THE 'EMULATOR EFFECT' OF THE URUGUAY ROUND ON US REGIONALISM *

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ABSTRACT

Using a detailed data set at the tariff line level, we find an *emulator effect* of multilateralism on subsequent regional trade agreements involving the US. We exploit the variation in the frequency with which the US has granted immediate duty free access (IDA) to its Free Trade Area partners across tariff lines. A key finding is that the US has granted IDA status especially on goods for which it had cut the multilateral MFN tariff during the Uruguay round the most. Thus, the Uruguay Round (multilateral) 'concessions' have emulated subsequent

1. INTRODUCTION

Many preferential trade agreements came to light since the completion in 1994 of the Uruguay Round of multilateral trade negotiations under the auspices of the GATT. The US is no exception. These agreements involving the US vary in scope – the number of goods included in the agreement varies across agreements – and breadth – the US tariff on some goods goes to zero immediately upon implementing the agreement but the imports of many other are fully liberalised only gradually. In this paper, we shed light on the causes of these cross-good variations and show that they are best though as the continuation of a process that includes multilateral liberalisations. Specifically, we find that the imports of goods that the US liberalises swiftly the most frequently on a preferential basis are also the goods for which it granted the boldest tariff cuts during the Uruguay Round. This finding is robust to a variety of specifications. The quantitative effect is also quite large. We interpret these findings as evidence that past multilateral (or non-discriminatory) trade agreements are a dynamic complement, or emulator, to consecutives regional (or preferential) agreements.

Second, our paper contributes to the large research agenda that asks whether regionalism and multilateralism substitutes or complements. Answering such questions is important, not least because several scholars fear that regionalism is a dynamic substitute, or

liberalisation, by eroding protectionist forces and

'concessions' at the preferential level because the Doha Round of multilateral trade talks is currently stalling. This latter hypothesis, which we label 'the money left on the table hypothesis', is quite popular among many pundits or in the press (The Economist is a particularly ardent propagator of this view of the world). Note that the two explanations are not mutually exclusive. We control for this hypothesis in two ways. First, we introduce the Uruguay Round MFN tariff rate as a control in all our regressions. The estimated coefficient is negative, implying that the US disproportionately grants duty free access to its market on a preferential basis for goods that have a *low* MFN tariff rate already. This rejects the money left on the table hypothesis. Second, it turns out that the US did not cut MFN tariffs at the Uruguay Round on about 22% of goods in our sample; so, we introduce a dummy variable for such goods as an additional control, recognizing that these might be different for some reason. The estimated coefficient of this control is statistically significant and positive, implying that the Uruguay Round and the ensuing preferential tariff cuts are dynamic *substitutes* for these goods. The presence of this control among the independent variables also increases the estimated coefficient of CUT, which reinforces our emulator finding for the remaining 78% of tariff lines.

2. RELATED LITERATURE

Our findings are consistent with two different arguments put forth in the theoretical literature.

Importantly, whereas we take the existence of the Free Trade Agreement as given, and aim to find out which tariff lines are liberalised the most swiftly, the three aforementioned papers aim to explain the formation of PTAs.

3. DEFINITION OF VARIABLES, DATA AND SUMMARY STATISTICS

In the case of the United States (and others), the legally binding and the applied MFN tariffs coincide exactly (by definition the latter may not be higher than the former), so we refer to them as the MFN tariff for short.[6] All US MFN tariffs are non-increasing in the post-Uruguay round period. Our key explanatory variable, denoted by *CUT*, is defined as the (non-negative) difference (or tariff 'cut') between the Tokyo and Uruguay MFN rates, i.e. $CUT \equiv MFN^{Tokyo} - MFN^{Uruguay}$. *CUT* is our good-specific measure of the intensity of multilateral trade liberalisation, so we may write CUT_g to be more explicit (with the subscript *g* denoting the good). The stated aim of the Uruguay Round was to cut tariffs by about 30% but in the end Canada, the EU, Japan, and the US achieved a larger reduction on average (Baldwin 2009).

The main sources for data are the UNCTAD-TRAINS and the WTO-CTS Bound Duty Rates databases. Both databases provide information at the legal tariff line level (8-digit in the HS nomenclature), what we refer to as *goods*. They do not include goods subjected to non-ad valorem duties.[7] This leaves 9,303 goods. The WTO-CTS database provides information on bound rates negotiated at both the Tokyo and the Uruguay rounds. Hence, CUT_g corresponds to the effective reduction in bound tariffs negotiated during the Uruguay round. The database also provides information on the implementation period of bound tariff reductions that were negotiated during the Uruguay round

In our analysis, we want to understand to what extent past multilateral trade liberalisation is a factor towards current preferential trade liberalisation. A measure of the intensity of the preferential trade liberalisation similar in spirit to *CUT* is the *preference margin PM*, defined

It turns out that in the US case, each PTA is in fact a free trade agreement (FTA) *de jure*, namely, the tariffs of all included goods all eventually go to zero. In our notation, this implies that $PT = 0$ at the end of the so-called 'implementation period' (specified in the agreement). By contrast, there is considerable variation in the timing of the implementation of this free trade policy about both goods and partners: overall, 69% of our observations are fully liberalised at the start of the implementation of the FTA, whereas goods that are included in any of the FTAs but that are liberalised only gradually represent 27% of our observations; the rest consists of good-partner pairs that are excluded from the corresponding FTA altogether (fewer than 4% of observations).

We also use the information available in the TRAINS database for non tariff measures (NTM). We focus on NTMs classified as Technical Measures in the UNCTAD Coding System of Trade Control Measures (chapter 8). This covers *inter alia* both sanitary and phyto-sanitary (SPS) and technical barriers to trade (TBT) type of measures. Data are available only for the year 1999. Our control variables include imports at the tariff line; this information is also provided by UNCTAD-TRAINS. Table 1 (panel b) reports the summary statistics of the

definition). For this reason we exploit instead its extensive margin and the timing of the preferential liberalisation. Our first cut through the data is to set goods that are granted duty

the estimated coefficient β_1. This somewhat surprising feature of the data is also helpful for our identification strategy and we return to it shortly.

4.1. Evidence at the good level: Logit

We start by running the following logit:

$$\Pr\{SEVEN_g = 1\} = \Lambda\left(f_{G(g)} + \beta_1 CUT_g + \beta_2 MFN_g + \mathbf{X_{g,p}} \right), \qquad (2)$$

where $\Lambda(\cdot) \equiv \exp(\cdot)/[1+\exp(\cdot)]$

the Uruguay round quite implausible.[10] Note that the absence of correlation between *CUT* and *MFN* is also helpful: it implies that the past determinants of trade liberalisation (at the good level) that cumulated to give rise to the Tokyo tariff *level* are different from those that led to the Uruguay Round tariff *cut*: in line with the Juggernaut hypothesis, this suggests that the sectoral determinants of tariffs are not as long-lived as one might think. However, if an omitted variable affects *PTL* and *CUT* simultaneously then regressing the former on the later will cause a spurious correlation. We thus introduce sector dummies $f_{G(g)}$ in (2) to capture sector invariant sources of unobserved heterogeneity, like the political economy determinants of tariffs (e.g. lobbying), as suggested in our theoretical discussion in the introduction, or the determinants of comparative advantage. Insofar as such unobserved shocks are common to goods within sectors, then including $f_{G(g)}$ in (2) corrects for this source of omitted variable bias in our cross section exercise. Together, these three working assumption constitute our maintained identification hypothesis. We complement them with additional approaches in Section 5.

We use sector fixed effects at a relatively high degree of aggregation so that our sample has a large number of observations for each partner *p* and for each sector *G*; as a result, the 's in the conditional logit in (3) are consistently estimated.

regression in Column (1) includes the two independent variables and Column (2) adds sector dummies. The findings are consistent with the emula

insignificant: thus, the US does not seem to discriminate between large and small exporters when granting IDA status.

Column (5) adds *SNAFTA* to the set of controls, with *SNAFTA* being defined as the good-

control in (3), namely $SMALL_p \equiv \sum_g M_{g,p} / M$, as well as the US' share of exports towards *p*, defined as $SXALL_p \equiv \sum_g X_{g,p} / X$, where *X* denotes exports. In the same spirit, we also create $SALL_p$ as $SALL_p \equiv \sum_g (M_{g,p} + X_{g,p}) / (M + X)$ as an overall measure of the importance of *p* as a trading partner for the US. *SALL*, *SMALL* and *SXALL* are defined at the partner level, so wL

preferential liberalisation: a multilaterally agreed tariff cut is less effective if the imports of that good are impeded by other measures. We thus ex

for goods that have irrelevant rules of origin. To identify this differential effect in the data, we construct a dummy variable RoO_g that takes value 1 if $MFN_g > 2.5$ (when foreign exporters are expected to use the preference and thus to comply with the rules of origin) and zero otherwise and we re-run (2) and (3) with this dummy as an additional control variable.

TABLE 6 ABOUT HERE

Table 6, Col. (2) reports the results for (2), which have to be compared with those of the baseline specification, reproduced in Col. (1). The results are supportive of the emulator hypothesis: as expected, the *CUT* coefficient is larger for the goods for which it maters than for goods with an irrelevant preference margin. By contrast, the coefficient and the odds ratio for *MFN* shrink noticeably, rejecting the 'money left on the table hypothesis' further.

Table 6, Col. (4) reports the results for (3), which have to be compared with those of Col. (3). Here, the results are as again supportive; the Wald statistics rejects the hypothesis that the coefficients are the same at the one percent level. We have re-ran (2) and (3) with 2 and 3 percentage points as thresholds (results not reported); the qualitative results were not affected.

In sum, the differential effect of *CUT* on granting *IDA* status for goods affected by rules of origin or non-tariff measures that we find in the data confirms this set of predictions of the emulator hypothesis.

5.3. The role of intermediate goods

As we shall see in Section 6, the emulator effect is non-linear. Specifically, the largest emulator effect is between granting this preferential access to *all* partners or not, rather than between *some* partners or none. This in turn suggests that the *type* of goods might be more important than the partners' characteristics; also, when we include sector dummies in our regressions, the coefficients of interest tend to rise in a significant way, suggesting that unobserved sector-invariant characteristics are indeed important. Therefore, we split the sample among the following categories of goods that correspond to different stages of production in the value chain: Basic manufacturing, Consumption goods, Equipment goods, Intermediate goods, Mixed products and Primary goods and we estimate one 1ssegu

results. The estimated coefficients are positive and significant at the one percent level in all cases but for consumption and primary goods, for wh

Our first robustness check is to run a logit that is the mirror image of (2):

$$\Pr\left\{ONE_g = 1\right\} = \Lambda\left(f_{G(g)} + \beta_1 CUT_g + \beta_2 MFN_g + \mathbf{X_{g,p}} \right), \qquad (4)$$

where *ONE* takes value one if the specific good gets IDA status into the US market in *at least one* FTA and zero otherwise (i.e. $ONE_g \equiv 1 - \mathrm{I}_0\left\{\# p : PT_{g,p}^{impl} = 0\right\}$, where $\mathrm{I}_0\{\cdot\}$ denotes an indicator function that takes value 1 if its component is equal to zero and value 0 otherwise).

TABLE 8 ABOUT HERE

We report the results in the Table 8, which is symmetric to Table 2 (same set of controls, same estimator). Qualitatively, all the findings are similar to those of Table 2. Quantitatively, the positive effect of *CUT* and the negative effects of *MFN*, *DIFF*0 and *SNAFTA* in (4) are smaller (in absolute value) than in (2). The odds ratio corresponding to the coefficient of interest β_1 is ranges from 1.13 in the baseline specification to 1.17 with the

Table 9 presents our findings. The results are consistent with those of Tables 2 and 8. Columns (1) and (2) report the results of specification (5), respectively excluding and including the sector dummies $f_{G(g)}$, excluding any other control,. The coefficients are precisely estimated. In column (2), the Poisson incidence rate ratio (PIRR = exp β_1) is equal to 1.02, implying that an extra one percentage point *CUT* increases the expected number of times that the good in question is granted IDA status by two percents. The PIRR rises to 1.03 when we add the additional controls of columns (3) and (4) (our preferred specification). The effect is not strong quantitatively but it is statistically significant and robust.

6.3. Evidence at the good level: Hurdle

We verify that the effect of *CUT* on the extensive margin of preferential trade liberalisation as captured by the IDA status is non-linear by implementing a two-stage Hurdle regression. The first step is a logit that is the mirror image of (2),

$$\Pr\{SEVEN_g = 0\} = \Lambda\left(f_{G(g)} + b_1 CUT_g + b_2 MFN_g + \mathbf{X_{g,p}}\mathbf{b} \right), \qquad (6)$$

and the second step is the conditional Poisson regression:

$$\mathrm{E}\ 7 - NTL_g \left| SEVEN_g = 0; \cdot \right. = \exp\left(f_{G(g)} + c_1 CUT_g + c_2 MFN_g + \mathbf{X_{g,p}}\mathbf{c} \right). \qquad (7)$$

For instance, b_1

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Figure 1: US Tariffs (Simple Means)

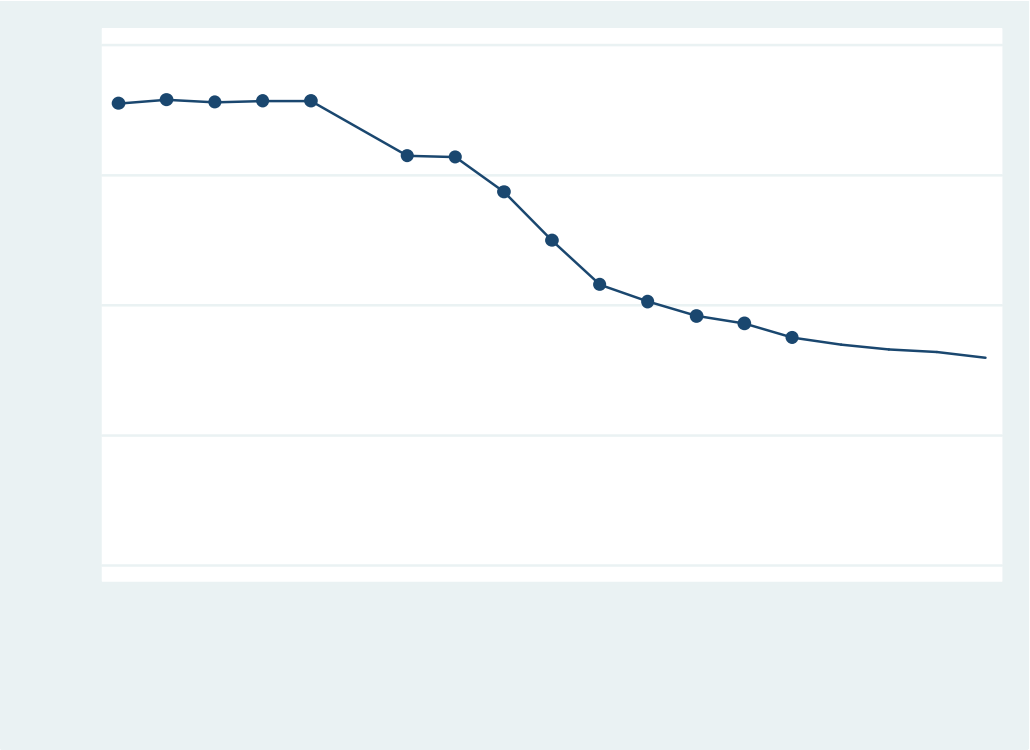
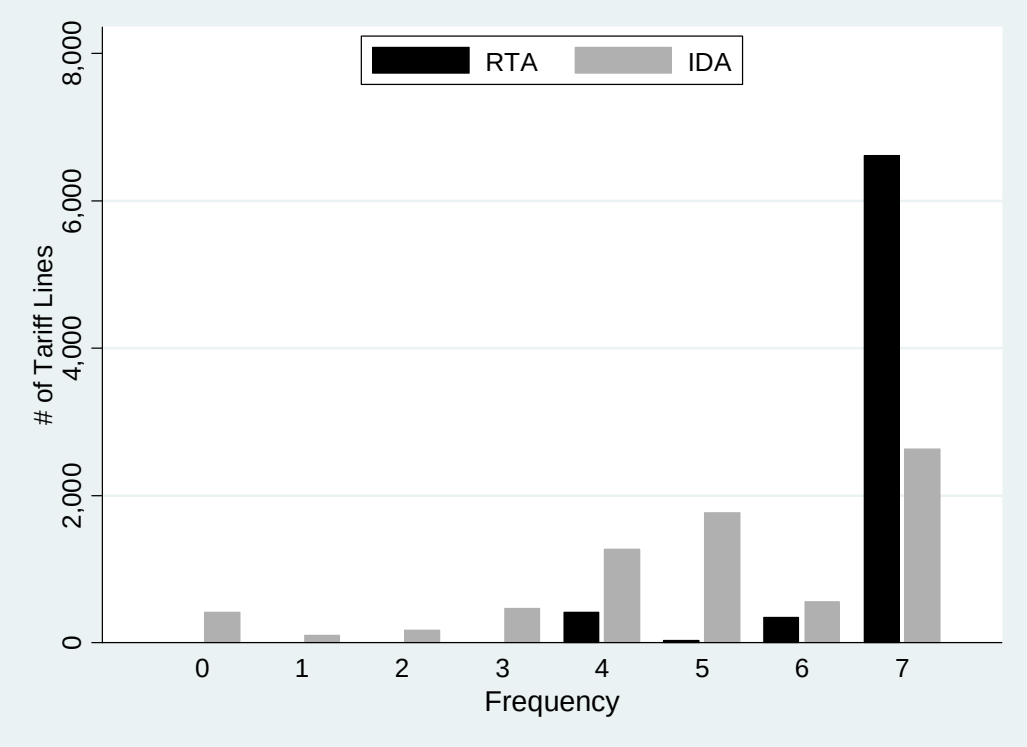


Figure 2: Tariff lines in RTAs



Note: The RTA histograms refer to the number of tariff lines included in an RTA by frequency; 'frequency' refers to the number of RTAs in which a given tariff line is being included. The IDA

Table 1: Descriptive Statistics

Panel (a) Tariff Lines in Trade Agreements

Partner	Tariff Lines Status			
	Immediate duty free	Gradual duty free	**Total included**	Excluded
Australia	5,319	1,591	**6,910**	509
Bahrain	5,306	2,113	**7,419**	None
Chile	6,651	733	**7,384**	35
Jordan	4,420	2,557	**6,977**	442
Morocco	5,397	1,979	**7,376**	43
Singapore	5,033	1,735	**6,768**	651
CAFTA	5,394	2,025	**7,419**	None

Panel (b) Variables

	Mean	Median	Standard Deviation	Min	Max
MFN tariff CUT, in pp (Tokyo minus Uruguay)	4.22	2.1	4.34	0	31.5
MFN tariff rate, in pp (Uruguay)	6.2	4.19	5.02	0.1	48
Share of imports (total) from PTA partners	.45	.23	.51	.005	1.31
Share imports (tariff line) from PTA partners	.21	0	2.63	0	100
Share imports from NAFTA partners	13.15	.73	24.09	0	100
Share exports to FTA partners	.91	.44	.89	.04	2.25

Table 2: LOGIT 'Seven'

	Dependant variable: *SEVEN* (Probability that tariff line *g* is granted IDA to US market to all 7 partners)				
	(1)	(2)	(3)	(4)	(5)
Tariff CUT (Tokyo minus Uruguay)	1.140[a]	1.227[a]	1.330[a]	1.331[a]	1.313[a]
	(0.00826)	(0.0109)	(0.0158)	(0.0158)	(0.0159)
MFN tariff rate	0.668[a]	0.657[a]	0.612[a]	0.612[a]	0.611[a]
	(0.0127)	(0.0165)	(0.0174)	(0.0175)	(0.0175)
DIFF0 (no Uruguay Round cut)			4.375[a]	4.378[a]	4.253[a]
			(0.459)	(0.459)	(0.446)
Share imports				1.019	1.010

Table 3: p-g LOGIT

	Dependant variable: Pr{IDA = 1} (Probability that tariff line g is granted IDA to US market to partner p)					
	(1)	(2)	(3)	(4)	(5)	(6)
Tariff CUT (To. minus Ur.)	1.064[a] (0.0162)	1.099[a] (0.0197)	1.125[a] (0.0221)	1.126[a] (0.0220)	1.115[a] (0.0212)	1.115[a] (0.0213)
MFN tariff level	0.922[a] (0.0119)	0.931[a] (0.0125)	0.926[a] (0.0139)	0.925[a] (0.0136)	0.930[a] (0.0134)	0.930[a] (0.0134)
DIFF0 (no U. R. cut)			1.683[a] (0.316)	1.688[a] (0.316)	1.623[a] (0.296)	1.623[a] (0.298)
Partner's share of M_g				1.039[a] (0.0144)	1.039[a] (0.0152)	1.041[a] (0.0128)
Share imports from NAFTA partners					0.996[a] (0.00103)	0.996[a] (0.00103)
SALL: Partner's share of US X+M						0.951 (0.160)
Sector FE	No	Yes	Yes	Yes	Yes	Yes
Partner FE	No	Yes	Yes	Yes	Yes	No
Obs.	51814	51814	51814	51814	51814	51814
Pseudo R^2	0.044	0.115	0.119	0.120	0.085	0.086
Ll	-29248.8	-27064.3	-26942.2	-26909.6	-28003.2	-27973.3

Notes. **Coefficients**: Exponentiated (odds ratios); **Robust standard errors** (clustered at the tariff line) in parentheses. [a] $p < 0.01$, [b] $p < 0.05$.

Table 4: g-Logit on partner-specific sub-sample

Dependant variable: Pr{IDA = 1} (Probability that tariff line g is granted IDA to US market to partner *p*)						
(AUS)	(BHR)	(CHL)	(JOR)	(MAR)	(SGP)	(CAFTA)

Table 5: Non-tariff measures (NTM)

	Dependant variables:			
	SEVEN		Pr{IDA = 1}	
	(1)	(2)	(3)	(4)
Tariff CUT (To. minus Ur.)	1.313[a] (0.0159)		1.115[a] (0.0212)	
NTM * cutMFN		1.010 (0.0375)		0.993 (0.00689)
(1-NTM) * cutMFN		1.310[a] (0.0155)		1.140[a] (0.00455)
MFN tariff rate	0.611[a] (0.0175)	0.603[a] (0.0173)	0.930[a] (0.0134)	0.924[a] (0.00261)
DIFF0 (no Uruguay Round cut)	4.253[a] (0.446)	4.173[a] (0.431)	1.623[a] (0.296)	1.700[a] (0.0583)
NTM dummy	No	Yes	No	Yes
PartnerFE	N.A.	N.A.	Yes	Yes

Table 6: Unused Rules of origin (RoO)

	Dependant variables:			
	SEVEN		Pr{IDA = 1}	
	(1)	(2)	(3)	(4)
Tariff CUT (Tokyo minus Uruguay)	1.321[a]		1.120[a]	
	(0.0165)		(0.00411)	
RoO * CUT		1.374[a]		1.169[a]
		(0.0181)		(0.0107)
(1-RoO) * CUT		1.309[a]		1.113[a]
		(0.0328)		(0.00425)
MFN tariff rate	0.551[a]	0.553[a]	0.927[a]	0.928[a]
	(0.0216)	(0.0228)	(0.00270)	(0.00269)

Table 7: LOGIT ‘Seven’ by type of goods

	Dependant variable: SEVEN (Probability that tariff line g is granted IDA to US market to all 7 partners)					
	Basic-manufacturing	Consumption-goods	Equipment-goods	Intermediate-goods	Mixed-products	Primary
Tariff CUT (To. minus Ur.)	1.423[a] (0.0433)	1.181[a] (0.0572)	1.306[a] (0.0426)	1.343[a] (0.0404)	1.404[a] (0.0613)	1.061 (0.102)
MFN tariff rate	0.561[a] (0.0301)	0.494[a] (0.0407)	0.838[a] (0.0368)	0.445[a] (0.0344)	0.808[a] (0.0353)	0.201[a] (0.0632)
DIFF0 (no Uruguay	18.62[a]	1.675	3.080			

Table 8: LOGIT ‘One’

	Dependant variable: ONE (Probability that tariff line is granted IDA to US market to at least one partner)				
	(1)	(2)	(3)	(4)	(5)
Tariff CUT	1.054[a]	1.133[a]	1.178[a]	1.178[a]	1.169[a]

Table 9: POISSON regressions

	Dependant variable: *NTL* (Number of times that tariff line *g* is granted IDA to US market)				
	(1)	(2)	(3)	(4)	(5)
Tariff CUT (Tokyo minus Uruguay)	1.015[a] (0.000949)	1.021[a] (0.00102)	1.028[a] (0.00129)	1.028[a] (0.00129)	1.026[a] (0.00133)
MFN tariff rate	0.971[a] (0.00122)	0.975[a] (0.00134)	0.974[a] (0.00137)	0.974[a] (0.00137)	0.974[a] (0.00137)
DIFF0 (no Uruguay Round cut)			1.152[a] (0.0152)	1.153[a] (0.0152)	1.150[a] (0.0152)

Table 10 (a): HURDLE regressions

Panel (a) Logit

	Dependant variable: 1- *SEVEN* (Probability that tariff line *g* is not granted IDA to US market to all 7 partners)				
	(1)	(2)	(3)	(4)	(5)
Tariff CUT (Tokyo minus Uruguay)	0.877[a] (0.00636)	0.815[a] (0.00727)	0.752[a] (0.00892)	0.751[a] (0.00894)	0.761[a] (0.00924)
MFN tariff rate	1.496[a] (0.0286)	1.522[a] (0.0382)	1.635[a] (0.0466)	1.635[a] (0.0467)	1.637[a] (0.0469)
DIFF0 (no Uruguay Round cut)			0.229[a] (0.0240)	0.228[a] (0.0240)	0.235[a] (0.0247)
Share imports from FTTlimfusr(f)0	4.413423( )-8149.48(	562.75721( )-7019.97(0)	7.11963(.))-3.14617(.)	3.55982(0)-3.14868(2)	7.11963(4)-3.1486834
	0.981	0.990			(0.02

Table 10 (b): HURDLE regressions (cont.)

Table 11: Interacting CUT and MFN