most appropriate one for ALL the WTO members, thus Equation III is a natural choice to analyze the OMs' level of commitment[22]. The result of choosing equation III for OMs is summarized in the second column of Table 6. All the results were significant; however, normality of errors was not guaranteed for Equation III with all OMs. Same was true for heteroscedasticy and Ramsey RESET (Regression Equation Specification Error Test) .[23]

During all preliminary and model estimation, it was noticed that there are a few developing OMs whose commitment level is disproportionately high. Thus, in order to find out outliers, Equations I, II and III were all examined again and checked if there are consistent outliers in the sense that the standardized residuals for them are over 2 in all three models. Surprisingly, 3 members showed consistently high standardized residuals in all models; they are Burundi, Gambia and Lesotho.[24]

[22] There are 126 members for estimation: 128 members minus EC and Liechtenstein.

[23] Normality was rejected for all six tests at 95% level; p-value from White test was 0.00024, thus homoscedasticity was rejected; and RESET with only squared terms had coefficient whose t value was 2.14, thus hypothesis of no specification error was rejected.

[24] In GOR paper, these outliers were Gambia and Sierra Leon. When GOR model was applied to the commitment scores in this paper, consistent outliers turned out to be Burundi, Gambia and Lesotho. In Equation III, same three members plus Siera Leone were consistent outliers. However, in order to have the minimum number of outliers, Burundi, Gambia and Lesotho were chosen as outliers.

Table 6. Estimation Result for Equation III for ***OMs Only***

Coefficients	Equation III with all OMs	Equation III without outliers
İntercept α	-2.039***	-2.432***
	(-6.22)	(-8.48)
Estimate of β	0.175***	0.204***
	(3.13)	(4.23)
Estimate of γ	0.270***	0.296***
	(6.27)	(7.99)
Adjusted R^2	0.52	0.64

(t-values are in the parenthesis)

When these three outlying members were excluded, Equation III showed significant estimated for all coefficients as shown in the third column of Table 6, and this time, this estimation equation has passed the test of normality of errors as in Table 7. Regarding homoscedasticity and RESET test, all were passed.[25]

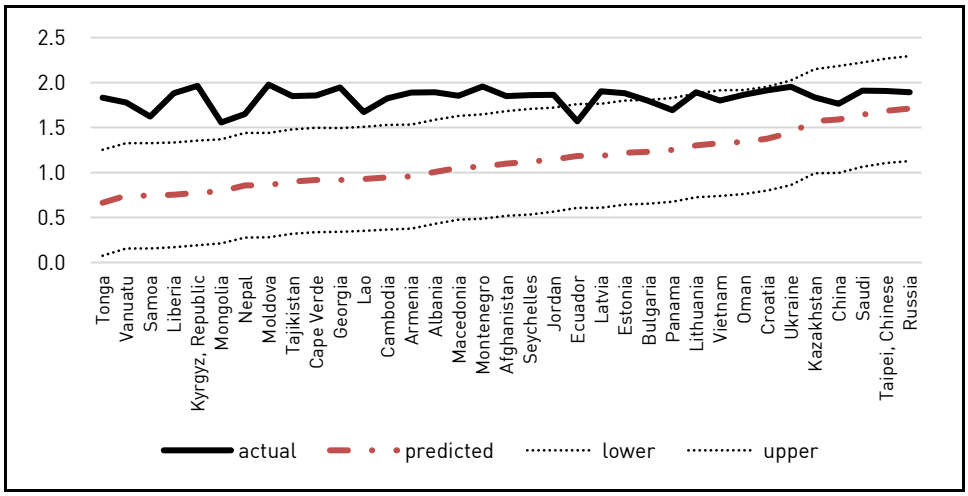
Table 7. Normality Test for OMs without Outliers

	p-value	Conclusion: (5%)
Kolmogorov-Smirnov/Lilliefors Test	0.937	Accept Normality
Kolmogorov-Smirnov/Stephens Test	0.150	No evidence against normality
Shapiro-Wilk W	0.391	Accept Normality

Now that reliable estimates were obtained for OMs, it is time to apply these coefficients to NMs. Their personal income and import volume data were plugged in the Equation III and predicted values were obtained. Of course, at the same time, prediction interval, not confidence interval, was obtained to see if the discrepancy from the predicted level of commitment could happen within 95% probability. The result is in Figure 1 below.

[25] p-value from White test statistic was 0.021, passing the test at 99% level. RESET test has also been passed at 95% level with only squared term with t-statistic of 0.84 and 99% level with F statistics being 3.44 while critical value is 4.79.

Figure 1. Actual vs Predicted Level of Commitment of NMs



It is quite evident from the Graph 1 that all NMs committed higher level of commitment than the predicted level; confirming that all NMs committed higher level. No NMs committed lower level than the predicted one. In addition, many of NMs' commitment level were over 95% prediction interval; out of 35 members, as many as 23 of them committed more than 95% prediction interval (Observation 1).

Closer examination of the discrepancies between actual and predicted levels suggests that relatively larger economies' actual level of commitment is closer to the predicted level, compared to smaller economies. In order to verify this suggestion, factors which would may explain the discrepancies need to be identified. Once again, all variables in section IV have been considered. As mentioned before, variables of gross domestic product, volume of export, volume of import and volume of services trade are all highly correlated. Personal income is less highly correlated with the other variables. However, since personal income and import volume were already included for estimation, volume of services trade was chosen to explain the discrepancies between predicted and actual level of commitment[26]. The result is;

[26] All other variables mentioned were considered for estimation, but the results do not change much. The results are not reported here for space concerns.

$$\text{Discrepancy} = \alpha + \beta * log(\text{service trade volume}) + \varepsilon \qquad \text{(Equation IV)}$$

Table 8. Discrepancy and Volume of Services Trade[27]

Intercept α	3.811*** (13.86)
Slope β	-0.330*** (-11.31)

(t-values are in the parenthesis)

This means that among NMs, the larger the volume of services trade, the lower the level of commitment. Since volume of services trade is highly correlated with volumes of import and export, and also gross domestic product, this result could imply that the larger is the economy, or the larger is the trading volume, or the larger is the personal income, the less is commitment among the NMs. This corresponds to Observation 5 in Section III.

There were other remaining observations in Section III regarding whether NMs acceded before or after 2002 and whether NMs are transition economies or not, and acceded before or after 2002. In addition, here, days took for accession negotiation and the number of formal accession meeting were considered. Also the number of formal accession meeting was added, to see if there is any relationship. Estimation equation was IV and the results for these consideration is given in Table 9.

Table 9. Other Factors regarding Discrepancies

	Accession after 2002	Transition Economies	Transition Economies after 2002	Days took for Negotiation	Number of Formal Accession Meeting
Intercept	3.839*** (13.14)	3.801*** (15.19)	4.576*** (15.21)	3.982*** (8.64)	1.338*** (11.34)
Coefficient for Services	-0.333*** (-10.96)	-0.334*** (-12.55)	-0.396*** (-12.13)	-0.329*** (-11.11)	- -
Coefficient for Dummies	-0.015 (-0.32)	0.121*** (2.80)	-0.112*** (-2.35)	-0.052 (-0.47)	-0.760*** (-5.89)

(t-values are in the parenthesis)

[27] Tests of normality of errors, heteroscedasticity and RESET were all passed.

Second column in Table 9 shows that Observation 2 (NMs have made lower level commitment after 2002) has not been proven. But, it is quite evident in the third column that transition economies committed higher level than non-transition economies among NMs (Observation 3)[28]. Also, among the transition economies, the level of commitment became lower after 2002(column 4 for Observation 4)[29]. It is not clear, however, but there might have been some lessons for negotiation to the newly acceding transition economies after 2002. After all, basically, it can be argued that all the observations[30] in Section III which relied only on averages, were substantiated with statistical analysis.

Days took for negotiation were checked whether there existed any impact, but no such impact was found as can be seen in the fifth column Table 9. However, when the number of formal accession meeting was considered, surprisingly it had significant impact on the level of commitment; the more such meetings were held, the lower the levels of commitment, and the closer to the level of commitment predicted by the estimation model for the OMs[31]. When the volume of services trade was considered together with the number of such meetings, the coefficient for the number of meeting was not significant[32]. In fact, the number of such meeting was closely related to the volume of import, GDP and volume of services trade with correlation coefficients between 0.75 and 0.79 with t-statistics over 6; the impact of such meetings was overwhelmed by other factors such as services trade volume.

One last aspect we may consider is the different level of commitment among regions. For this purpose, OMs were also analyzed for comparison and equations

[28] When China and Vietnam were classified as transition economies, the estimation results changed, but slightly. In the third column, intercept, and coefficients for services and dummies changed to 3.918, -0.347 and 0.119, all being significant at 99% level; in the fourth column, they changed to 4.609, -0.4000 and -0.111, all being significant at 99% level.

[29] For this analysis, only NM transition members were considered.

[30] Except Observation 2; but in Section III, Observation 2 was not without suspicion.

[31] One may interpret this as the more frequent the meetings, the less commitment you would make, but this can be too much generalization.

[32] T-value was -0.52.

III[33] and IV were estimated with region dummy variables. Following Table 10 is the result of the dummy coefficients.

Table 10. Regional Differences in Commitments

Original Members			New Members		
OM	Coefficients	t-value	NM	Coefficients	t-value
Europe	0.296***	(3.95)	Europe	0.104***	(2.44)
LA	0.043	(0.67)	SSA	0.049	(0.59)
Asia	-0.062	(-0.82)	SAsia	-0.019	(-0.19)
ME	-0.103	(-1.02)	ME	-0.028	(-0.33)
SSA	-0.146***	(-2.06)	Asia	-0.055	(-1.07)
SAsia	-0.153	(-1.12)	LA	-0.290***	(-3.44)

(Europe=Europe and Central Asia, Asia=East Asia and Pacific, LA=Latin America and Caribbean, ME=Middle East, SAsia=South Asia, SSA=Sub-Saharan Africa)

If only statistically significant estimates are considered, then Europe and Central Asian members consistently showed higher level of commitment, regardless they being an OM or NM. They lead all other WTO members in the liberalization commitment, as a region. In contrast, SSA members committed a much lower level among the OMs; during Uruguay Round, SSA OMs did not make much commitment in services, as is generally recognized. LA members among NMs showed lower level of commitment, but the number of members is only 2, thus meaningful conclusion is not warranted.

VI. CONCLUSION

Analysis in previous sections clearly showed that newly acceding members (NMs) have made higher level of commitment compared to the original members (OMs). If commensurate level of commitment is made regarding the level of economic size and development, then NMs could have made much lower level of commitment. Even when statistical variance is considered, in the sense of allowing

[33] Without outliers

95% of prediction interval, 23 out of 35 NMs committed more than 95% interval, and no NMs committed lower level than predicted one. This can be called as entry fee to GATS. There can be two other possible explanations for this increased level of commitment by the NMs. First is that the world trading environment has changed toward more liberal settings after WTO has been established, thus it may be natural for the new members to make further commitments than the OMs. Second is the fact that around the end of 1992, all negotiations on services virtually stopped, since there was a concern that the whole Uruguay Round may fail due to the controversial agricultural sector negotiation. Only after the Blair Accord has been struck in agriculture July 1993 between US and EU, all other negotiations resumed, but the deadline was announced as the end of year. Thus, the negotiators hurried up, but time was not enough. Thus, instead, a clause was added in GATS that the next round of negotiation in services should start 5 years after the establishment of WTO[34]. They did not negotiate enough at that time.

Next question is, among NMs, which members committed more than the other NMs. It turned out that, in general, smaller economies in terms of size and trading volume, and economies in transition, committed higher level.

One possible explanation is that these members believed that higher level of commitment, even if unilateral, would be beneficial for their future economic development; you are tying your hands toward liberalization. This is often argued in economics literature. We may call this "benign neglect" by NMs. On the other hand, other explanation is also possible; their economies had accumulated less experience in regulation or international trade in services sector, thus were in a relatively weaker position during accession negotiation. OMs pushed these economies harder than the other NMs. This may, in turn, be called as "malign select" by OMs. Those NMs which committed relatively less than the other NMs were mostly (in relative terms with other NMs) larger economies, and they would have more at stake if WTO commitments are overly burdensome to their economies. Thus they could have been more reluctant in making commitments, and the negotiation took longer time. Of course, this conclusion is only based on the scoring scheme and the estimation equation adopted in this paper, and further indepth examination is needed to justify this conclusion.

[34] Article 19.1 GATS

However, in this respect, current observers and future possible NMs could draw some lessons from this study. Currently there are 23 observers which are candidates as NMs; they include Algeria, Andorra, Azerbaijan, Bahamas, Belarus, Bhutan. Bosnia and Herzegovina, Comoros, Equatorial Guinea, Ethiopia, Holy See, Iran, Iraq, Lebanese Republic, Libya, Sao Tome and Principe, Serbia, Somalia, South Sudan, Sudan, Syrian Arab Republic, Timor-Leste, Uzbekistan.

There has risen a suspicion during analysis if all these findings were possible if the data for NMs alone can explain all these. Statistical analysis, however, following this suspicion did not show any meaningful relationship between the level of commitment, personal income or volumes of import, export, services trade or GDP; without proper estimation equation for OMs and then applying that equation to NMs, none of the observations in Section III could have been substantiated.

This paper only utilized the total score for analysis, but the scoring scheme here contains much more detailed information on the scores for the individual sectors, modes of supply, market access and national treatment columns. More in-depth analysis to avail this information is left for further studies. Also, if other WTO commitments such as bindings in tariff rates or reduction of agricultural subsidies are analyzed, and compared between OMs and NMs, then the entry cost issue can be more meaningfully dealt with. All these are left for future studies.

Annex I. Possible Scores under Different Schemes

Market Access	National Treatment	Hoekman	GOR	This paper		
				MA	NT	Total
None	None	1	1	1	1	1
None	Some Restrictions	0.5	1	1	0.5	0.75
None	Unbound	0.5	1	1	0	0.5
Some Restrictions	None	0.5	1	0.5	1	0.75
Some Restrictions	Some Restrictions	0.5	1	0.5	0.5	0.5
Some Restrictions	Unbound	0.5	1	0.5	0	0.25
Unbound	None	0.5	1	0	1	0.5
Unbound	Some Restrictions	0.5	1	0	0.5	0.25
Unbound	Unbound	0	0	0	0	0

Annex II. Data Collection

- All data are for the year of accession to the WTO
- Basic data from PWT 80
- Statistics in money terms are 2005 constant US dollars (constant 2011 figures were converted into 2005 constant figures using GSP deflator using World Bank data)
- Data of exports and imports of goods and services, and trade in services are from World Bank data
- Exports and imports of goods and services; Lithuania, the data are for 2004; Seychelles, 2014; Angola, 1996. Trade in services; Seychelles, 2013; Mauritania 2012; Myanmar 2012; Qatar 2011, Zimbabwe, 1990; for services trade of UAE, Qatar figure was used as proxy
- In case of Taipei (Chinese), Exports of goods and services/Imports of goods and services/GDP (2005)/Population date are from National Statistics Republic of China
- In case of Taipei (Chinese), Trade in services data is from CHINA-TAIWAN ECONOMIC RELATIONS
- In case of Zimbabwe, Trade in services data is from Trading Economic

Annex III. Regression Data for All WTO Members

	Member	56w	PC	IM	SVC		Member	56w	PC	IM	SVC
OM	Angola	0.7	3.2	10.1	9.6	OM	Ghana	1.2	2.8	9.5	9.4
OM	Antigua and Barbuda	1.2	4.0	8.8	8.7	OM	Greece	1.9	4.2	10.6	10.5
OM	Argentina	1.7	3.7	10.3	10.0	OM	Grenada	0.9	3.6	8.4	8.1
OM	Australia	1.9	4.5	11.0	10.7	OM	Guatemala	0.9	3.3	9.7	9.3
OM	Austria	1.9	4.5	10.9	10.8	OM	Guinea	0.7	2.4	8.7	8.4
OM	Bahrain	0.9	4.2	9.8	9.5	OM	Guinea Bissau	0.4	2.7	8.3	7.7
OM	Bangladesh	0.6	2.5	9.8	9.3	OM	Guyana	1.1	3.2	9.1	8.7
OM	Barbados	0.8	4.1	9.1	9.2	OM	Haiti	1.2	2.7	9.0	8.8
OM	Belgium	1.9	4.5	11.2	10.9	OM	Honduras	1.0	3.1	9.5	9.3
OM	Belize	0.5	3.5	8.5	8.4	OM	Hong Kong	1.5	4.3	11.3	10.9
OM	Benin	0.7	2.7	9.0	8.5	OM	Hungary	1.8	3.9	10.5	10.2
OM	Bolivia	0.9	3.0	9.3	9.0	OM	Iceland	1.9	4.6	9.5	8.1
OM	Botswana	1.2	3.6	9.5	9.0	OM	India	1.3	2.7	10.7	10.7
OM	Brazil	1.4	3.6	10.8	10.5	OM	Indonesia	1.4	3.1	10.8	10.4
OM	Brunei Darussalum	1.0	4.4	9.7	9.2	OM	Ireland	1.9	4.5	10.8	10.8
OM	Burkina Faso	0.5	2.5	8.9	8.4	OM	Israel	1.4	4.3	10.5	10.3
OM	Burundi	1.6	2.2	8.5	8.2	OM	Italy	1.8	4.4	11.5	11.2
OM	Cameroon	0.6	2.9	9.3	9.2	OM	Jamaica	1.5	3.6	9.8	9.6
OM	Canada	1.8	4.5	11.4	11.0	OM	Japan	1.7	4.5	11.5	11.3
OM	C. African Republic	0.8	2.6	8.6	8.4	OM	Kenya	1.1	2.8	9.8	9.4
OM	Chad	0.5	2.6	8.9	8.8	OM	Korea, Rep.	1.7	4.1	11.2	10.8
OM	Chile	1.1	3.7	10.3	10.0	OM	Kuwait	1.7	4.5	10.3	9.9
OM	Columbia	1.4	3.5	10.4	9.8	OM	Lesotho	1.8	2.7	9.1	8.5
OM	Congo	0.5	3.2	9.5	9.1	OM	Liechtenstein	1.8	4.9	na	na
OM	Congo, Democratic	1.1	2.4	9.4	9.2	OM	Luxembourg	1.9	4.8	10.3	10.6
OM	Costa Rica	1.0	3.6	9.7	9.5	OM	Macau	1.0	4.2	9.6	9.8
OM	Cote d'Ivoire	1.1	3.0	9.7	9.4	OM	Madagascar	0.0	2.4	9.1	8.9
OM	Cuba	1.4	3.4	9.6	9.2	OM	Malawi	1.1	2.4	9.1	8.3
OM	Cyprus	1.0	4.3	9.9	9.8	OM	Malaysia	1.4	3.6	10.9	10.4

	Member	56w	PC	IM	SVC		Member	56w	PC	IM	SVC	WP
OM	Czech Republic	1.8	4.0	10.7	10.2	OM	Maldives	0.4	3.4	8.6	8.4	
OM	Denmark	1.9	4.6	10.8	10.8	OM	Mali	0.6	2.6	9.1	8.7	
OM	Djibouti	0.8	3.0	8.5	8.5	OM	Malta	0.7	4.1	9.6	9.4	
OM	Dominica	0.9	3.6	8.3	8.0	OM	Mauritania	0.5	3.1	8.8	8.6	
OM	Dominican Rep	1.5	3.4	9.9	9.7	OM	Mauritius	1.1	3.6	9.4	9.3	
OM	Egypt	1.1	3.0	10.2	10.2	OM	Mexico	1.7	3.8	11.1	10.4	
OM	El Salvador	1.1	3.4	9.7	9.3	OM	Moroco	1.4	3.2	10.1	9.9	
OM	Fiji	0.4	3.5	9.2	9.1	OM	Mozambique	0.7	2.3	9.1	8.6	
OM	Finland	1.9	4.4	10.6	10.3	OM	Myanmar	0.6	2.0	7.9	8.2	
OM	France	1.9	4.5	11.6	11.4	OM	Namibia	0.6	3.5	9.4	8.7	
OM	Gabon	0.9	3.9	9.5	9.1	OM	Netherlands	1.9	4.5	11.4	11.1	
OM	Gambia, The	2.0	2.6	8.2	8.0	OM	New Zealand	1.8	4.3	10.4	10.1	
OM	Germany	1.9	4.5	11.7	11.5	OM	Nicaragua	1.3	3.0	9.1	8.8	
OM	Niger	0.5	2.4	8.8	8.4	NM	Afghanistan	1.9	2.8	10.0	9.4	0.7
OM	Nigeria	1.0	2.9	10.4	9.8	NM	Cambodia	1.8	2.6	9.6	9.2	0.7
OM	Norway	1.9	4.7	10.9	10.6	NM	Cape Verde	1.9	3.5	8.9	8.9	0.8
OM	Pakistan	1.3	2.8	10.2	9.9	NM	Lao	1.7	2.9	9.4	8.8	1.0
OM	PNG	1.2	3.0	9.3	9.2	NM	Liberia	1.9	2.5	9.0	8.8	0.6
OM	Paraguay	0.8	3.1	9.6	8.7	NM	Nepal	1.7	2.5	9.4	8.9	0.5
OM	Peru	1.4	3.4	10.0	9.6	NM	Samoa	1.6	3.4	8.4	8.3	0.3
OM	Philippines	1.2	3.0	10.5	10.0	NM	Saudi	1.9	4.1	10.9	10.7	1.1
OM	Poland	1.7	3.7	10.6	10.3	NM	Seychelles	1.9	4.2	9.1	8.8	0.8
OM	Portugal	1.9	4.2	10.7	10.3	NM	Tonga	1.8	3.4	8.1	7.8	0.5
OM	Qatar	1.4	4.6	9.9	9.4	NM	Vanuatu	1.8	3.3	8.4	8.5	0.3
OM	Romania	1.7	3.5	10.4	10.1	NM	Vietnam	1.8	2.9	10.7	10.0	1.1
OM	Rwanda	0.8	2.3	8.5	8.3	NM-B	Bulgaria	1.8	3.4	10.0	9.8	1.0
OM	Saint Kitts & Nevis	0.7	3.9	8.4	8.3	NM-B	China	1.8	3.1	11.5	11.1	1.1
OM	Saint Lucia	0.8	3.7	8.7	8.7	NM-B	Ecuador	1.6	3.4	9.8	9.4	1.0
OM	St.Vincent & Grenadines	0.8	3.5	8.4	8.2	NM-B	Estonia	1.9	3.8	9.7	9.5	1.0
OM	Senegal	1.5	2.8	9.3	9.0	NM-B	Jordan	1.9	3.3	9.8	9.6	0.7
OM	Siera Leone	1.7	2.6	8.6	8.2	NM-B	Latvia	1.9	3.7	9.7	9.4	0.8
OM	Singapore	1.5	4.3	11.1	10.8	NM-B	Lithuania	1.9	3.7	10.0	9.6	0.7
OM	Slovak Republic	1.8	3.8	10.2	9.6	NM-B	Mongolia	1.6	2.9	8.9	8.8	0.7
OM	Slovenia	1.8	4.1	10.1	9.7	NM-B	Oman	1.9	4.1	9.9	9.6	0.8

	Member	56w	PC	IM	SVC		Member	56w	PC	IM	SVC	WP
OM	Solomon Islands	1.3	3.1	8.4	8.0	NM-B	Panama	1.7	3.6	10.0	9.5	0.7
OM	South Africa	1.8	3.6	10.6	10.2	NM-B	Taipei, Chinese	1.9	4.1	11.1	11.1	1.0
OM	Spain	1.9	4.3	11.3	11.1	NM-B	Yemen	1.7	3.0	na	na	1.0
OM	Sri Lanka	1.0	2.9	9.9	9.4	NT	Armenia	1.9	3.1	9.3	8.9	0.7
OM	Suriname	0.7	3.6	8.6	8.7	NT	Kazakhstan	1.8	4.0	10.7	10.3	1.3
OM	Swaziland	0.9	3.3	9.2	8.7	NT	Macedonia	1.9	3.4	9.4	9.1	0.7
OM	Sweden	1.8	4.5	11.0	10.7	NT	Montenegro	2.0	3.7	9.3	9.1	0.9
OM	Switzerland	1.9	4.7	11.1	11.0	NT	Russia	1.9	3.8	11.3	10.9	1.5
OM	Tanzania	0.4	2.6	9.6	9.2	NT	Tajikistan	1.9	2.7	9.4	8.9	1.0
OM	Thailand	1.4	3.4	10.8	10.6	NT	Ukraine	2.0	3.4	10.8	10.3	1.2
OM	Togo	0.6	2.6	8.8	8.6	NT-B	Albania	1.9	3.3	9.4	9.3	0.9
OM	Trinidad and Tobago	1.2	3.8	9.5	8.8	NT-B	Croatia	1.9	3.9	10.2	10.0	0.8
OM	Tunisia	0.9	3.3	10.0	9.6	NT-B	Georgia	1.9	3.0	9.3	9.0	0.5
OM	Turkey	1.6	3.7	10.9	10.4	NT-B	Kyrgyz	2.0	2.6	9.0	8.6	0.8
OM	Uganda	0.5	2.5	9.1	8.9	NT-B	Moldova	2.0	2.7	9.2	8.8	0.8
OM	UK	1.9	4.5	11.7	11.5							
OM	UAE	1.4	4.6	10.8	10.2							
OM	Uruguay	1.2	3.7	9.5	9.3							
OM	USA	1.9	4.5	12.0	11.7							
OM	Venezuela	1.4	3.7	10.4	9.8							
OM	Zambia	1.2	2.7	9.3	8.6							
OM	Zimbabwe	0.9	2.8	9.5	8.8							

REFERENCES

Adlung, R. and M. Roy. 2005. Turning Hills into Mountains? Current Commitments under the GATS and Prospects for Change. WTO Staff Working Paper, no. ERSD-2005-01.

Evenett, S. J. and C. A. Primo Braga. 2005. WTO Accession: Lessons from Experience. Trade Note, no. 22. Washington DC: World Bank.

Fare, R. and K.-J. Sung. 1986. "On Second-order Taylor's Series Approximation and Linear Homogeneity," *Aequationes Mathematicae*, vol. 30, pp. 180-186.

Grynberg, R., Ognivtsev, V. and M. A. Razzaque. 2002. *Paying the Price for Joining the WTO: A Comparative Assessment of Services Sector Commitments by WTO Members and Acceding Countries*. Economic Paper, no. 54. London: Commonwealth Secretariat.

Hoekman, B. 1996. Assessing the General Agreement on Trade in Services. Chapter 4 in Martin, W. and L. A. Winters. (eds.) *The Uruguay Round and the Developing Countries*. Cambridge: Cambridge University Press.

Nguyen, N. 2008. "WTO Accession at Any Cost? Examining the Use of WTO-Plus and WTO-minus Obligations for Least-developed Country Applicants," *Temple International and Comparative Law Journal*, vol. 22, no. 1, pp. 243-277.

World Trade Organization (WTO). I-TIP Services. <i-tip.wto.org/services/Search.aspx> (accessed April 1, 2018)

_____. 1991. Services Sectoral Classification List, Note by the Secretariat, MTN.GTS/W/120.

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