An investigation into the Real Natural Trading Partner of selected CARICOM countries.

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Structure of Presentation

- Introduction.
- Literature review.
  - The Natural Trading Partner Hypothesis.
  - Measuring Trade Complementarity.
- Results.
- Concluding Remarks.

Introduction.

- CARICOM (Caribbean Community) was formed after several failed attempts of economic integration in the region.

- The early economic integration efforts in the region were strongly influenced by the work of the Lewis (1950).

- The economic integration argument was based on the premise that Caribbean economies have peculiar features that distinguish them from developed economies in the world trading system.

- These economies are relatively small in terms of their market size, population size and growth rates, in fact; they are characterized by low income per capita, high levels of unemployment, concentrated export basket and a production structure dominated by primary production.

Introduction.

- The CARICOM arrangement was formed on August 1st, 1973 with the objective of getting member states to trade more with each other, to provide a united front when dealing with countries that are not members of CARICOM and also to cooperate with members in areas such as sports, education, health, culture, technology and transportation.

- In 2006, CARICOM evolved into the Caribbean Single Market and Economy (CSME).

- However, some commentators such as Wint (2001) have argued that CARICOM is "doomed to be a low impact activity".

- Wint premised this argument on the notion that integration efforts in the region have focused largely on market-driven integration rather than production-driven integration.

Introduction.

- CARICOM was initially intended to be an intra-regional free trade area with the implementation of a Common External Tariff focusing on the promotion of intra-regional trade.

- Unfortunately, CARICOM have had little success in increasing intra-regional exports in the region.

- Farrell (2001), argued that this is so because CARICOM economies lack "developed productive structures and the possession of those structures by most, if not all, of the partner countries in the integration movement" to fully take advantage of the larger CARICOM market.

Introduction.

- Worrell (2001) also noted that; *"There are few complementarities that would make for intra-regional trade, and efforts to develop them have not been successful. Such intra-regional trade as there is has resulted, not from language affinity or tariff policy, but from cheap transport and cost differential between neighbours"*.

- Wint (2001) also noted that a "key element of the challenge of enhancing intra-regional trade within the CARICOM region is the lack of trade complementarity of the CARICOM economies."

- Nevertheless, the focus of CARICOM continues to be promoting intra-regional trade, but according to Kemal (2003), "intra-regional trade is promoted in situations where members have comparative advantage in diverse products and exhibit strong trade complementarities."

CARICOM intra CARICOM trade performance and real GDP growth performance (1991-2008).
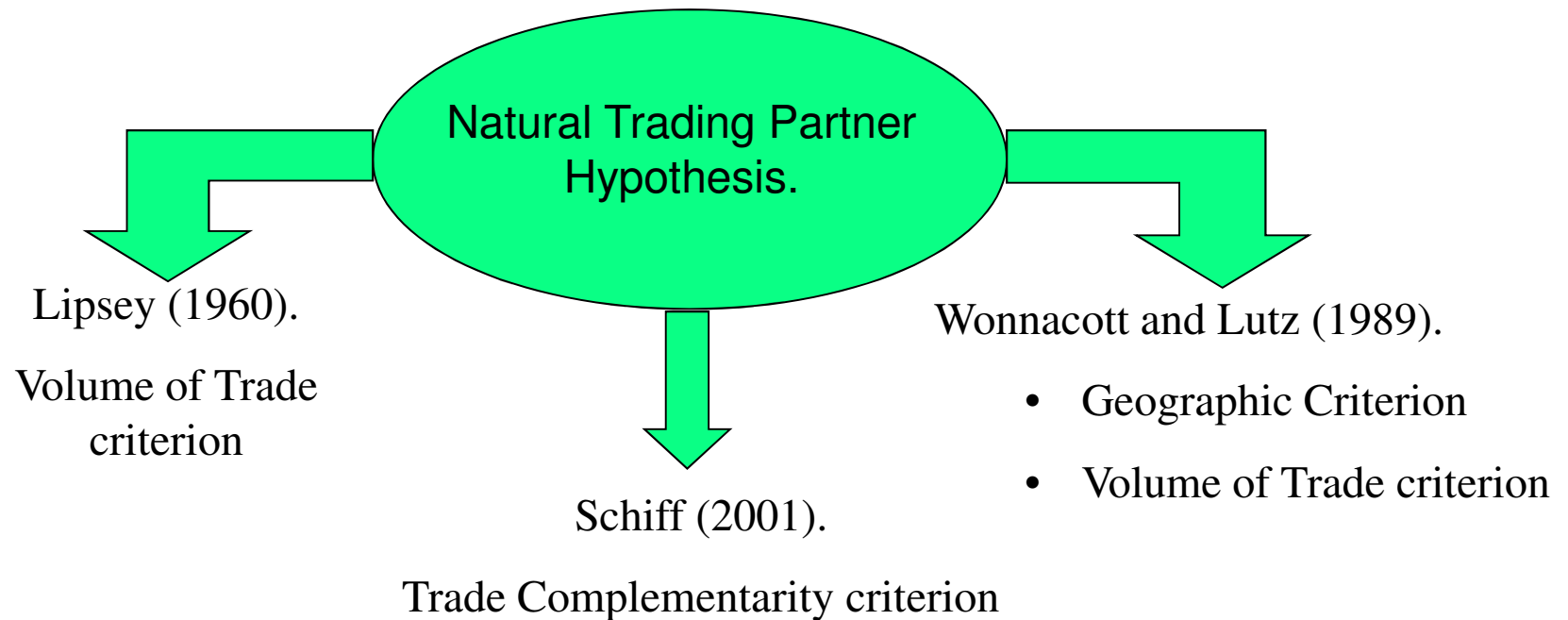
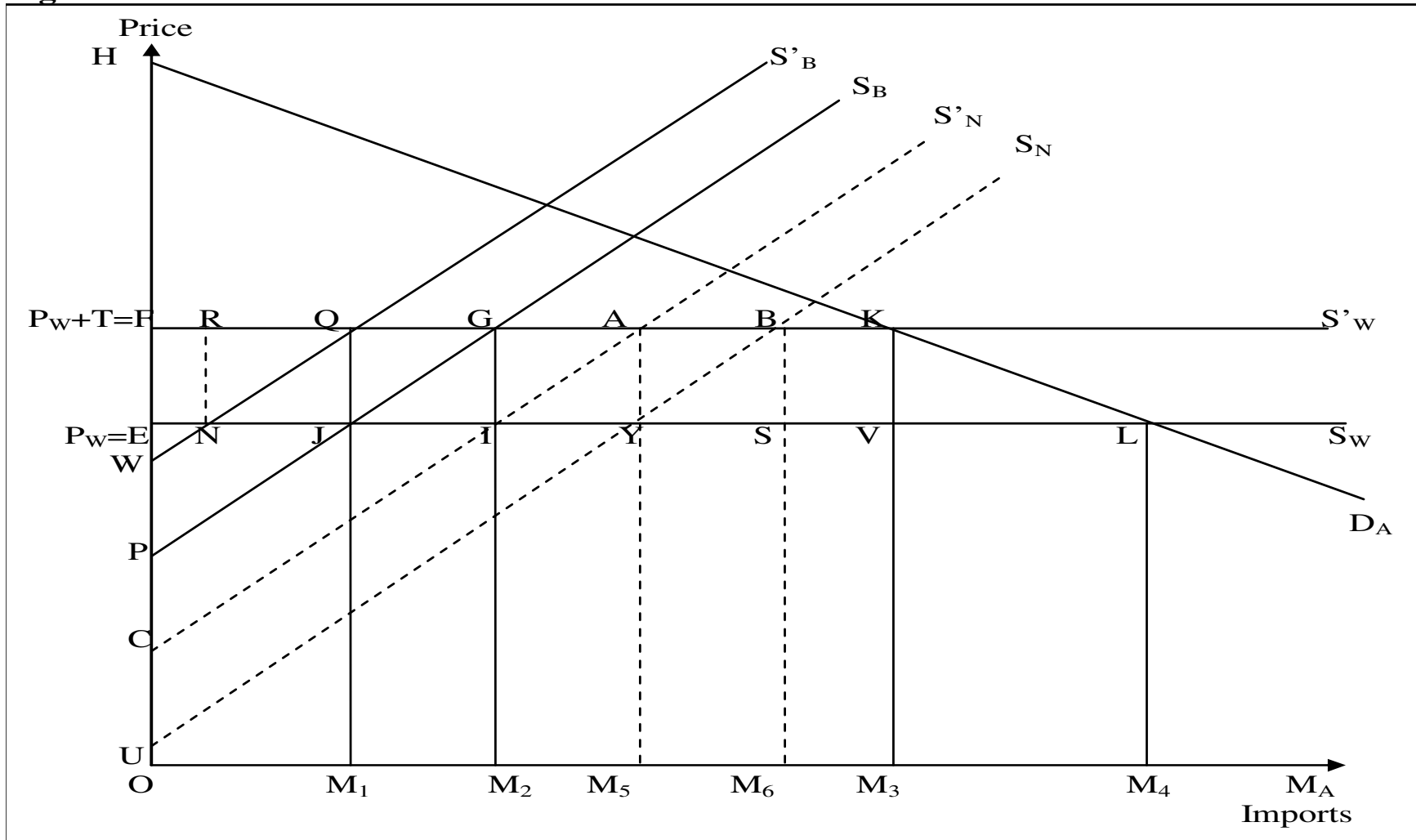| Table 1: CARICOM intra CARICOM trade performance and real GDP growth performance, 1991-2008									
	TT intra CARICOM exports as a % of total exports	T&T rGDP Growth	Barbados Real GDP growth %	Barbados intra CARICOM export as a % of total exports	Jamaica real GDP growth	Jamaica intra CARICOM export as a % of total exports	Guyana Real GDP growth %	Guyana intra CARICOM export as a % of total exports	St Lucia Real GDP growth %	St Lucia intra CARICOM export as a % of total exports
1991	13.0	2.7	-2.9	32.7	-4.8	5.8	5.7	6.3	2.7	16.9
1992	14.6	-1.7	-5.0	33.7	-2.0	6.0	7.5	6.1	7.0	12.6
1993	21.6	-1.5	1.0	38.8	-3.2	5.7	7.8	5.8	2.6	17.3
1994	20.2	3.6	4.0	34.9	-2.7	4.8	8.1	6.3	1.4	15.3
1995	22.1	4.0	1.5	37.3	-4.6	4.1	4.6	7.9	3.3	15.9
1996	24.3	3.8	1.8	35.9	-2.3	3.8	7.5	8.9	1.4	13.4
1997	25.3	2.8	6.4	35.3	0.0	3.3	5.8	9.0	0.6	16.0
1998	30.1	7.8	4.1	42.3	9.3	3.3	-2.1	8.4	4.7	19.3
1999	26.3	4.4	2.6	46.4	-0.9	3.4	2.5	11.7	2.9	21.9
2000	22.6	7.3	2.3	43.2	-0.8	3.7	-1.8	14.3	0.1	26.4
2001	20.6	4.2	-2.1	41.5	-1.5	4.1	1.8	14.7	-4.3	29.7
2002	20.7	7.9	-2.1	46.2	-1.1	4.4	0.6	20.0	0.4	37.1
2003	19.4	13.4	2	40.2	2.3	4.3	-0.7	20.5	3.1	44.3
2004	13.1	6.5	4.8	50.0	1	3.7	1.6	20.6	4.5	37.9
2005	20.7	6.2	4.1	38.8	1.4	3.1	-2	19.7	3.8	53.3
2006	17.2	13.5	3.9	34.2	2.5	2.7	4.7	19.9	5.0	53.1
2007	13.2	4.6	3.4	58.4	1.1	2.5	7.0	20.2	1.5	56.8
2008	17.5	2.3	0.2	34.6	-0.6	2.7	2.0	14.5	0.7	44.1
Correlation		0.28		0.30		-0.56		-0.57		-0.22

Source: www.CARICOMstats.org.

Natural Trading Partner Hypothesis and Preferential Trade Arrangements (PTA's).

Natural Trading Partner Hypothesis

Natural Trading Partner Hypothesis.

Lipsey (1960).

Volume of Trade criterion

Schiff (2001).

Trade Complementarity criterion

Wonnacott and Lutz (1989).

- Geographic Criterion

- Volume of Trade criterion

Testing the volume of trade criterion.
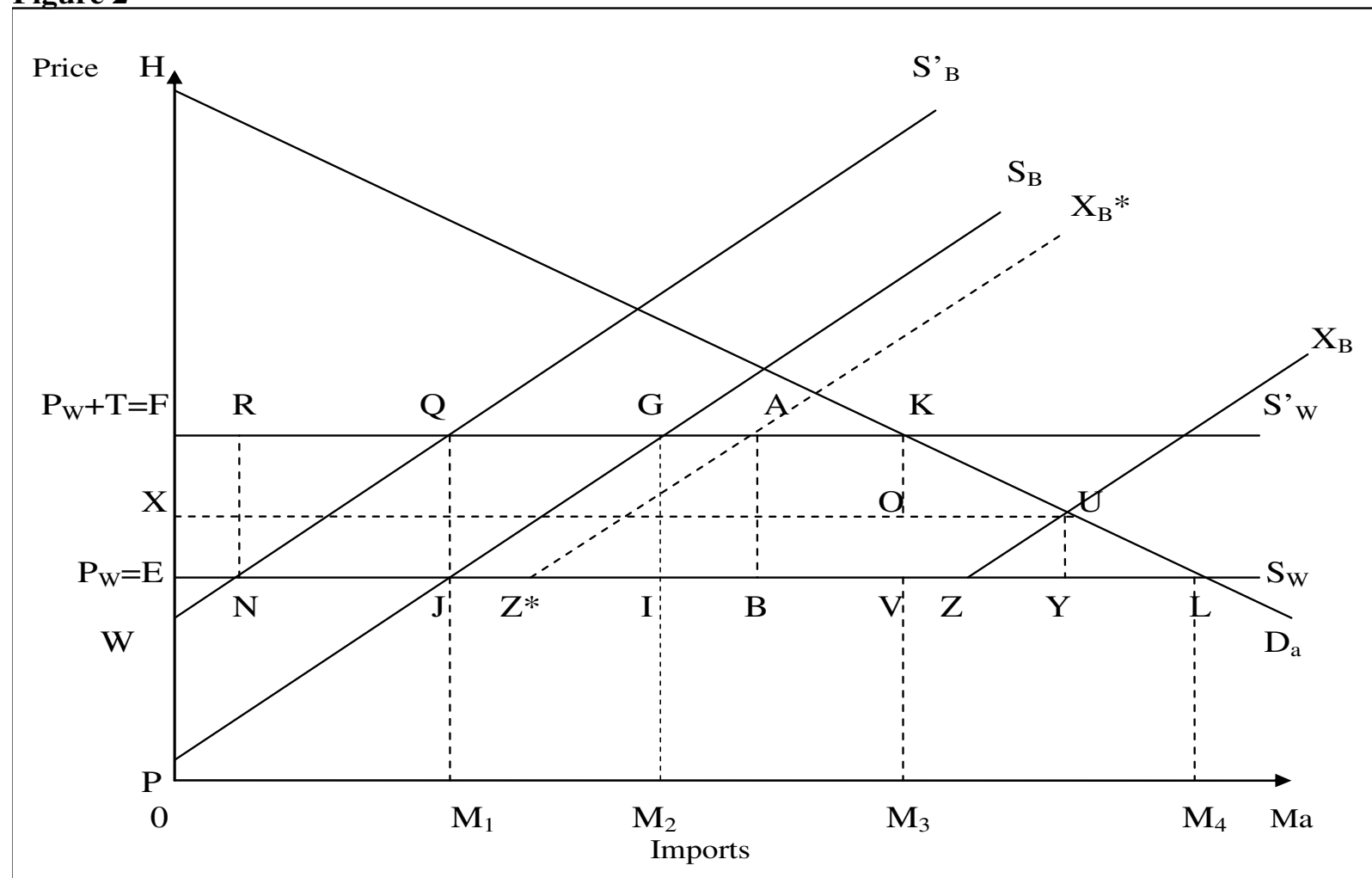
Figure 1

Schiff (1997), with own additions

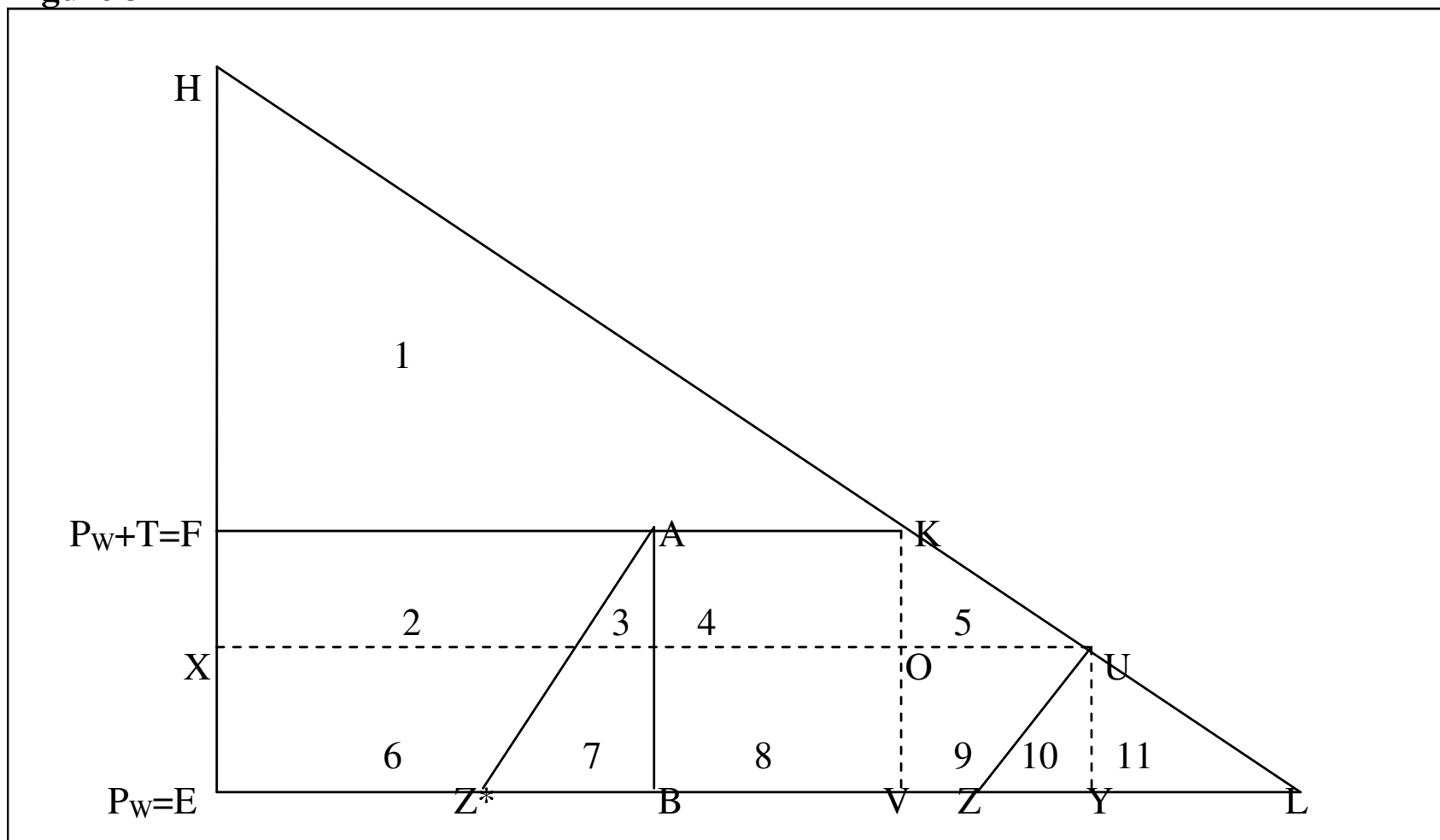# Trade complementarity and natural trading partners.

Figure 2

Schiff (2001), with own additions

Trade complementarity and natural trading partners.

Figure 3

Trade complementarity and natural trading partners.

Table 2: Welfare implications of a PTA between HC and PC with the PC having export capacity to the ROW				
	Pre-PTA (MFN) Environment	Permutation 1	Permutation 2	Permutation 3
Price to the consumer in HC	P_W+T	P_W	X	P_W+T
Price to the consumer in ROW	P_W	P_W	P_W	P_W
Price PC exporters receive from the HC	P_W	P_W	X	P_W+T
Price PC exporters receive from the ROW	P_W	P_W	P_W	P_W
Tariff revenues for the HC	2+3+4+6+7+8	(2+3+4+6+7+8)	(2+3+4+6+7+8)	8+4
Consumer surplus for the HC	1	1+2+3+4+5+6+7+8+9+10+11	1+2+3+4+5	1
Gains to the HC		5+9+10+11	2+3+4+5	
Losses to the HC			2+3+4+6+7+8	2+3+6+7
Gains to the PC			6+7+8+9	2+6
Losses to the PC				
PC exports to HC	Indeterminate	M_4	M_3 to M_4	Less than M_3
Welfare Implication		Positive and equal to KLV	Increasingly Positive	Negative

Measuring trade complementarity.

- A measurement for trade complementarity can be obtained from decomposing the trade intensity index.
- A trade intensity index (I_{ij}) can be decomposed into a trade complementarity index (C_{ij}) and a trade bias index (B_{ij}).

Where: $$\left(I_{ij} = C_{ij} * B_{ij} \right)$$

Decomposing the trade intensity index.

- The trade intensity index of country i's export trade with country j is defined as follows:

$$\left(I_{ij} = \frac{X_{ij}}{X_{iw}} \middle/ \frac{X_{wj}}{X_{ww}} \right) \ldots\ldots\ldots\ldots (1)$$

Where:

X_{ij} – is country i exports going to country j

X_{wj} – is the world exports going to country j.

X_{iw} – is coutry i exports going to the world

X_{ww} – is total world exports.

Decomposing the trade intensity index.

- Yamazawa (1970), noted that a country's pattern of trade with the world is primarily influenced by its structure of comparative advantage and disadvantage in relation to the world.

- Assume a homogeneous product K which is met by negligible transport costs and trade impediments in its trade between country i and country j.

- Then the export of commodity K from country i to country j is expected to be determined as follows.

$$\overline{X}^K_{ij} \equiv \left(\frac{X^K_{iw} * X^K_{wj}}{X^K_{ww}} \right) \dots\dots\dots(2)$$

Trade complementarity index.

- Substituting the expected value of trade $\left(\overline{X}_{ij}\right)$ for the actual value of trade $\left(X_{ij}\right)$ in the trade intensity index, which yields the trade complementarity index as:

$$C_{ij} = \left(\frac{\overline{X}_{ij}}{X_{iw}} \Big/ \frac{X_{wj}}{X_{ww}} \right) \ldots\ldots\ldots(3)$$

- More simplifying yields the trade complementarity index as:

$$C_{ij} = \sum_{K} \left(\frac{X^{K}_{ww}}{X_{ww}} \right) * \left(\frac{X^{K}_{iw}}{X_{iw}} \Big/ \frac{X^{K}_{ww}}{X_{ww}} \right) * \left(\frac{X^{K}_{wj}}{X_{wj}} \Big/ \frac{X^{K}_{ww}}{X_{ww}} \right) \ldots\ldots\ldots(4)$$

Trade bias index.

- The other influences affecting the intensity of trade between country i and country j is captured by the special country bias index.
- This index takes into account the non-traditional trade determining factors.
- Making the relevant substitutions and simplifying we obtained the bias index as follows.

$$B_{ij} = \left[\frac{\left(\dfrac{X_{ij}}{X_{iw}} \Big/ \dfrac{X_{wj}}{X_{ww}} \right)}{\left(\dfrac{\overline{X_{ij}}}{X_{iw}} \Big/ \dfrac{X_{wj}}{X_{ww}} \right)} \right] = \left(\frac{X_{ij}/X_{iw}}{X_{wj}/X_{ww}} \right) * \left(\frac{X_{wj}/X_{ww}}{\overline{X_{ij}}/X_{iw}} \right) = \left(\frac{X_{ij}/X_{iw}}{\overline{X_{ij}}/X_{iw}} \right) = \left(\frac{X_{ij}}{X_{iw}} \right) * \left(\frac{X_{iw}}{\overline{X_{ij}}} \right) = \frac{X_{ij}}{\overline{X_{ij}}} \quad \ldots\ldots(5)$$

Summary of indices with their interpretations and theoretical range.

Table 3: Various Trade Related Indices			
Index	Formula	Theoretical range	Interpretation
Trade intensity	$$I_{ij} = \frac{X_{ij}}{X_{iw}} / \frac{X_{wj}}{X_{ww}}$$	$0 < I_{ij} > \infty$	$I_{ij} > 1$ - Trade is becoming more intensive. $I_{ij} < 1$ - Trade is becoming less intensive.
Trade complementarity	$$C_{ij} = \sum_{k} \left(\frac{X_{ww}^k}{X_{ww}}\right) * \left(\frac{X_{iw}^k}{X_{iw}} / \frac{X_{ww}^k}{X_{ww}}\right) * \left(\frac{X_{wj}^k}{X_{wj}} / \frac{X_{ww}^k}{X_{ww}}\right)$$	$0 < C_{ij} < \infty$	$C_{ij} > 1$ - Country i's export specialization matches country j's import specialisation closely. $C_{ij} < 1$ - Country i's export specialization matches country j's import specialisation poorly.
Trade bias	$$B_{ij} \equiv \frac{X_{ij}}{\overline{X}_{ij}} = \frac{X_{ij}}{\sum_{K} \overline{X_{ij}}^K} = 1/\sum_{K} \left(\frac{X_{ij}^K}{X_{ij}}\right) * \frac{1}{B_{ij}^K}$$	$0 < B_{ij} < \infty$	$B_{ij} > 1$ - Country i has a special country bias towards country j. $B_{ij} < 1$ - Country i does not have a special country bias towards country j.

Trade intensity index among selected countries.

Table 4: Trade intensity index for selected CARICOM and extra-CARICOM countries, (2000 and 2008).								
Exports to Exports from	Trinidad and Tobago	Jamaica	Barbados	Guyana	St. Lucia	China	Canada	USA
Trinidad and Tobago	-	171.08 156.88	361.88 225.22	344.83 219.46	249.21 29.61	0.00 0.02	0.36 0.42	2.52 3.76
Jamaica	35.83 19.49	-	44.55 33.29	34.38 37.03	34.92 7.16	0.09 0.02	2.78 4.31	2.12 3.29
Barbados	288.55 196.73	153.63 91.57	-	394.67 387.72	965.77 201.31	0.01 0.07	0.55 0.92	0.85 1.72
Guyana	94.90 81.14	117.66 125.12	131.49 154.23	-	103.18 17.93	0.04 0.35	5.95 10.52	1.69 1.14
St. Lucia	35.91 482.52	0.55 9.53	825.95 651.70	119.82 130.80	-	0.02 0.14	0.18 0.14	1.00 2.78
Source: UN Comtrade (2010) and own calculations.								

Trade complementarity amongst selected countries.

Table 5: Trade complementarity index for selected CARICOM and extra-CARICOM countries, (2000 and 2008).								
Exports to Exports from	Trinidad and Tobago	Jamaica	Barbados	Guyana	St. Lucia	China	Canada	USA
Trinidad and Tobago	-	3.67 3.34	3.19 2.56	2.33 1.83	3.13 1.86	0.78 0.85	0.49 0.67	0.83 1.01
Jamaica	0.36 0.89	-	0.76 1.82	0.72 1.29	0.65 0.26	0.44 0.80	1.55 2.08	0.75 0.68
Barbados	1.13 1.26	3.21 2.30	-	3.18 2.25	3.28 1.20	0.67 0.52	0.85 0.94	0.73 0.95
Guyana	0.90 1.06	2.47 2.19	1.51 1.38	-	1.53 0.22	0.52 0.47	0.87 1.41	0.66 0.67
St. Lucia	0.60 1.12	1.00 1.86	1.66 2.81	0.95 1.87	-	0.64 0.59	1.20 1.14	1.06 0.94

Source: UN Comtrade (2010) and own calculations.

Trade bias amongst selected countries.

Table 6: Trade bias index for selected CARICOM and extra-CARICOM countries, (2000 and 2008).								
Exports to Exports from	Trinidad and Tobago	Jamaica	Barbados	Guyana	St. Lucia	China	Canada	USA
Trinidad and Tobago		46.62 46.97	113.44 87.98	148.00 119.92	79.62 15.92	0.00 0.02	0.73 0.63	3.04 3.80
Jamaica	99.53 21.90		58.62 18.29	47.75 28.71	53.72 27.54	0.20 0.03	1.79 2.07	2.83 4.84
Barbados	255.35 156.13	47.86 39.81		124.11 172.32	294.44 167.76	0.01 0.13	0.65 0.98	1.16 1.81
Guyana	105.44 76.55	47.64 57.13	87.08 111.76		67.44 81.50	0.08 0.74	6.84 7.46	2.56 1.70
St. Lucia	59.85 430.82	0.55 5.12	497.56 231.92	126.13 69.95		0.03 0.24	0.15 0.12	0.94 2.96
Source: UN Comtrade (2010) and own calculations.								

Conclusion

- CARICOM economies appear as marginal natural trading partners based on the listed criterion.

- A closer look reveals though that much of the existing trading pattern, however, is characterised by a heavy level of trade biases.

- Canada and the USA whilst also generally featuring as real natural trading partners by the listed criteria also typically have trade bias indices above unity with the various listed CARICOM member states.

Conclusion

- This study focused only on five CARICOM member states and three extra regional trade partners.

- Further work to come to a determined position as to the real natural trading partner of CARICOM member states would require an extension to all the CARICOM member states and a wider range of potential extra regional trade partners so as to provide a more rigorous assessment of the real natural trading partners of CARICOM states.

- The study also acknowledges that further analysis at a greater level of product disaggregation will be required for the identification of important complementary sectors among CARICOM countries.

Conclusion

- This study also identifies further scope for research in identifying a real natural trading for CARICOM countries.

- In this regard, a partial equilibrium model will be deployed to provide useful insights into identifying a real natural trading partner for CARICOM countries.

- This approach identifies the welfare implications associated with trade creation and trade diversion from preferential trade arrangements.

- Another important methodology that would be used to provide some helpful information would be a gravity model approach.

Thank You.