Caribbean Unity in Health

LOVE THAT BODY

The Evaluation of the 2007 CARICOM Heads of Government Port of Spain NCD Summit Declaration

APPENDICES

October 2017

Table of Appendices

The appendices from the Investigators' Detailed report are the unedited submissions from our research partners. However, the transcripts of the 80 interviews from the 7 case studies and the 7 key informant transcript rom the Caribbean Wellness Day interviews are not included because of the risk of inadvertent unmasking, and the need for preserving the confidentiality of the key informants.

Appendix for Chapter 3

Submitted by CARPHA

Appendix A3.1: National and regional trends in NCD mortality, morbidity and risk factors

BACKGROUND

The 2007 Port of Spain Declaration (POSD) on Non-communicable Diseases (NCDs) signed by the Prime Ministers of countries of the Caribbean Community (CARICOM) highlighted the gravity of the regional epidemic of these conditions (CARICOM Secretariat, 2015). The POSD requested a coordinated and strategic response by English-speaking Caribbean countries to control these diseases as well as the factors that put the population at risk for NCDs namely increased blood pressure, elevated blood glucose, elevated cholesterol and obesity, all consequences of changing lifestyles in our region. In signing the POSD, the twenty (20) CARICOM governments agreed to implement the 15 mandated strategies within 27 commitments *inter alia,* risk factor reduction, improved screening, disease management and surveillance and health promotion. Implementation of such a strategy was therefore geared towards reducing the incidence and the prevalence of NCDs and their risk factors in these countries.

Subsequent to the regional POSD, there was a global Political Declaration on NCDs adopted by the United Nations General Assembly at the United Nations High Level Meeting (UNHLM) on NCDs in 2011 (NCD Alliance, 2015). In adopting the Political Declaration of the UNHLM on the Prevention and Control of Non-communicable Diseases, member states made 42 commitments under the four broad strategies of reducing risk factors and creating health promoting environments, strengthening national policies and health systems, establishing international cooperation including collaborative partnerships, conducting research and development and undertaking monitoring and evaluation. This declaration, four years after the POSD, and acknowledged in its manifesto, should serve to strengthen the resolve of CARICOM governments to address the problem of NCDs.

The year 2014, marked seven years since the signing of the POSD, which signaled the start of implementation of the strategies agreed upon by CARICOM Countries. It is expected that such concerted action should have some impact on national health situation in these countries. In order to ascertain whether the POSD had any impact on the prevalence of NCDs in the Caribbean, an evaluation of the POSD was embarked upon in 2014. The evaluation was supported by a grant from the International Development Research Centre (IDRC).

OBJECTIVES AND METHODS

The general objective of the exercise was to evaluate, six years later, the implementation of the POSD to learn lessons that will support and accelerate its further implementation and will inform the attainment of the UNHLM NCD commitments. Specific objective 2 of the evaluation was to describe trends in NCD mortality and risk factors from 2000 until 2013 in the 20 CARICOM countries and territories. The sub-objectives are outlined in the Terms of Reference.

In order to describe national and regional situations with respect to CNCDs, selected CNCDS were analysed along the disease spectrum, from risk factor, through morbidity, from attendance at primary care facilities or admission to hospital, and finally to death. The following CNCDs (and their ICD-10 codes) were investigated:

- Neoplasms (C00 – C99), especially cancers of the digestive system (C15 – C26), cancer of the lung (C34), cancer of the breast (50) and cancer of the cervix (C53);
- Diabetes (E10 – E14;
- Ischaemic heart disease (I20 – I25);
- Cerebrovascular disease (I60 – I69);
- Chronic lower respiratory disorders (J40 – J47) and
- External causes of injuries (V01- Y89).

Although hypertensive disease (I10 – I13) was not originally among the list, it was included in the analysis because of its prominence in the national mortality and morbidity profiles.
Specifically, the following data were sought for each year under review -2000 - 2013:
Deaths: Listing of all deaths from 2000 to the most recent year available, containing as a minimum, age, sex, underlying cause of death (UCOD) and all causes documented on the death certificate;
Morbidity: Selected conditions by age, sex and length of stay at hospital; annual attendance of selected conditions to health centres by new or returning clients; Incidence and prevalence; chronic disease registrants by age of onset, sex, complications and outcome
Risk factors: Tobacco use, alcohol consumption, consumption of fruits and vegetables, low levels of physical activity, overweight and obesity, elevated blood sugar and blood pressure levels.

DATA SOURCES

Mortality data was sourced from the regional mortality database, MORTBASE, housed at the Caribbean Public Health Agency (CARPHA), formerly the Caribbean Epidemiology Centre, CAREC/PAHO/WHO). This database consists of the individual death certificates with demographic data and all of the causes of death listed in Parts I and II of the death certificate with their associate intervals, along with the underlying cause of death (UCOD) as determined by the nosologist.

To complement the description of the mortality situation, morbidity information was also sought on incidence and prevalence of hypertension, diabetes and neoplasms, described through admissions to hospital, attendance at primary health care centres, and membership in chronic disease registers where they existed.

To describe the population at risk for developing CNCDs, the prevalence of risk factors such as tobacco and alcohol consumption, servings of fruit and vegetables, physical inactivity, elevated blood glucose and degree of obesity were examined. These data were obtained mainly from population-based studies such as national risk factor surveys and studies (RFS) done using the World Health Organization (WHO) STEPS methodology, the Global School-based Student Health Survey (GSHS) and the Global Youth Tobacco Survey (GYTS) and other regular surveys such as the Survey of Living Conditions which many countries conduct at regular periods. Country reports on the NCD Minimum Dataset (CAREC/PAHO/WHO, 2009), also generated data.

Some of the surveys and reports which used the same standardized questions and protocols, allowed for monitoring of both intra- and inter-country trends. In the absence of nationally-provided data, data from the WHO Global Health Observatory were used where available.
Country population estimates, distributed by age groups, are required as denominator data for conducting analyses. For census years, population data were obtained from national statistical offices in the respective countries. Intercensal population estimates were also obtained from these offices where available. Otherwise, estimates from the United Nations Development Programme (UNDP) were used and these were based on the United Nations Population Division, World Population Prospects (United Nations Department of Economic and Social Affairs).

Supplemental data, especially on risk factors were sought from health reports, research studies and among the grey literature. The Chronic Disease Research Centre was identified as a regional resource and the United Nations Global Health Observatory as an international source of data.

DATA ANALYSIS

Crude mortality rates (CMRs) and age-standardised mortality rates (ASMRs) to the WHO population standard 0 -70 years (CAREC/PAHO/WHO, 2009) were calculated where possible. Other mortality rates calculated were potential years of life lost to age 70 (PYLL), since that was the cut off age used by PAHO for standardizing rates, proportional mortality rates (PMR) as well as disease-specific CMRs and ASMRs for the selected CNCDs - neoplasms, diabetes, ischaemic heart disease, cerebrovascular disease, chronic lower respiratory disorders and injuries, particularly transport injuries and homicides. To complete the national and regional description of the CNCD situation, analyses were also conducted on available morbidity data as reflected by hospital discharges and attendances at primary care facilities, as well as on risk factor data.

As a result of the co-morbidity among CNCDs, especially diabetes, hypertensive, cerebrovascular and ischaemic heart diseases, multiple cause analysis was performed where the prerequisite data was available, instead of the single-caused analysis based only on the underlying cause of death (UNCOD). Multiple cause analysis was not performed for either neoplasms or injuries as these tend to be selected as the UCOD.

Before the multiple cause analysis was conducted, the data files of four countries (Anguilla, Antigua & Barbuda, Bahamas and Barbados) with all causes listed were reviewed as a control, to ensure that the UCOD was correctly selected, especially with respect to the modification rules on the selection of trivial and/or ill-defined conditions. It is known that there is a tendency to certify and select as UCOD conditions such as senility, decubitus ulcers, pneumonia or pneumonitis, terminal circulatory or respiratory conditions, septicaemia and malnutrition that are end-of-life conditions and which have little epidemiological value. Where there was more substantial information, this was used to modify selection. However, it should be noted that since reselection does not affect multiple-cause analysis, intensive recoding was not performed on the other datasets, except where rules were obviously breached, e.g. the selection of a nature of injury as an underlying cause.

One of the objectives of the evaluation was to determine if the countries can achieve the goal of reducing by 25%, mortality due to CNCDs by 2025, assuming a baseline of 2012. Several indicators may be used to determine if countries are on target, but for each of them, there are factors which influence their ability to validly measure progress. The first and most obvious are the mortality rates – crude, cause-specific, their age-standardised versions and proportional mortality rate (PMR).

Differences in the age-distribution of populations affect the crude mortality rate, making it difficult to use when comparing countries with different population structures. A country with an older population will have a higher crude mortality rate (CMR) than one with a younger population. Even on the same country population over time, the CMR must be interpreted cautiously in the light of national demographic changes. The cause-specific mortality rate is also affected by age-distribution but to a lesser degree, as some conditions are more prevalent in certain age-groups.

ASMRs are the ideal indicators for making comparisons over time and between countries to allow for differences in population structures. As indicated earlier, to facilitate comparisons over time and across countries, the mortality rates were standardized using a PAHO standard population with age to 70 years. Unfortunately, few of the countries under review, had population estimates with age distributions required to permit calculation of the age-specific rates needed for generation of the ASMR. As a consequence, ASMR rates could only be calculated for the years where the requisite country data was available. With the ensuing limitations in ASMRs, country comparisons had to be done using the crude, cause-specific and proportional mortality rates.

STUDY LIMITATIONS

There were several challenges to obtaining data. CARPHA provided mortality data from its database. However, the majority of country-years contained only the UCOD and, as mentioned earlier, all causes were required for the proposed multiple-cause analysis.

CARPHA collects neither hospital discharge nor primary health care data, although CAREC/PAHO/WHO did institute a NCD surveillance system and facilitated the conduct of STEPS Risk Factor Surveys. Annual

countries reporting in the NCD surveillance system was limited. As a consequence, it was decided to request additional data from the primary source, the countries.

Responses by countries on the data requested in early March, 2015 was extremely slow. Six months later, some data became available for 13 countries. However, complete data on all requested areas, namely mortality, morbidity and risk factor was only available for three countries for some of the years under review.

Several factors contributed to this difficulty in obtaining health-related data. Firstly, recognized national contacts were often difficult to locate, due in part to staff mobility (statisticians and/or epidemiologists). This resulted in a relatively high non-response rate. Secondly, conflicting and competing requests from different organizations for similar data, but in different formats, placed an inordinate burden on limited Ministry of Health staff as often the same staff must respond to such requests, in addition to completing routine duties. Also, due to limitations in national health information systems, manual processing of health data had to be done in many instances. Thus, the availability of data for this analysis was stymied.

Where available, reports from Ministries of Health on health services produced information of variable utility. Reports on surveys were an excellent source of data but unfortunately, the data were not always comparable over time. For example the Youth Health and Sexuality Studies and other youth-based reports measured physical activity and nutrition consumption differently from the adult (STEPS) and other risk factor surveys, resulting in data which could not be compared.

Population estimates were also difficult to access. Apart from the censal years, few countries produce annual inter-censal population estimates, and even less produce estimates by age and sex distributions. These data were sought from other sources such as UN or WHO population estimates, but such data are not produced in detail for countries with very small population sizes. Further, there were significant differences between those years for which population projections were available as compared to those when actual data were available (census *circa* 2010). In such instances, the censal values were used and the inter-censal estimates adjusted. Further, even when population estimates were available, the age-groupings were non-standardised. Therefore, it was not possible to generate up-to-date ASMRs for all countries as well as for all years under review.

STUDY FINDINGS

TRENDS IN MORTALITY

Though it was not possible to make cross-country comparisons because of the limited ASMRs, when CMRs and ASMRs attributed to all CNCDs are taken into consideration, Cayman Islands, Turks & Caicos Is. and Anguilla had the lowest mortality rates (both CMRs and ASMRs) while Trinidad and Tobago, Guyana and Belize had the highest rates (**Table 1).**

Table 1: Crude and Age Standardized Mortality Rates by Country for Available Data Year

COUNTRY	CMR	ASMR	ALL CNCD CMR	All CNCD ASMR
Anguilla (2011)	4.25	1.82	2.58	1.12
Antigua & Barbuda (2011)	5.38	2.58	3.09	1.34
Bahamas (2011)	5.92	3.89	3.56	2.21
Barbados (2010)	8.11	2.87	4.69	1.55
Belize (2011)	4.76	2.29	2.63	2.58
Bermuda (2010)	7.3	3.89	1.83	1.35
British Virgin Islands (2010)	3.52	…	2.1	. …
Cayman Islands (2013)	3.07	0.97	1.96	0.75
Dominica (2001)	7.31	2.69	3.87	1.34
Grenada (2001)	5.95	3.12	3.15	1.55
Guyana (2010)	7.22	4.99	4.36	2.94
Jamaica (2011)	6.27	3.38	4.58	2.32
Montserrat (2011)	11.17	3.43	7.92	2.23
St. Kitts and Nevis (2001)	8.09	3.63	3.02	1.29
St. Lucia (2010)	6.59	3.21	4.22	1.97
St. Vincent & the Grenadines (2012)	7.79	4.1	5.12	2.44
Suriname	…	…	…	….
Trinidad and Tobago (2000)	7.47	5.66	5.00	3.58
Turks & Caicos Islands (2001)	3.47	1.74	1.36	1.04

ASMRs tended to be less than their crude counterparts, often as much as a half. Values that were close meant more deaths in younger populations. Since ASMR data are limited and available for different years, cross-country comparisons were not valid.

Table 2 presents the mortality profile for specific NCDs by country for available data year. It is not possible to compare countries using the same year, nevertheless, when the ASMRs are considered for the available years across specific NCDs, cancers and injuries had the highest rates in most countries.

Table 2: NCD-specific Age-standardised Mortality Rates per 100,000 by Country, for Available Data Year

COUNTRY	ASMRs							
	Cancers	Diabetes	Hypertension	Ischaemic Heart Disease	Cerebrovascular Disease	Chronic lower respiratory disease	Injuries	All CNCD ASMR
Anguilla (2011)	32.82	7.07	16.46	6.64	13.71	0.00	35.65	112.36
Antigua & Barbuda (2011)	51.73	16.00	7.48	11.61	19.21	4.55	23.80	134.39
Bahamas (2011)	65.20	12.90	23.96	27.08	17.43	2.02	72.02	220.62
Barbados (2010)	71.85	14.78	8.27	11.76	15.66	2.19	30.17	154.67
Belize (2011)	58.89	33.92	0.00	25.80	23.53	5.17	110.48	257.78
Bermuda (2010)	60.81	8.92	1.06	10.76	4.30	1.06	47.84	134.77
British Virgin Islands (2010)	…	…	…	…	…	…	…	…
Cayman Islands (2013)	25.15	2.01	5.71	2.45	2.45	0.00	37.36	75.14
Dominica (2001)	59.68	9.41	26.66	2.05	10.32	1.59	24.64	134.34
Grenada (2001)	57.72	25.20	13.14	11.98	17.18	1.52	28.09	154.83
Guyana (2010)	36.70	36.74	26.68	51.13	42.93	7.28	92.14	293.59
Jamaica (2011)	73.38	30.11	14.23	13.45	23.28	3.58	73.74	231.75
Montserrat (2011)	29.58	60.21	15.29	27.80	28.58	0.00	61.72	343.27
St. Kitts and Nevis (2001)	25.56	2.20	0.00	35.71	30.05	0.00	35.02	128.53
St. Lucia (2010)	52.91	21.98	18.53	20.62	20.41	7.63	54.77	196.86
St. Vincent & the Grenadines (2012)	76.26	43.71	18.23	31.50	17.62	5.17	51.63	244.12
Suriname	…	…	…	…	…	…	…	…
Trinidad and Tobago (2000)	70.92	79.81	20.30	84.37	40.17	6.73	55.25	357.56
Turks & Caicos Islands (2001)	4.37	26.11	0.00	40.35	0.00	0.00	33.02	103.84

In 2010 in Guyana, while injuries ranked first, ischaemic heart disease (IHD) and cerebrovascular disease (stroke) ranked second and third, ahead of cancers. In Montserrat in 2011, diabetes ranked second to injuries. In 2012, in St. Vincent & the Grenadines, although cancers and injuries ranked first and second like many of the other countries, diabetes ranked a very close third. Trinidad and Tobago's mortality profile according to the ASMR had IHD with the highest rate, followed by diabetes and then cancers, but it must be noted that this was in 2000, at the start of the review period. No ASMR data was available for more recent years. For Turks & Caicos Islands, IHD had the second highest ASMR after injuries in 2001, the only year for which data was available, (Table 2).

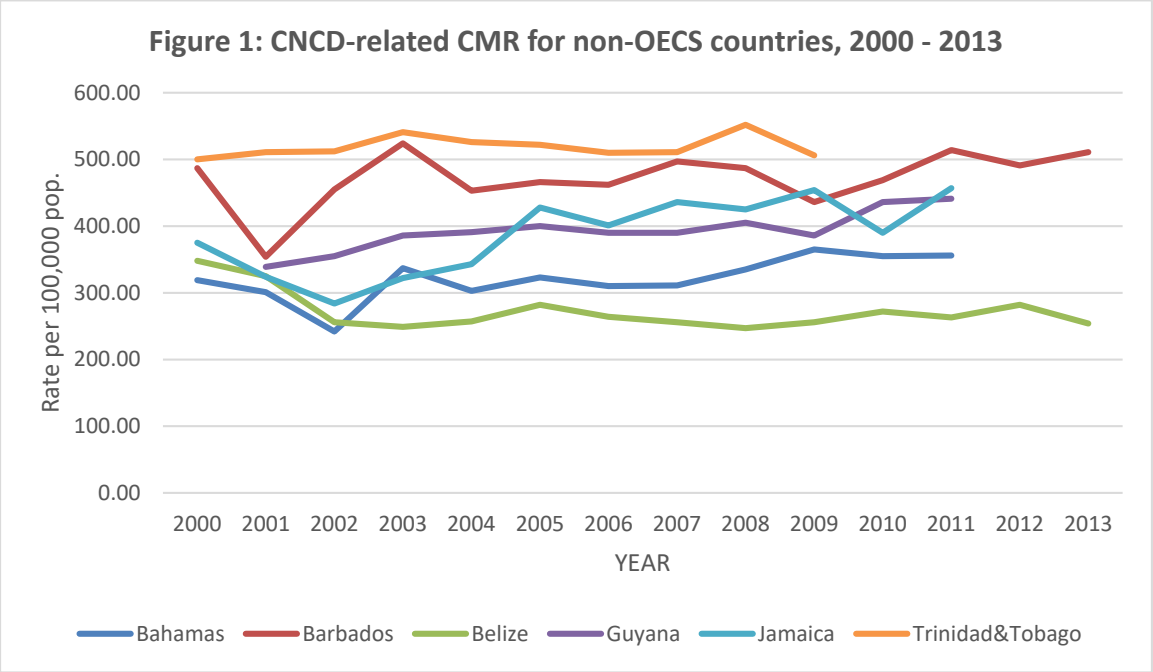
ASMRs for chronic lower respiratory disorders were low, while injuries were high in all countries. All of the countries had high cancer ASMRs, except Turks & Caicos Islands, which had data available for only the start of the period under review (2001). ASMRs for diabetes were low in Anguilla (2011), Bermuda (2011), Cayman Islands (2013), Dominica (2001) and St. Kitts and Nevis (2001). Hypertension, did not have a large ASMR, because it was not often the underlying cause of death. However, it was shown to have a high degree of co-morbidity with the other conditions, especially IHD and stroke. Trinidad and Tobago (2000), Guyana (2010) and Turks & Caicos Islands (2001) had the highest ASMRs for IHD while Guyana (2010) and Trinidad & Tobago (2000) had the highest rates for stroke.

As stated earlier, the ASMRs were calculated for different years for each country, based on the availability of required data. As a consequence of this, the available ASMRs could not be used to measure trends over time in countries. Crude mortality rates were therefore used for assessing trends over the period under review (**TABLE 3**)

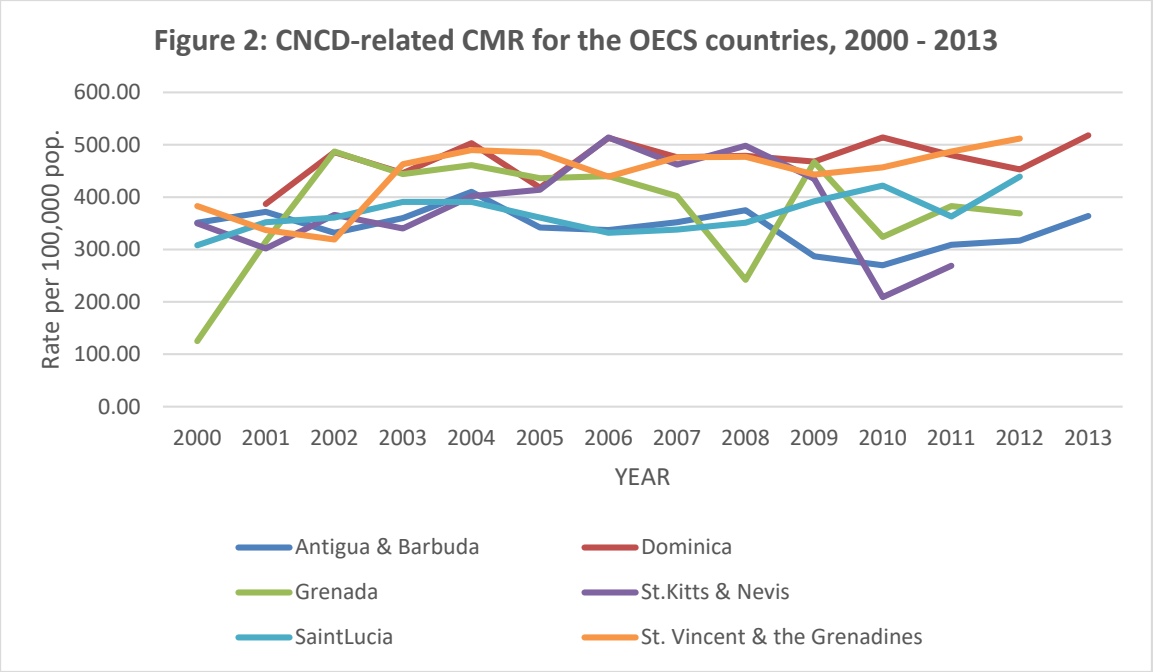
Table3: NCD-associated crude mortality rates per 100,000 by country - 2000-2013

COUNTRY	YEAR													
	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Anguilla	400	271	282	317	236	333	248	389	328	336	257	258	342	351
Antigua & Barbuda	351	372	332	360	410	342	337	352	375	287	270	309	317	364
Bahamas	319	301	242	337	303	323	310	311	335	365	355	356	…	**…**
Barbados	487	354	455	524	453	466	462	497	487	436	469	514	491	511
Belize	348	325	256	249	257	282	264	256	247	256	272	263	282	254
Bermuda	240	209	216	223	210	266	183	194	189	173	183	204	197	…
British Virgin Islands	219	307	259	336	365	…	168	…	248	211	213	**…**	**…**	
Cayman Islands	240	215	200	197	283	203	167	181	171	165	182	167	196	
Dominica	**….**	387	486	446	503	418	513	476	479	468	514	…	453	453
Grenada	125	315	487	444	461	436	440	402	242	467	324	383	369	**…**
Guyana	**…**	339	355	386	391	400	390	390	405	386	436	441	**…**	**…**
Jamaica	375	324	284	322	343	428	401	436	425	454	390	457	…	…
Montserrat	770	642	482	803	641	899	536	602	738	456	245	334	327	…
St. Kitts and Nevis	350	302	366	340	402	414	514	462	498	435	209	269		…
St. Lucia	308	352	361	391	391	361	332	338	351	392	422	363	439	…
St.Vincent & the Grenadines	383	337	319	463	490	485	439	476	477	443	457	487	512	…
Suriname	**…**	**…**	**…**	**…**	**…**	**…**	**……..**	**…**	**…**	**……**	**…**	**…**	**…**	…
Trinidad and Tobago	500	511	512	541	526	522	510	511	552	506		**……**		…
Turks & Caicos Islands	189	136	115	107	84	98	142	252	64	129				…

Crude mortality rates fluctuated in the CARICOM countries with few showing consistent decreases in NCD-related mortality for the period under review (Table 3). The fluctuations in NCD mortality over the period can be seen in the graphs presented below from groupings of CARICOM countries. As shown in Figure 1, of the countries presented, only Belize showed a discernible downward trend.



In the OECS countries presented in Figure 2, below there were large fluctuations in some countries over the period, but overall there was a general increasing trend.



In the smaller territories – United Kingdom Overseas Territories (UKOTS) data presented in Figure 3 showed an apparent downward trend, although the small number of deaths makes it difficult to draw conclusions.

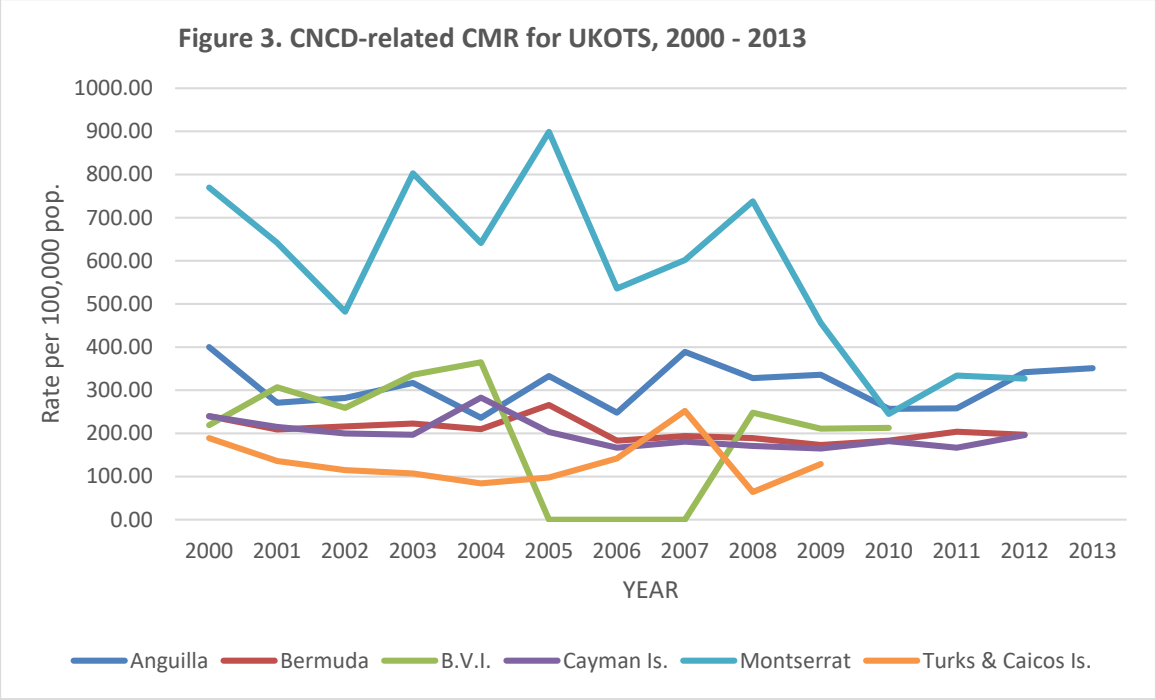
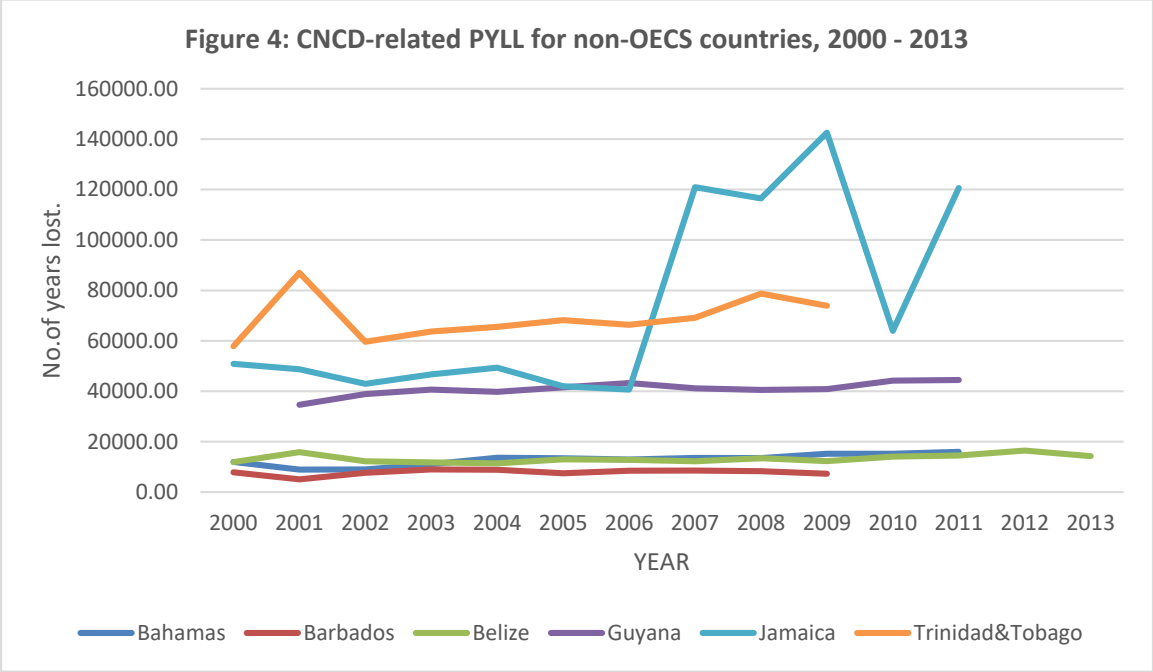


Table 4 below highlights premature mortality in terms of PYLL due to NCDs by country in the period under review. Like the crude mortality rates, the PYLLs fluctuated over the years under review with few countries achieving sustained declines.

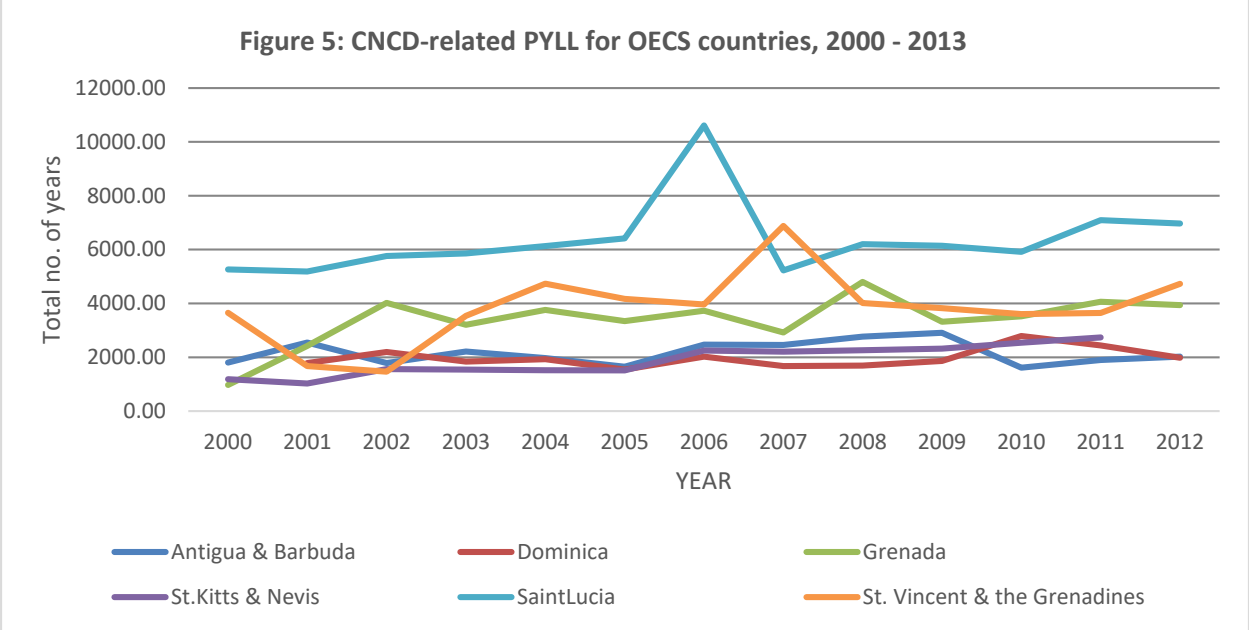
Table 4. Premature mortality (PYLLs) due to NCDs, 2000 -2013.

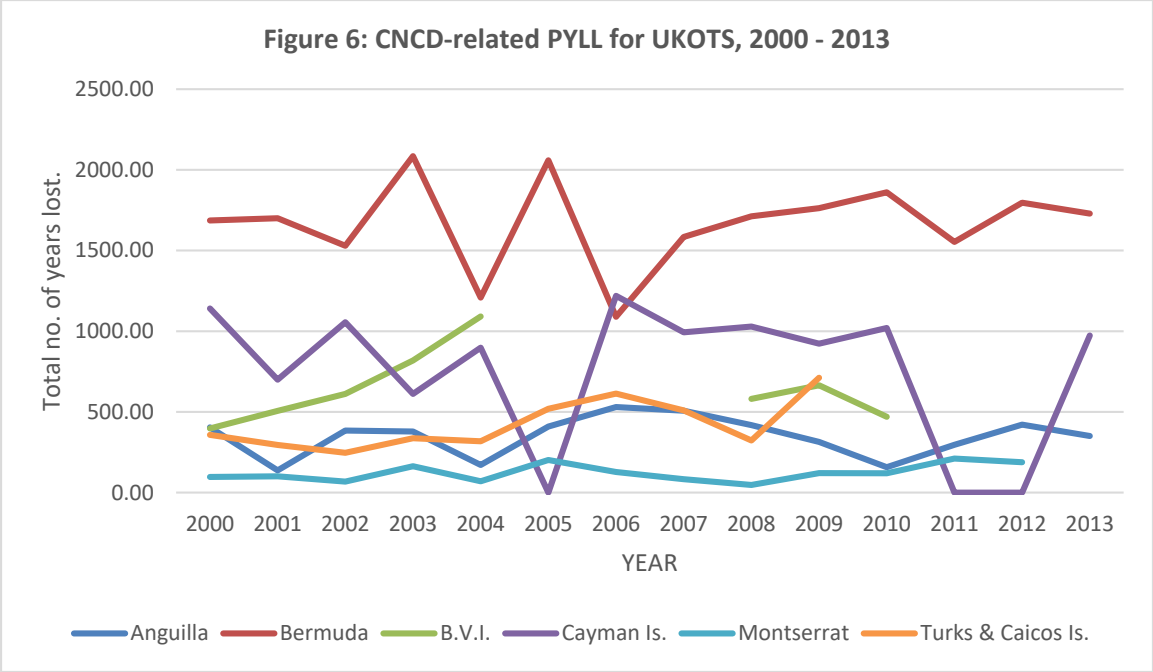
COUNTRY	YEAR													
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Anguilla	404	138	384	378	171	409	530	507	418	314	157	296	421	…
Antigua & Barbuda	1804	2546	1764	2193	1970	1651	2468	2460	2766	2909	1614	1900	2026	2150
Bahamas	12007	8930	9008	11122	13612	13468	12924	13534	13479	15213	15184	15956	…	…
Barbados	7853	5062	7681	9005	8858	7451	8473	8531	8327	7300	…	…	…	…
Belize	11915	15863	12258	11767	11385	13012	12776	12254	13427	12277	14095	14546	16493	14284
Bermuda	1686	1700	1530	2085	1208	2059	1089	1584	1712	1763	1861	1553	1796	1729
British Virgin Islands	397	506	611	819	1091	…	389	0	581	665	470	…	…	…
Cayman Islands	1141	700	1056	611	898	0	1219	993	1029	923	1020	0	0	973
Dominica	…	1785	2195	1838	1929	1545	2021	1675	1694	1866	2789	2437	1980	2525
Grenada	975	2420	4019	3206	3761	3343	3727	2921	4787	3317	3524	4065	3939	…
Guyana	…	34618	38904	40652	39785	41577	43240	41159	40559	40821	44207	44457	…	…
Jamaica	50891	48697	42974	46701	49381	42015	40686	120900	116494	142557	63919	120636		
Montserrat	97	981	68	163	70	202	128	83	47	97	981	68	163	…
St. Kitts	1185	1027	1558	1544	1517	1512	2249	2211	2261	1185	1027	1558	…	…
St. Lucia	5265	5183	5761	5858	6132	6414	10609	5228	6203	6141	5914	7090	6967	
St.Vincent & the Grenadines	3653	1675	1465	3540	4735	4170	3960	6881	4017	3826	3602	3649	4730	…
Suriname									…	…	…	…	…	…
Trinidad and Tobago	57840	87008	59629	63723	65564	68216	66389	69166	78756	73923	…	…	…	…
Turks & Caicos Is.	358	295	247	337	318	519	613	509	323	712	…	…	…	…

Figure 4 shows the increases in premature mortality due to CNCDs in the larger countries. The large fluctuations seen in Jamaica is attributable to the variable reporting of fatal injuries in the country.



In the OECS countries, there was overall increasing trend in premature deaths as shown in Figure 5.

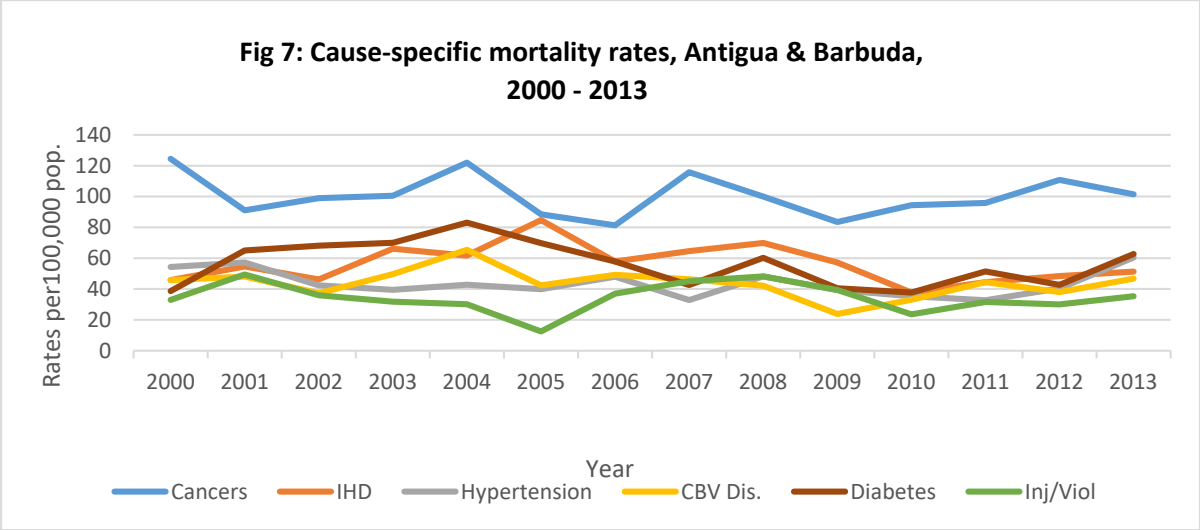




Not much could be concluded about Figure 6, due to the very small numbers of premature deaths in such countries. Also, there was lack of continuous data in some of these small countries.

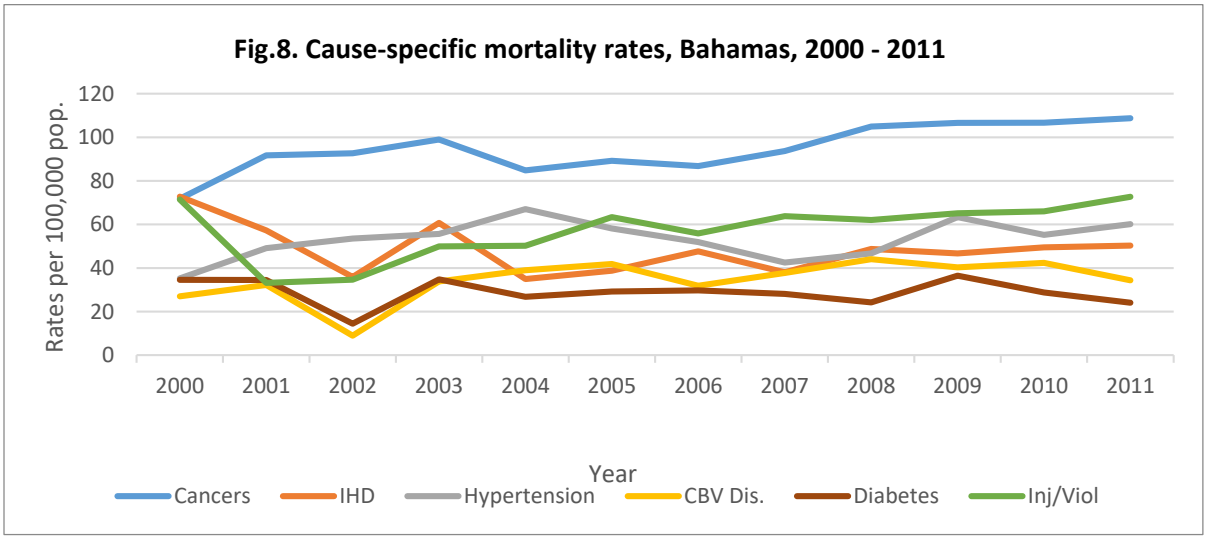
The following figures and tables show trends in the components of CNCD related mortality in some of the countries. Cause specific mortality over the period under review is shown in Figure 7 for Antigua and Barbuda. Cancers are the most significant contributor to mortality, but there is no obvious trend in reducing mortality rates from the targeted CNCDs.

Antigua and Barbuda



Deaths due to cancers are also the largest contributor to mortality and are on the increase along with most of the other CNCDS in the Bahamas. Again there is no obvious declining trend (Fig. 8)

Bahamas



In Barbados, the trend of increasing cancer deaths can be seen in Table 5 where both contributions to overall mortality and premature mortality increased in the last five years. The same is true for cerebrovascular disease and IHD.

Barbados

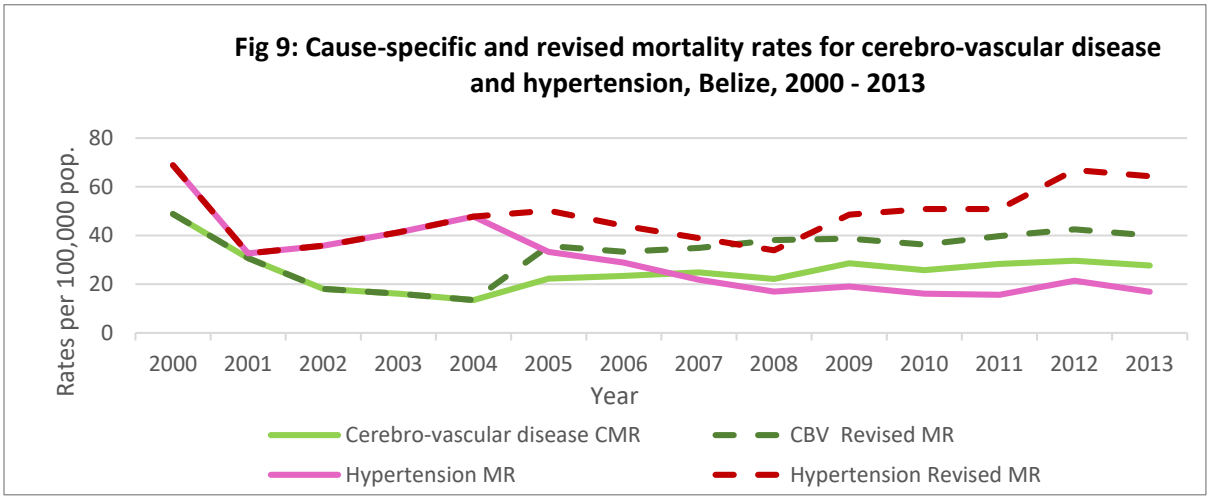
Table 5. Mortality indicators for CNCDs, Barbados, 2009 – 2013 (2000 – 2013).

Condition	Crude Mort. Rate	Prop. Mort. Rate	Prop. Associated Mortality	% of Total PYLL	Ave. PYLL/death
Cancers	181.1 (175.1)	22.2% (20.8)	…	19.8% (17.2)	6.4 (6.2)
Diabetes	73.4 (78.1)	9.0% (9.3)	16.6%	3.7% (3.8)	2.9 (3.0)
Hypertension	38.0 (44.4)	4.6% (5.3)	22.5%	2.0% (2.1)	3.0 (2.9)
Cerebrovascular Disease	80.1 (71.5)	9.8% (8.5)	13.1%	4.4% (3.2)	3.2 (2.8)
Ischaemic Heart Dis.	63.0 (58.6)	7.7% (7.0)	11.9%	3.2% (3.1)	3.0 (3.3)
Chronic Lower Resp. Dis.	7.5 (8.6)	0.9% (1.0)	1.3%	1.0% (1.4)	8.1 (9.9)
Injuries/Violence	41.5 (36.0)	5.1% (4.3)	…	14.4% (15.2)	20.4 (26.5)

Note: Corresponding rates for 2000 – 2013 are in brackets

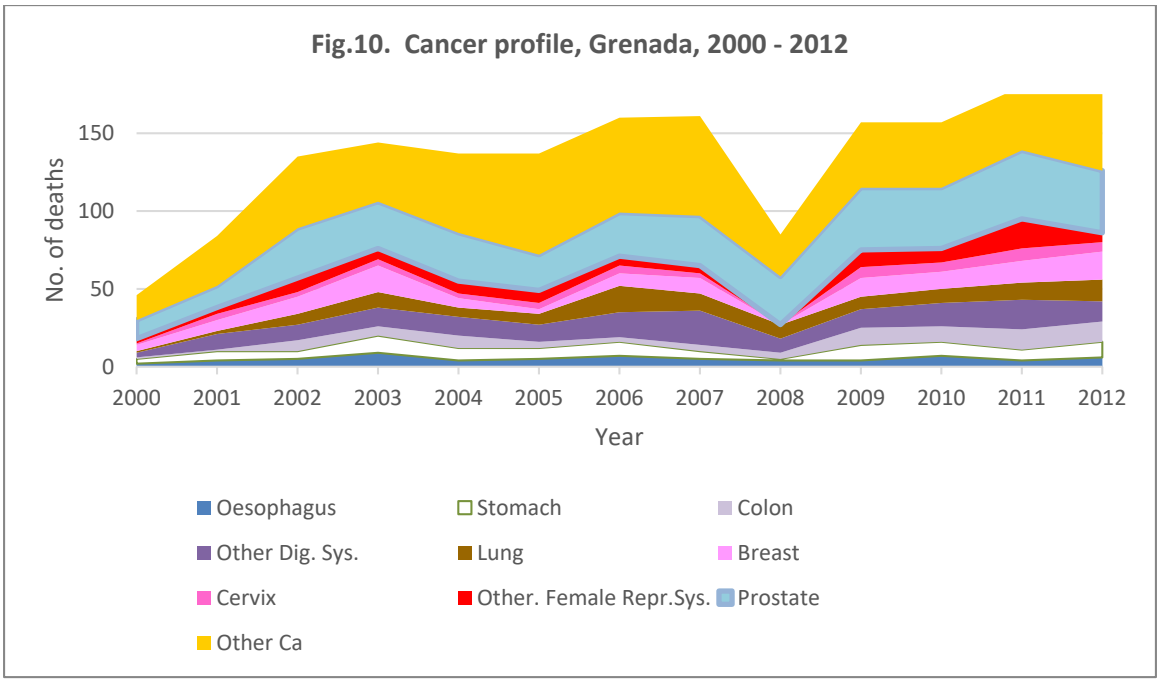
Belize

Mortality of both cerebrovascular disease and hypertension in Belize appeared to show a decreasing trend until all associated mortality was included in the revised rates **(Fig. 9).**

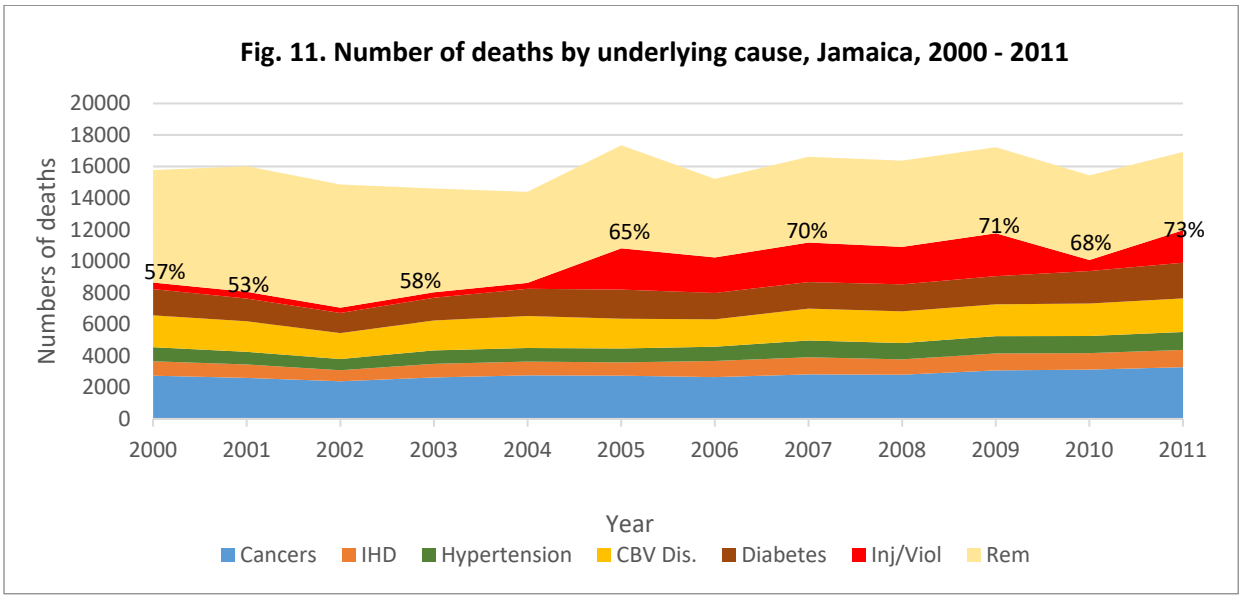


Cancer mortality in Grenada is steadily increasing at all sites. It is noteworthy that preventable cancers are also on the increase (Fig.10).

Grenada



CNCDs accounted for more than half of all deaths in Jamaica with cancers and later injuries being the main contributors (Figure 11).



Incidence and prevalence of hypertension, diabetes and co-morbid hypertension and diabetes as reflected by attendances at Primary Health care facilities appeared to be stable. However, it is

important to note that the reported prevalence of the comorbidities was double that of diabetes alone (Table 7).

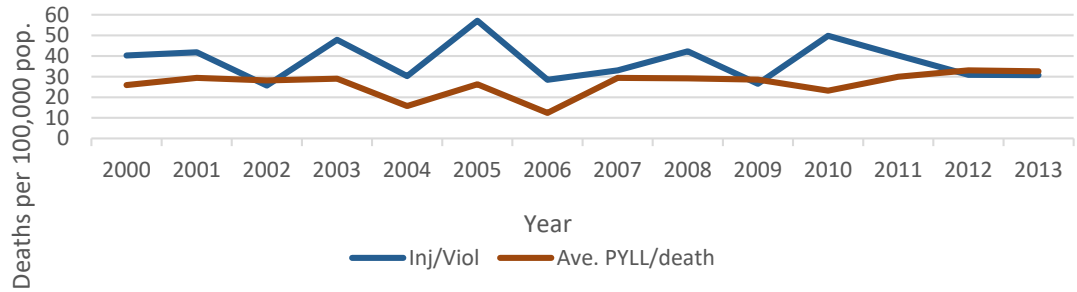
Table7. Incidence and prevalence of diabetes, hypertension and co-morbid conditions - St. Vincent & the Grenadines, 2009 – 2012.

Condition	2009		2010		2011		2012	
	#	%	#	%	#	%	#	%
Diabetes – Incidence	142	0.1	186	0.2	150	0.1	128	0.1
Prevalence	1671	1.4	1525	1.1	1587	1.1	1554	1.2
Hypertension – Inc.	428	0.4	328	0.3	407	0.4	405	0.4
- Prev.	5939	5.1	6141	4.5	6488	4.7	6545	4.9
Hyp. + Diab. – Inc.	147	0.1	161	0.2	149	0.1	124	0.1
- Prev.	3023	2.6	3159	2.3	3387	2.4	3395	2.6

Bermuda

With an average of 27 years of life lost per fatal injury, and accounting for ¼ of all of the years of life lost in Bermuda, injuries and violence are a significant cause of mortality, though not in terms of numbers. With fluctuations, no trend was observed, except that PYLL per death was increasing (Fig 12). This indicates that fatal injuries in Bermuda were occurring at younger ages.

Fig 12: Cause-specific mortality rate and ave. PYLL per death due to injuries and violence, Bermuda, 2000 - 2013



MORBIDITY AND RISK FACTORS

Morbidity and risk factor data were very limited and variable, such that country comparisons were not always possible.

TABLE 5: **Countries completing RF surveys using STEPS methodology**

Thirteen countries in the region have implemented risk factor surveys using the STEPS Methodology, with the Bahamas being the only country having completed 2 such surveys. Unfortunately, the two surveys done in the Bahamas are not comparable since the methodology was varied in the first survey.

The country risk factor surveys were also done in different years. Therefore, in-country and trans-country trends cannot be determined using these surveys (Table 5).

Across all countries, there were high levels of overweight and obesity, physical inactivity, harmful use of alcohol and unhealthy diets as evidenced by very low consumption of fruits and vegetables. High levels of elevated blood pressures were also identified in the countries.

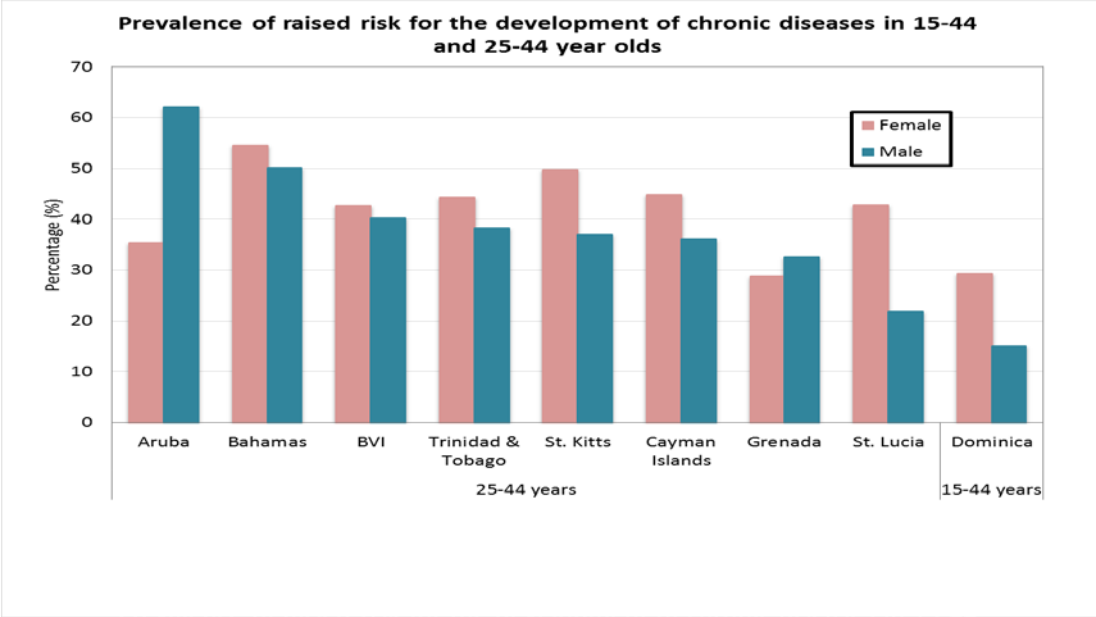
Persons having three or more of the aforementioned risk factors were considered at raised risk for chronic diseases. Although there were differences between sexes, high proportions of the population in each of the countries were identified as having raised risk for chronic diseases, with females being identified as having higher risk. Barbados was excluded from this analysis, due to the low response rates in some areas of the survey.

More than half of the females in the Bahamas (54.6%) and half in St. Kitts (49.7%) in the most productive segment of the population (15-44 years) were at raised risk for chronic diseases – having 3 or more risk factors. Almost half the females in the Cayman Islands (44.8%), Trinidad and Tobago (44.3%) and the Virgin Islands (UK) (42.7%) also had raised risk for chronic diseases. For the males in that age group, more than half the males in Aruba (62.7%) had raised risk of chronic diseases with half of the men in the Bahamas (50.1%) being in that category also (Figure 13).

When raised risk is examined for chronic disease in the older segments of the productive population, the 45-64 year olds, were also at high risk of chronic diseases, ranging from 48.4%-73% among females and 40.4%-72.4% among males in the countries. There were no significant differences in levels of raised risk between males and females in the countries except for Dominica, the most rural country.

Country	Year of Data Collection	Targeted Age Group
Dominica	2008	15-64
Trinidad and Tobago	2011	
Suriname	2013	15-65
Aruba	2006	25-64
Barbados	2007	
Bahamas	2005, 2011	
British Virgin Islands	2009	
Cayman Islands	2012	
Grenada	2011	
St. Kitts	2008	
St. Lucia	2012	
Bermuda	2014	≥18
St. Vincent and the Grenadines	2014	18-69

FIGURE 13: RAISED RISK FOR CHRONIC DISEASES - 15-44 YEARS



Though not included in the table above, Barbados completed another risk factor survey in 2013 using an extended methodology. A comparison of the 2007and 2013 surveys indicates increased levels of smoking, drinking, overweight and obesity, elevated blood pressure and elevated blood sugar in the population.

Some of the data collected on risk factors from the countries were not comparable, and thus could not be used for assessing trends.

COUNTRY TRENDS REGARDING LEVELS OF IMPLEMENTATION OF POS DECLARATION

Availability of data on mortality morbidity and risk factors was variable in countries. In terms of mortality for which countries had better data, there were no discernible trends over the 13 year period under review; prior to 2007 and following 2007 after the implementation of the POS Declaration. No trends could be identified between the countries reporting high levels of implementation of the POS Declaration as compared with those reporting lower levels of implementation.

CONCLUSIONS AND RECOMMENDATIONS

The conclusions and recommendation below are related to the main findings of the Objective 2 of the evaluation of the Port of Spain Declaration of NCDs

DATA QUALITY

The main issue with data that were available for this evaluation, was the non-standardisation of the data collected in countries. For example, different age-groupings were used by health sector and statistical reporting agencies. This was exacerbated by contradictions of data: deaths reported by the statistical office sometimes did not tally with the death certificates provided by the Ministries of Health; some of the datasets also contained errors such as duplicates and missing records. Further, the reports of international agencies sometimes conflicted with health reports on the same subject. The end result of all of the above was that the data available for the evaluation that was not comparable.

Recommendation #1: Efforts should be made to find ways of standardizing the data collected by countries, so that the comparability of country data could be facilitated

DEATH CERTIFICATION

The death certificate is the main source of the mortality data required to determine countries' progress in reducing mortality due to CNCDs. Countries collect and process the mortality data captured from death certificates. Very poor certification by physicians and inappropriate coding of deaths seriously compromised the quality of the mortality data available for the countries.

Common problems identified with physicians' completion of death certificates include the following: writing several conditions on the same line; writing of confusing and contradictory sequences e.g. acute conditions as causes of chronic conditions; certifying with ill-defined conditions; non-specification of conditions e.g. diabetes, but not the complications, hemiplegia but not the CVA, cancer but not the site; non-documentation of the external cause of injuries but listing of the injuries as a cause of death.

The consequences of poor death certification such as incorrect sequences, ill-defined and unspecified conditions often result in the under-estimation of conditions which contribute to mortality that could be targeted for interventions.

Recommendation #2: Continuous training of medical practitioners in the accurate completion of death certificates and in understanding the usefulness and importance of the information for monitoring and evaluating the health situation in the countries, in the region and globally.

PROCESSING AND CODING OF MORTALITY DATA

The information documented on the deaths certificates was reduced to only one cause - the underlying cause of death. As a consequence, absence of the additional data restricted the ability to truly estimate the contribution of CNCDs to mortality through multiple cause analysis. This was particularly applicable to the following disease conditions; diabetes, ischaemic heart disease and cerebrovascular disease which frequently occur together.

Six CARICOM countries: Anguilla, Barbados, Grenada, Saint Lucia, St. Vincent & the Grenadines, Turks & Caicos Islands provided all-cause mortality data for 2010 – 2012.

Recommendation #3: All causes of death: immediate, underlying and contributory, should be documented on the death certificate. These should be captured during data processing and preserved in the mortality database of all countries, to be used for data analysis.

Recommendation #4: Multiple cause analysis should be promoted for the more accurate analysis and reporting of NCD related mortality.

Recommendation #5: **Ongoing training with proficiency testing in mortality coding and measures implemented for the retention of trained staff.**

MORBIDITY DATA

Key strategies to reducing mortality include reducing risk and incidence through prevention in the long term as well as early detection and effective management of cases to delay death. Monitoring the success of these interventions requires data on incidence, prevalence, management and outcomes.

It is acknowledged that it would be a huge strain on health sector resources to maintain national registries for diabetes, hypertension and ischaemic heart disease, although British Virgin Islands (BVI) has attempted to do so and Barbados has a Chronic Disease Registry which includes ischaemic heart disease, cerebrovascular disease and cancer.

Some countries keep what they refer to as diabetic and hypertensive registers at their primary healthcare facilities. However, without use of unique identifiers, there is the risk of double-counting. In addition, these efforts are rarely consistent and standardized. Also data generated are rarely collated or analyzed to provide meaningful information to monitor the health situation.

The Commonwealths of the Bahamas and of Dominica as well as Belize have electronic information systems that should facilitate the collection and processing of such information. Other countries are in the process of implementing health information systems that should also facilitate this function.

"High-quality cancer registries represent an effective method of providing information for cancer prevention and control planning (Prussia, 2015)". Cancer registration began in the region in 1950 and the following countries have some cancer registry activities- Jamaica, Netherlands

Antilles, Bahamas, Bermuda, Trinidad and Tobago, Guyana, Barbados, Cayman Islands, Suriname and Belize. As part of a global initiative, the International Agency for Research on Cancer (IARC) surveyed Caribbean registries. Only Jamaica Regional Registry (Kingston and St. Andrew) was considered a high quality population-based registry. Barbados, Guyana and Trinidad and Tobago have population-based registries while Bahamas, Belize, Bermuda, Cayman Islands and Suriname have cancer registration activity, usually hospital-based registers. IARC identified several challenges to having a quality national cancer registry. These included human resource constraints that make case follow-up, confirmation and other registration activities challenging, lack of data processing facilities, the absence of unique identifiers to prevent double-counting and confidentiality issues.

As part of the Global Initiative on Cancer Research (GICR), IARC has been establishing Cancer Registry Hubs in different regions of the world. One such Cancer Registry Hub for the Caribbean is being established at CARPHA. The main purpose of the Caribbean Cancer Registry Hub is to improve country capacity for strengthening cancer surveillance to facilitate the generation of high quality cancer incidence data globally in support of the implementation of the WHO NCD Global Monitoring Framework (World Health Organization, 2015).

Recommendation #6: Define a standardized format for data collection on NCDs and mandate data collection during the course of management of clients attending chronic disease clinics in all countries.

Recommendation #7: Build in country capacity for data collation and reporting in a standardized manner, so that such data may be processed manually or with the least sophisticated software.

Recommendation #8: Country capacity for cancer surveillance in the countries of the region to be strengthened through implementation of the IARC Caribbean Cancer Registry Hub at CARPHA.

Recommendation #9: Strengthen country capacity for reporting on the core indicators of the NCD Minimum Data Set (including 25 indicators and 9 targets which are in the WHO NCD Global Monitoring Framework) and for use of the country data for program planning and programming.

INJURY SURVEILLANCE

There have been several efforts at implementing injury surveillance systems of different types, throughout the English and Dutch-speaking Caribbean. Initial efforts were surveillance of transport injuries through the Police and/or Transport Divisions. Then the surveillance efforts were extended to all injuries in hospital-based surveillance systems, in Barbados, the Bahamas, two sites in Trinidad and Tobago and Jamaica and the Eastern Caribbean. To date, only the Jamaica Injury Surveillance System (JISS), an expansion of the Violence-related Injury Surveillance System established in 1998, continues to function. Risk factors, too, are subject to surveillance but routine, ongoing surveillance of any health condition or group of conditions,

requires a committed and sustained investment of resources that cannot always be borne by the respective countries.

RECOMMENDATION #10: Develop and implement plan for strengthening injury surveillance with relevant stakeholders utilizing the results of the evaluation of surveillance systems for injuries and violence recently completed by CARPHA.

RISK FACTOR SURVEILLANCE

The initiative to conduct surveillance of risk factors is now focused on population-based risk factor surveys done periodically, every 3-5 years using a standardized methodology. Risk Factor Surveys (RFSS), are being done through efforts supported by the Centers for Disease Prevention and Control (CDC) or using the WHO's global initiative, STEPwise approach to surveillance (STEPS). To date, 13 countries: Aruba, Barbados, Bahamas, Bermuda, BVI, Cayman Islands, Dominica, Grenada, St. Kitts, Saint Lucia, St. Vincent and the Grenadines, Suriname and Trinidad and Tobago have completed at least one round of risk factor surveys utilizing the STEPS methodology.

The GYTS and the GSHS, which provide data on risk factors in youth. These surveys are done quite frequently in the Caribbean because they are supported by financial resources provided by CDC. These together with the national Surveys of Living Conditions (SLC) which the national statistical offices of some countries periodically execute provide rich sources of population data on health indicators.

Seventy percent of the data required by the NCD Global Monitoring Framework are derived from adult population-based risk factor surveys using the WHO STEPS methodology. Although these surveys can be a burden on countries with scare human and financial resources, nevertheless, the surveys are important sources of information on health and risks of the population required for planning and programming for NCD prevention and control.

RECOMMENDATION #11: **Mobilise financial resources to support the conduct of periodic population based surveys on risk factors in the countries of the Caribbean, so that ongoing surveillance of risk factors can be instituted to effectively monitor and evaluate the impact of interventions implemented at the national and regional levels.**

POPULATION ESTIMATES

Population projections by sex and age-group are required for calculation and standardization of rates for cross-country comparisons. Lack of population information seriously stymied the calculation of rates required for this evaluation.

RECOMMENDATION #12: Build capacity at national statistical offices in the respective countries to routinely generate annual population estimates distributed by sex and five-year age-groups.

PROGRESS TOWARDS 25% REDUCTION OF PREMATURE MORALITY FROM NCDS BY 2025

At the time the evaluation was conducted, only a limited number of countries had mortality data available beyond 2012. When premature mortality (PYLLS) for specific NCDs by country are assessed for the period 2000-2013, the countries do not seem to be on track for achieving 25% reduction of premature mortality from cardiovascular diseases, cancer, diabetes or chronic respiratory diseases by 2025.

Recommendation #13: National baselines for premature mortality should be established for 2012 for each country, and specific national targets defined towards attaining the target of 25% reduction of premature mortality for specific NCDs by 2025.

Recommendation #14: Relevant policies and interventions defined and implemented at the regional and national levels, to impact the levels of risk factors for chronic diseases in the population.

Recommendation #15: **Indicators for monitoring and evaluation developed and implemented to assess progress towards attaining targets at national and regional levels.**

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Appendices for Chapter 4

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Appendix A4.1: Predictors of Port of Spain Summit policy implementation

1. Introduction

The Mandate

Objective One of the POSDeval Project seeks to determine "the extent to which the 27 commitments in the Port of Spain Declaration are reported to have been implemented and the national and other characteristics associated with high levels of implementation within the 20 CARICOM countries and territories." This is done "to make recommendations for the evaluation items, with specific definitions, for an improved NCD [non-communicable disease] evaluation grid … that includes a strong gender dimension. The improved grid will … include any additional requirements relevant to the UNHLM/WHO [United Nations High Level Meeting/World Health Organization] NCD Global Monitoring Framework," ideally be "a single instrument for countries to monitor both the POS [Port of Spain] Declaration and the UNHLM/WHO NCD goals," and include "gender specific process and outcome variables."

The University of Toronto would thus "repeat the 2011 quantitative analysis to identify potential predictors of policy implementation success," including the country characteristics of "population size, per-capita GDP [gross domestic product], and estimated age standardized mortality from diabetes and CVD [cardiovascular disease], following previously established methodology" (Kirton, Guebert and Samuels 2011).

The Study

This study thus identifies the national and other characteristics associated with high levels of implementation by the 20 CARICOM members of the 26 indicators corresponding to the 27 Port of Spain Summit (POSS) commitments, from 2008 to 2014. Based on established explanatory models, methods and materials and their previous partial application to POSS implementation, it identifies in turn the prevailing patterns of implementation, their salient predictors and thus probable causes, and the latter's gender-specific characteristics. On this basis it offers recommendations for future research, for a revised UN-compatible, gender-sensitive NCD evaluation grid for strengthening the implementation of POSS and UN HLM on NCD commitments.

The Results

Based on an application of an adapted systemic hub model of global summit governance, this study finds that implementation of the 26 POSS indicators had reached 58% by 2014. The most implementation had come for the surveillance and then physical activity indicators and the least for the nutrition ones. The most implementation has come from Barbados at the very top, Trinidad and Tobago, Jamaica and Bahamas and the east from Haiti at the very bottom, Montserrat, Turks and Caicos and Anguilla. Implementation came in four stages: a seemingly

slow start from 2007 to 2008, a second year surge in 2009, steady strengthening from 2010 to 2012, and a stall from 2013 to 2014.
The cumulative level and speed of this implementation is well predicted by indicators whose commitments contained a reference to a core international organization and a specified agent and whose subjects were iteratively referred to by CARICOM's subsequent summits, but not by the surrounding summits of the ever larger Summit of the Americas (SOA), Commonwealth Heads of Government Meeting (CHOGM) and the commitments of the UN High Level Meeting on NCDs in September 2011. It was also predicted well by members' vulnerabilities to the NCDs of CVD, cancer, diabetes and respiratory illness, as well as capabilities of GDP in purchasing power parity (PPP) and official exchange rates (OER). It was also predicted a little by their income level but not by their hospital beds per 1,000 people, their overall population, per capita GDP or their constitution's references to health. The slow start and subsequent strengthening but not the 2013-2014 stall seem spurred by the 2008 arrival and subsequent demise of the global energy price shocks and perhaps CARICOM leaders' recognition of NCD-related shocks in 2010 but not 2013. A members' cumulative implementation is further predicated by a higher portion of male mortality from respiratory illness, female parliamentarians and female participation in tertiary education, and to a lesser extent by a higher female portion of diabetes mortality and the presence of a female leader during 2006-2014.

2. Model, Methods and Materials

Models

As a guide, this analysis begins with the systemic hub model of global summit governance developed to describe and explain the performance of the Group of Twenty (G20) (Kirton 2013). This model, itself based on the earlier concert equality model of G7/8 governance has been adapted as appropriate for application to the CARICOM POSS case (Kirton 1999). Its application takes account of variables highlighted by alternative models of compliance with G7 commitments (Kokotsis 1999). It further mobilizes the findings of existing research explaining members compliance with their G7 commitments in several fields, including health (Kirton 2006; Kirton, Roudev and Sunderland 2007).

The systemic hub model assesses summit performance across eight dimensions (see Appendix A-1). In this study, the dimensions of central interest are the summits' decisional commitments and the subsequent delivery of them through compliance by the member states. George von Furstenberg and Joseph Daniels' work on the G7 was continued by Ella Kokotsis and the G8 Research Group (von Furstenberg and Daniels 1992; Kokotsis 1999; Kirton 2006; G8 Research Group 2014). For this study the analysis begins with the 27 commitments made by the POSS. However, in the absence of completed compliance assessments of their implementation, the 27 commitments are converted into the 26 "indicators" from which data on implementation exists, on an annual basis from 2008 to 2014. The implementation is assessed according to its cumulative level by 2014, by indicator, by country; and by time and the stages that the annual action yields.
The systemic hub model explains summit performance, including that for compliance, with six central causes: 1. shock-activated vulnerability; 2. multilateral organizational failure; 3.

predominant, equalizing capabilities; 4. converging democratic characteristics; 5. domestic political cohesion; 6; constricted club participation at a network hub.

The systemic hub model contains all the potential "causes" assessed in the first study of POSS implementation produced in 2011 (Kirton, Guebert and Samuels 2011). The three key causes examined in the 2011 study were: vulnerability to NCD risk factors; relative capability as a member's economic and population size and income level; and constricted club participation at a network hub, as assessed by full membership in CARICOM, the leaders' presence at POSS, association with the University of the West Indies, and leadership in CARICOM, and support from surrounding summits where CARICOM members were also members.

The underlying hypothesis was that a CARICOM member was more likely to implement the POSS indicators if it was directly vulnerable to threats in the same subject area (in this case NCDs), if it had the overall capability to comply, arising from a high per-capita GDP and if it had the characteristics of a club at the network hub (Kirton, Guebert and Samuels 2011). Such hypotheses were largely inductively confirmed by the 2011 study and by a subsequent study in 2014 (Samuels, Kirton and Guebert 2014).

The 2014 study added, primarily as conjectures, several possible causal variables. These were: diversionary shocks such as the hurricane striking Haiti on January 12, 2010, (that diverted attention from NCDs and degraded the countries overall and specialized capabilities to comply with the POSS commitments) and the global economic crisis of 2008; the creation of Caribbean Public Health Agency (CARPHA), as a compliance enhancing international organizational success; regional support for specific commitments such as Caribbean Wellness Day; international support for commitments, such as those from the Framework Convention on Tobacco Control (FCTC); and accountability mechanisms, including autonomous ones, to monitor, report on and improve compliance.

The present study specifies more precisely the content of the initial, accumulated and new causal variables (see Appendix A-2). To support the overall goal of Objective One of including a strong gender dimension, it adds gender-specific variables as possible predictors to the mix. It then incorporates the complete collection of candidates into an adapted version of the systemic hub model that seeks to predict the particular patterns of compliance observed.

Methods

The data analysis begins with an inductive identification of possible patterns in the implemented indicators, the predictors, and the configuration and components of each. It then proceeds to an input-output matching between, on the one hand, the degree of implementation achieved and, on the other, the corresponding values of the predictors.

The second stage of an application of quantitative statistic tests has been deferred until more detail about the content and quality of the implementation data is secured (See below "Suggestions for Further Research"). The third stage of a detailed process tracing to more

closely connect predictors with indicator implementation has been similarly deferred until more data is available, largely from oral interview field research.

Materials

For the patterns of implementation it uses as its materials the data set provided by T. Alafia Samuels on the values on the 26 POSS "indicators," for each of the 20 CARICOM members, for each of the years from 2008 to 2014 (Samuels, Kirton and Guebert 2014). For each indicator, for member, for each year a score is assigned on a three-point scale of full, partial or no implementation.

The data on the predictors is obtained from two sources. The first is from the public data sets of other institutions, including the World Health Organization (WHO) and the Pan American Health Organization (PAHO). The second is from the Global Health Diplomacy Program and its companion G8 Research Group, following the data construction methods and public materials developed by them over several years.

3. Patterns of Indicator Implementation

Data on implementation of each of the 26 indicators has been obtained for most of the 20 members of CARICOM for most of the seven years from 2008-2014. Indicators had been organized into seven categories: a general commitment to NCDs, Tobacco, Nutrition, Physical Activity, Education/Promotion, Surveillance and Treatment. Implementation of the mandate was measured on a three-point scale, both initially and as directly converted here, as follows: the indicator was in place (+1.00); in process/partially implemented (0); or not in place (-1.00). When an indicator was not applicable or the information was not available, this was indicated.

Cumulative Level of Implementation

Cumulatively, by 2014 the overall average level of implementation had reached +0.16 on the scientific scale and 58% on the popular scale (see Appendix B-1). Seven years after the POSS, the full implementation of its promises was over the half-way mark. It is a glass at least half full.

This POSS cumulative implementation average of +0.16 or 58% seven years after the summit compares with an overall multiyear compliance average of +0.51 or 76% with 58 assessed G7/8 health commitments in the year after they were made. This shows that CARICOM POSS NCD implementation is substantially lower than its fellow plurilateral summit institution (PSI) of the G7/8. The G7/8 glass fills much higher, much faster than the POSS one has.

This comparison must be made with considerable caution for two reasons. First, the G7/8 made a new set of health commitments each year and the assessment of compliance with them ended one year later. Second, all G7/8 members are developed major powers with high capacity, unlike the much smaller and more diverse set of CARICOM members. Nonetheless, as both are plurilateral summit institutions with regular, annual summits that have regularly generated health commitments for many years, the G7/8 can serve as a general referent for CARICOM as far as health compliance performance is concerned.

Indicator-Specific Implementation

In assessing the cumulative level of POSS implementation by indicator, several patterns stand out (see Appendix B-2).

First, at the bottom, none of the 26 indicators have no implementation by any of the 20 members. Even the least implemented indicator — half of institutions with physical activity/healthy eating — has partial implementation from seven members. There are also no members that have implemented none of the 26 indicators. Even Haiti at the bottom of the member rankings has fully implemented one.

Second, at the top, there are no indicators that all members have implemented. Caribbean Wellness Day (CWD) stands at the top with almost complete implementation, done in full by 85% of members and partly by a further 10%. There are no individual members that have implemented all indicators. Barbados is the best with 20 of the 26 indicators fully implemented, leaving a full six unfulfilled.

This suggests that everyone can and will act, at least a little, no matter how difficult the challenges and their circumstances might be, It further suggests that the POS commitments were all somewhat ambitious, in that they committed members to things that not all had already done, were doing or would find it easy to do.

Third, about half the indicators have been implemented with at a level of about 50% or more members having full implementation of them. More specifically 12 indicators have been fully complied with by at least half of the members. Seven more indicators have been fully or partially complied with by at least half the members for a cumulative total of 19. The remaining seven indicators have poor compliance.

Fourth, the type of indicators by their average level of implementation rank as follows:

Surveillance (4)	+0.59
Physical Activity (3)	+0.43
General (4)	+0.28
Tobacco (4)	+0.24
Treatment (2)	+0.20
Education/promotion (5)	+0.06
Nutrition (5)	-0.41
Average (26)	+0.16

Implementation by type covers a wide range, from a high of +0.59 for surveillance to a low of -0.41 for nutrition.

There is no complete clustering by the type of indicator with the implementation level it has secured. The four surveillance indicators as a set stand first, occupying the second, third seventh and eighth ranks, for an average implementation rate of +0.59.

This overlapping but clustered pattern of implementation by indicator type raises the question of whether a predictor is the inherent difficulty and time its take to implement indicators of different types and individual content.

Member-Specific Implementation

Implementation varies widely by CARICOM member (see Appendix B-3). It ranges from Barbados at the top with 20 of the 26 indicators fully implemented by 2014 to Haiti at the bottom with only one. As noted above, no member had complete implementation and no member has none at all.

Implementation by member, while somewhat continuously scaled in its value, does come in distinct clusters, as follows.

Four members were in the top tier, with the highest implementation as measured by the number of indicators fully implemented by 2014. They were, in order:

1.	Barbados	20 indicators (within five years)
2.	Trinidad and Tobago	19 indicators (within in four years)
3.	Jamaica	18 indicators (seven years)
4.	Bahamas	17 indicators (within six years)

Both Jamaica and Trinidad and Tobago started with a substantial number of indicators already implemented. Barbados and Bahamas had significant improvements, starting with only a few of the indicators implemented.

In the middle, the members with substantial compliance are:

5.	Grenada	15 indicators
6.	Cayman Islands	15 indicators
7.	Guyana	15 indicators
8.	St. Lucia	15 indicators
9.	Suriname	14 indicators
10.	Antigua	14 indicators
11.	Bermuda	12 indicators
12.	British Virgin Islands	11 indicators
13.	Dominica	11 indicators
14.	Belize	9 indicators
15.	St. Kitts and Nevis	8 indicators
16.	St. Vincent and the Grenadines	7 indicators

The members with the lowest compliance, each with only one or two indicators implemented are:

17.	Anguilla	5 indicators
18.	Turks and Caicos	2 indicators (in decline after a peak of 3 in 2009)
19.	Montserrat	2 indicators (in decline after a peak of 3 in 2009)
20.	Haiti	1 indicator (STEPS surveillance reached in 2010)

This cluster pattern offers strong inductive suggestions about the predictors of compliance. The fullest, fastest implementation comes from the "big four" of Barbados, Trinidad and Tobago, Jamaica and Bahamas, which are all relatively rich countries with big GDPs and per capita incomes and substantial populations. They also stand out in their POS leadership, CARICOM summit hosting, CARPHA hosting (Trinidad and Tobago), surrounding summit hosting (Trinidad and Tobago CHOGM, SOA)

Time-Specific Implementation

In assessing patterns of implementation over time, at intervals of each of the seven years from 2008 to 2014, the speed and phases with which POS summit commitments are implemented is of central interest. Here two major possible paths stand out. The first is an immediate post summit surge from the fresh summit push in political will and publicity. The second is a slow start but small steady strengthening due to the long time it inherently takes to get politicians paper promises from the summit peak transformed into reality on the ground in the dark valleys of each member polity back home.

In the case of the POS summit the pattern that prevailed was very much the second path of a slow start and steady strengthening but with a stalling in the most recent years (see Appendix B-4). This came through the four phases of 1. a slow start in 2008, 2. a second year surge in 2009, 3. a steady strengthening to 2012 and 4. a stalling in 2013 and 2014.

Slow Start, 2007-2008

At the start, reported implementation across all assessed indicators was low. During the first year following the summit, implementation across the 26 indicators was sparse, with only a few members implementing a handful of indicators. Not all the members, however, had submitted information on their implementation, a missing data feature which contributed to the low level of reported implementation.

By 2008, one year after the POS summit, only two indicators had been implemented by more than 25% of members. Both indicators dealt with tobacco: to ratify the Framework Convention on Tobacco Control (FCTC); and to implement the Global Youth Tobacco Survey. In 2008, nine countries conducted a Global Youth Tobacco Survey and six countries ratified the FCTC.

Second-Year Surge, 2009

Compliance then increased significantly between 2008 and 2009. Then five indicators reached a level of at least 50% implementation.

In 2009, implementation of these two tobacco indicators — FCTC and Survey — increased significantly, to 14 and 12 countries, respectively. More countries reporting information in 2009 may explain this sharp increase.

Implementation also increased significantly in five other areas in 2009. Six countries developed an NCD Plan and a multi-sectoral NCD Commission. Implementation of the NCD Commission indicator stagnated in 2012 at 8 countries, while the number of countries with an NCD Plan increased by two each year until 2012.

The multi-sector food and nutrition plan saw a noteworthy surge in implementation in 2009. In 2008 none of the CARICOM members had implemented a plan. In 2009 twelve members had.

From the physical activity category, with three indicators, one saw implementation spike from 2008 to 2009. This was ongoing, mass physical activity or new public physical activity spaces. By 2009, eleven countries had complied.

Under the education and promotion category almost all of the countries, nineteen of them have taken part in multi-sector, multi-focal celebrations of Caribbean Wellness Day since 2009. This is the indicator with the fullest and fastest implementation. (Samuels and Fraser 2010)

Amidst this general surge there were a few stalls and setbacks, notably for Montserrat and the Turks and Caicos in 2009-2010. One possibility is that the global financial crisis hit such centers of tourism, as well as those for offshore finance, hard.

Steady Strengthening, 2010-2012

From 2010 to 2012 there was a steady strengthening of implementation every year. The number of indicators with 50% implementation increased incrementally each year after 2009 through to 2012. This observation should be treated with some caution because in 2010 the total number of indicators expanded from 21 to 26, mostly through the expansion of the nutrition indicators.

The Surveillance and Treatment categories saw slow but sustained progress. By 2012, five of the six indicators had 50% of the CARICOM members in compliance. The only indicator lacking progress was having NCD treatment protocols in more than 50% of the primary health care facilities. The Global Youth Tobacco Survey and the Global School Health Survey were implemented the fastest and fullest.

The indicator on ongoing, mass physical activity or new public physical activity spaces had been implemented by eleven countries by 2009 and 15 by 2011.

Stalling, 2013-2014

In 2013 and 2014 implementation stalled. Thirteen countries had NCD Plans in both 2012 and 2014. Eight of these NCD Plans included an NCD Budget, another indicator under the General NCD category. By 2014, only nine countries had complied with the indicator of having mandatory physical activity in all grades in schools.

This 2013-14 stall suggests that the UN HLM on NCDs in September 2011 had no effect in strengthening POSS implementation. It suggests the value of having a POSS Plus Ten Summit

within the region itself to spur the effort to go the last mile to complete the implementation task.

This specific temporal path with its four distinct phases provides a basis for several conjectures about the causes of implementation.

First, the systemic shock of the global financial crisis seems to have low salience as a cause of regional CARICOM NCD compliance. While all CARICOM members were negatively affected by the global crisis, and had their attention diverted to deal with it, the crisis erupted in 2008 and peaked in 2009, whereas NCD compliance first surged from 2008 to 2009. The logic of any causal connection between high crisis and high compliance for the one year of 2008-2009 is unclear. And when the global economic crisis receded CARICOM NCD compliance continued from 2010-2012.

The causes of compliance seem not to reside in the global system but rather lie close to home in the Caribbean itself. In particular, the global financial crisis of 2008-9, the food price shock of 2011, and the oil shocks of 2008 and again in 2014-2015, as well as the UNHLM on NCDs in 2011 seem to have had no general effect

4. Predictors of Indicator Implementation

In assessing the predictors of these prevailing patterns of implementation, an initial guide comes from the analysis conducted by John Kirton, Jenilee Guebert and T. Alafia Samuels for the Pan American Health Organization and World Health Organization in July 2011. It concluded: "CARICOM countries have been more likely to implement their NCD summit commitments if they are full members (not associates of CARICOM), if they sent a leader rather than a minister to the summit, if they are more vulnerable to NCDs, if they are more economically capable, if they are associated with the UWI and if they are more institutionally involved in CARICOM. Overall compliance could be further improved by crafting commitments that contain the specific catalysts known to improve compliance in a G8 context and by avoiding the ones that hinder it. The support from surrounding summits flows largely from the same factors, above all the commitment of a region — the Caribbean — to take up the issue and extend it beyond its borders and a country — Trinidad and Tobago — willing and able to serve repeatedly as a successful summit host."

This analysis, focused heavily on member characteristics, pointed to the possible predictive power of three categories of variables, those relating to: 1. the indicator (or corresponding commitment); 2. the member (country or territory); and 3. the specific time (or speed or temporal stages) of implementation. The current, much expanded analysis gives relatively equal attention to all three categories of possible predictors. It thus begins be assessing indicator-specific predictors and moves in turn to member-specific and time-specific ones.

Indicator-Specific Predictors

The first category of predictors comes from the indicators themselves, including as they relate to their corresponding commitments and the specific subjects they contain. Some of these characteristics can be constant, such as the compliance catalysts and the degree of difficulty contained in the initial 26 indicators and 27 commitments of the POSS in 2007. Others can

change over time, for example, CARICOM leaders and other actors supporting specific indicators to varying degrees in subsequent years.

This analysis of indicator-specific predictors finds that the cumulative level and speed of implementation by 2014 is well predicted by indicators whose corresponding commitments contained a reference to a core international organization and a specified agent and whose subjects were iteratively referred to by CARICOM's subsequent summits, but not by the surrounding summits of ever larger Summit of the Americas (SOA), Commonwealth Heads of government Meeting (CHOGM), and the UN High Level Meeting on NCDs (UNHLM-NCD) in September 2011.

Compliance Catalysts

The 27 commitments made at CARICOM's POS Summit on NCDs in 2007, when converted into the 26 health indicators used by regional experts and authorities for implementation monitoring, were complied with seven years later at an average level of only 58% (Kirton and Bracht 2015). While several factors appear to have caused this cumulative level of compliance, the most powerful seem to be the key catalysts embedded by the leaders in the commitments themselves, above all the invocation of a core international organization and a specified agent as well as surveillance and surveillance by an international organization (see Appendix C-1).

By way of comparison, in the plurilateral G8, the 254 health commitments made from 1980 to 2013 (of which 58 have been assessed for compliance) had been complied with a year later at a strong 76% rate. Compliance was raised by the commitment-embedded catalysts of a core international organization and a one-year timetable, but lowered by those of other international organizations, a multi-year timetable and the summit's finance ministers' forum.

In the G20, the 58 commitments made from 2009 to 2013 in the NCD related area of food and agriculture had average compliance of 75% within the four to fourteen months after the summit was held.

Together these findings suggest that POSS seven-year cumulative compliance, while relatively low, is increased by two commitment-embedded catalysts easily controlled by and available to summit leaders: the invocation of a core international organization and, less strongly a specified agent.

Support from Subsequent Summits of CARICOM on NCDs and Specific Subjects

The 2014 cumulative level of implementation of each indicator can be assessed against the cumulative total number of references made by successive CARICOM summits to the topic of NCDs overall and to the specific subject of that NCD indicator, each year from 2008 to 2014 (see Appendix C-2).

At the general level, iteration of the NCD overall by CARICOM leaders at their subsequent summits each year from 2008-2014 appeared to match implementation of the indicators over

the four stages a little (Kirton and Bracht 2015). Such iteration also had a compliance enhancing impact in the G8.

At the subject specific level, the relationship in CARICOM on NCDs also seems to hold. Here from 2008-2014, the highest number of cumulative CARICOM references were to CWD and POSS with five each, to NCDs in general, CARPHA and the UNHLM with four each, to the Nassau declaration and the Caribbean Community's peoples with three each, and the tobacco, diabetes, cardiovascular disease, and Pan Caribbean Partnership against HIV and AIDS (PANCAP) with two each (see Appendix C-3).

At the top end of iteration, CWD with five references well matches and thus predicts its corresponding indicator's cumulative implementation of +0.80. This is the second highest level of cumulative implementation for a single indicator.

In the middle, tobacco with only two iterated references adequately matches and thus predicts the low average implementation of +0.24 for the four corresponding tobacco indicators clustered in this category. The number of iterated references rises to four if the specific notation of Suriname and Jamaica's tobacco legislation is added, and average implementation rises to +0.32 if the Global Youth Tobacco Survey indicator from the Surveillance cluster is added. Also in the middle, diabetes and CVD, with two iterated references each, both have implementation scores (from the same corresponding single indicator) of +0.30.

At the low end, there are no references for trans-fat free food supply (and one each to fat and diet in general), where the corresponding indicator had implementation at -0.83. The other indicators with no iterated references and with low implementation are trade agreements for food/health goals at
-0.79, mandatory labelling at -0.63, PA in new housing at -0.53, and PA and healthy eating in institutions at -0.59.

Indicator	*References*	*Implementation*
Caribbean Wellness Day	5	+0.80
Tobacco	2 (4)	+0.24 (+0.32)
Cardiovascular disease	2	+0.30
Diabetes	2	+0.30
Trans fat free food supply	0 (1 fat) (1 diet)	-0.83
Trade agreement food/health	0	-0.79
Mandatory labelling	0 (1 diet)	-0.63
Physical activity in new housing	-0.53	
Physical activity and healthy eating in institutions	0 (2 exercise/PI)	-0.59

In all there appears to be a relationship between iteration and implementation. However, causality could run in the reverse direction, as summit leaders reference those specific indicators where implementation is well advanced, in order to highlight their own earlier success.

Support from Plurilateral Surrounding Summits: SOA, CHOGM

A third potential predictor of implementation, also at the summit level, is the support sent from surrounding summits for health, NCDs and its specific components. Such support should be stronger in those summit institutions where CARICOM members constitute a relatively large portion of the membership.

They do so in the 34 member Summit of the America's (SOA), which held summits in 2009 and in 2012. In 2009 it devoted 2,055 words or 22% of its communiqué to health, of which 391 or 4.2% of the communiqué were to NCDs. In 2012 it devoted only 30 words or 2% to health and none to NCDs. This 2009 SOA spur coincides with the POSS implementation surge from 2009 on and the stall from 2012 on. However, there are too few data points to make any causal claims.

The biennial Commonwealth Heads of Government Meeting (CHOGM), with just over 50 members, including the United Kingdom (and thus indirectly the CARICOM territories it governs), had declining references to health from 2003 on through to a rise in 2013. However, it had no references to NCDs until 2007 when it explicitly endorsed the POSS, with the words: "They noted the rising burden of chronic disease on health systems and welcomed the Action Plan on Non-Communicable Diseases adopted by the Caribbean Community (CARICOM) in their 2007 Port of Spain Declaration" (see Appendix C-4) The 49 words in 2007 rose to 176 in 2009, fell to 73 in 2011 and rose to 249 in 2013. Only in 2009 did this coincide with the degree of the POSS implementation rise.

Taken together, these results suggest that for POSS implementation, CARICOM cannot count on support from surrounding summits of a plurilateral kind, even those where CARICOM members constitute a relative large portion of the membership. Together with the previous conclusion that subsequent CARICOM summits themselves seem to increase implementation of POSS indicators, the case for having a POSS Plus 10 summit is reinforced.

Support from Multilateral Surrounding Summits

A fourth potential predictor of implementation is support from surrounding multilateral summits, above all from body with the most universal membership, the UN. Since 1990 the UN has been hold an ever increasing number of summits, many of which focus on development and health, most notably those for the Millennium Development Goals in 2000, 2005 and 2010. As such summits have given almost no attention to NCDs they have provided no support for POSS implementation (Kirton et al. 2014). They thus do not predict the modest level of cumulative implementation by 2014, not the varying implementation across indicators and members.

One possible exception is the UN HLM on NCDs in September 2011, attended by 35 country leaders and devoted entirely to NCDs. It made 205 commitments. How the compliance with these commitments supported POSS implementation is unknown, due to the poor quality of the

available, self-reported data on compliance. However an initial hint comes from the independent compliance assessment was conducted by the Global Health Diplomacy Program for the period September 20, 2011 to September 18, 2012 on UNHLM 2011-68 on "Accelerate implementation by States parties of the World Health Organization Framework Convention on Tobacco Control (WHO FCTC), recognizing the full range of measures, including measures to reduce consumption and availability, and encourage countries that have not yet done so to consider acceding to the WHO FCTC, recognizing that substantially reducing tobacco consumption is an important contribution to reducing non-communicable diseases and can have considerable health benefits for individuals and countries, and that price and tax measures are an effective and important means of reducing tobacco consumption" (McGurn 2015).

With this commitment one year later, the countries of the Americas and the United Kingdom (with its five CARICOM territories) had average compliance of 81% (McGurn 2015; Kirton and Bracht 2015). All the CARICOM members had complete compliance. The content of this commitment relates directly to three POSS indicators: those for FCTC ratification ("accelerate implementation"), tobacco taxes ("tax measures") and smoke free places "reduce … availability"). The complete (100%) compliance of CARICOM members with this UNHLM commitment and its three components coincides poorly with the corresponding level of implementation by 2014 of the POSS indicators on FCTC ratification at +0.87 or 94%, on tobacco taxes at 0.00 or 50% and on smoke free places at +0.35 or 68%.

By 2010 the POSS FCTC ratification indicator had been fully implemented by 65% of CARICOM members, that on tobacco taxes by 20% and that on smoke free places by 45%. Given this mismatch with CARICOM members' complete compliance with UNHLM NCD 2011-68 by 2012, prior POSS implementation poorly predicts this UN compliance. Detailed process tracing is required to further determine if POSS indicator implementation by 2014 was predicted by UN-HLM-NCD-2011-68 compliance by 2012, or the other way around.

A broader analysis comes from matching each POSS indicator with the number of UNHLM NCD 2011 commitments made on the same or a very similar subject (see Appendix C-5).

There are rather few matches between the POSS and UNHLM NCD commitments and the pattern of matches does not coincide with the cumulative level of POSS implementation by 2014. Only a minority of 11 POSS indicators received any support from a corresponding UNHLM NCD commitment, while 16 indicators received none at all. Only 48 of the 205 UNHLM NCD commitments — or less than a quarter — substantively matched any POSS indicator. The rather high level of non-correspondence could mean that global agenda and consensus by 2011 was very different than the regional 2011 one. But it does mean that POSS implementation received no apparent support from the UN NCD summit in 2011.

Member-Specific Predictors

The second category of predictors comes from the characteristics of the CARICOM members, as they vary across the 15 countries and 5 territories which belong to the regional organization. Some of these member characteristics are essentially constant over time, notably the geographic location, features and territorial extent of the member. Of greater interest are those that change annually, notably their chronic vulnerabilities to NCDs, overall capabilities of GDP

and population, relevant specialized capabilities such as hospital beds, and their political and government characteristics such as a constitutional right to health.

The cumulative level of indicator implementation by 2014 was predicted well by members' capabilities of GDP in purchasing power parity and official exchange rates, perhaps a little by their income level and hospital beds per capita but not by their population, per capita GDP or constitution's references to health.

Vulnerabilities

The first member-specific predictors are the vulnerabilities of direct relevance from the four core NCDs and their risk factors themselves. The initial 2011 study had found that such NCD vulnerabilities did indeed predict POSS implementation by 2010 (see Appendix D-1). It had concluded:

> the national average body mass index (BMI) of citizens of CARICOM countries in 2010 was 26.16, placing them in the overweight category (25–29.9). Countries that had higher incidence of NCDs were more likely to implement their commitments. For example, Barbados at 29.0 and Trinidad and Tobago at 28.6 have a national average BMI close to the obesity marker (30) and also have had high implementation rates. Jamaica and Trinidad and Tobago, which have the highest tobacco consumption rates, are high compliers. Dominica and Trinidad and Tobago, who have the highest incidence of diabetes, rank fourth and second in terms of implementation, respectively. With the exception of Haiti, who has the highest incidence and mortality rates due to cancer and the lowest implementation, those countries with high incidence and mortality due to cancer, including Jamaica, Trinidad and Tobago and Guyana, also tended to have higher implementation as well. Citizens' vulnerability to NCDs thus seems to be a powerful cause of why countries implemented the NCD summit commitments their leaders made. Several outliers, such as Haiti, need to be assessed further.

The current analysis assesses the mortality by member, for the most recent years with available data, for each of the four major NCDs (see Appendix AD-2).

Cardiovascular Disease

Cardiovascular vulnerability is a strong predictor of members' cumulative indicator implementation by 2014. Six of the top ten implementing members had annual CVD deaths in the most recent year of 706 or more, whereas all of the bottom ten implementers had only 416 or below. More precisely the top ten implementers averaged 1,277 CVD deaths a year (or 89% of the total), whereas the bottom ten implementers averaged only 158 a year.

Cancer

Cancer is also a strong predictor. Seven of the top ten implementers had annual deaths of 247 or more, whereas none of the bottom ten implementers had more than 173 deaths. More precisely, the top ten implementers averaged 645 cancer deaths a year (or 90% of the total), whereas the bottom ten implementers averaged only 75 a year.

Diabetes

Diabetes is also a strong predictor. Five of the top ten implementers had annual diabetes deaths of 206 or more, whereas none of the bottom ten had more than 148. The top ten implementers averaged 424 diabetes deaths a year (or 90% of the total), whereas the bottom ten implementers averaged only 46.

Respiratory Illness

Respiratory illness is a strong predictor. Five of the top ten implementers had annual deaths of 71 or more whereas none of the bottom ten had more than 70. The top implementers averaged 115 deaths a year (or 86% of the total) whereas the bottom ten averaged 18.

Assessment

All four of these NCD vulnerabilities have strong predictive power. It is possible that this match masks the underlying impact of population size, as the top implementers, which all have high deaths, are also the members with relatively large populations, where more deaths from all diseases are likely to take place. However the most populous member of Haiti, with very low implementation and NCD deaths, suggests that population alone is not the sole underlying predictor. The wealth of the member is also relevant, as the members with the high implementation, which also have high NCD mortality, also tend to be the wealthy ones. But the presence of wealthy Bermuda in the bottom ten suggests that NCD mortality alone has independent predictive impact. Multivariate research is required to assess more precisely the independent predictive power of NCD mortality alone.

At first glance, it appears that the members with the highest NCD deaths have the highest implementation, but that their high implementation has not yet effectively reduced their NCD deaths. However, because some of this predictor data on NCD deaths comes from years as distant as 2004 and some from years as recent as 2012, it is difficult to infer from this data how quickly high NCD implementation reduced the deadly burden on NCDs.

Overall Capabilities

The second member-specific predictors come from the overall capabilities of the country/territory. The 2011 study found that “on the whole, countries with higher levels of gross national income (GNI), income level, gross domestic product and larger populations — the standard measures of overall national capability — were slightly more likely to implement their commitments” (Kirton, Guebert and Samuels 2011, p. 7). The current study, considering data from 2008 to 2014, concludes that indicator implementation is increased by members’ higher GDP in PPP and OER, and perhaps a little by a higher income level, but not by GDP per capita nor by higher population (due primarily to the outlier of Haiti) (see Appendix D-3).

Gross Domestic Product in Purchasing Power Parity

In the case of GDP measured in PPP, six of the top ten implementers had a level of $6.59 billion or more, whereas all of the bottom ten implementers had levels of $5.6 billion (for Bermuda) or below.

Gross Domestic Product in Official Exchange Rates

In the case of GDP measured in OER, eight of the top ten implementing members had GDP between $14.4 billion and $1.22 billion, whereas only two of the bottom ten implementers did. Bermuda, the eleventh ranked implementer had a GDP of $5.6 billion and Belize the 14th-ranked indicator had a GDP of $1.64 billion.

Income Level

In the case of income level, five of the top ten implementers were scored as high, whereas only two of the bottom ten (11th-ranked Bermuda and St. Kitts and Nevis) were.

GDP per capita

GDP per capita is not a predictor. Of the six members with the highest per capita GDP, three came from the bottom ten implementers (Bermuda, British Virgin island and Turks and Caicos island) whereas the other three came from the top three implementers (Cayman Islands, Bahamas and Barbados).

Population

Population size is not a predictor. Four of the top ten implementers had over 573,311 people (Suriname), whereas none of the bottom ten did save for Haiti. However, its population of 9,996,731 was by far the highest, being more than three times as populous as second-ranked Jamaica was.

Specialized Capabilities

The third member-specific predictors come from a country/territories' specialized capabilities in health. The 2011 study found that: "In the realm of specialized health capability, however, on the most relevant indicators countries with more capable health systems and countries with higher life expectancy, implementation tended to be lower."

The specialized capability of hospital beds is a poor predictor, based on the most recent data from 2010-2011 (see Appendix D-2). Of the top ten implementers, the nine for which data is available have an average of 2.8 hospital beds per thousand people, whereas of the bottom ten implementers, the five for which data is available have an average of 2.74.

Common Political Characteristics

The fourth possible member-specific predictors come from the common political characteristics and principles. Here a core characteristic is the presence of health as a value or right embedded in the member's constitution. The presence or number of such references in a members' constitution does not predict to its cumulative level of POSS indicator implementation by 2014 (see Appendix D-4).

Political Cohesion

The fifth possible member-specific predictors come from the components that create the political cohesion of a member. None of these components have clear productive power.

The presence of the current leader at the POSS in 2007 does not predict that member's level of implementation by 2014. Only two of the current leaders' had been present at POSS and both come from members (from Dominica and St. Vincent and the Grenadines) whose implementation is in the bottom ten.

The continuity in office of the current leader, measured by the continuous number of years to the present is a poor predictor of implementation, but possibly and inverse one. The top ten implementer's 2014 leaders have an average of 3.4 continuous years in office, while the bottom ten have an average of 5.1 years.

The health competence of a current leader is not a predictor of indicator implementation by 2014. Only two of the current leaders have such competence (British Virgin Islands and Turks and Caicos Islands) and both come from members whose level of implementation is in the bottom ten.

Time-Specific Predictors

A third type of predictor pertains to time-specific events that can largely impact the entire region, rather than specific members or NCD commitment indicators, even if they have differential effects on such components. Of key concern are global shocks and accompanying vulnerabilities that impact the region and its ability or willingness to act on the prevention and control of NCDs.

Summit-Recognized Shocks and Vulnerabilities

The most specific and closely connected of such global shocks are those that are recognized by CARICOM leaders themselves, as recorded in the NCD-related sections of their annual summit communiqués. From 2008 to 2013 there have been three such references: two in 2010 to climate change and to the global economic crisis; and one in 2013 to healthcare costs (see Appendix E-1). This level of recognition is low, compared to that during the same time of the annual G7/8 summits and of the G20 summits to the shocks and vulnerabilities from climate change alone (Kirton and Kokotsis 2015).

CARICOM summits' low level of shock-activated vulnerabilities related to NCDs predicts the relatively low level of indicator implementation by 2014. Beyond this general level its predictive power is small. The 2010 recognition of two shocks may have propelled the stage of strengthening from 2010 to 2012, but the 2013 recognition of healthcare costs did not spur implementation, nor was there any annual recognition to spur the implementation in 2009, 2011 and 2012. Nonetheless there may be value in having CARICOM leaders at their annual summit explicitly recognize such shocks and vulnerabilities more often, their possible impact on NCD prevention and control, and what they can do in response to reduce their vulnerability and burden.

Objective Global Energy Shocks

A second more causally distant type of shock is objective events outside the region, whether subjectively recognized by CARICOM summit leaders or not. A classic global shock comes from energy, particularly oil price spikes and plunges, that appear to create quick (one year) compliance with G8 summit energy commitments (Von Furstenberg and Daniels 1992).

Such steep changes and thus shocks have arisen since 2007.

However, they appear to be only a partial predictor of the stages of POSS indicator implementation. The oil price spike from 2007-2008 is consistent with the slow start in implementation in 2008 and the price plunge in 2009 and stability in 2010 is consistent with the implementation surge in 2009 and steady strengthening starting in 2010 (see Appendix E-2). However, a time lag must be added to have the spike to sustained high levels since 2011 be consistent with the implementation stall in 2013-2014.

If there is such a relationship, the oil price from a peak in June 2014 to a multiyear low of about $55 USD a barrel by early April 2015 could provide a foundation for a new push in implementation starting now. Yet more analysis is needed to detail the link. Such an analysis must take account of the fact that oil price spikes given CARICOM members that are major oil exporters, notably Trinidad and Tobago, and economic boost rather than the decline that all other members have.

Objective Shocks within the Region

A third, more geographically proximate type of objective shock is those that arise and strike within the CARICOM region, with particularly severe impacts on specific members within. The outstanding case is the deadly earthquake that struck Haiti on January 12, 2010. This one specific shock appears to have had no impact on POSS indicator implementation, as either a deflating diversionary shock or as a driving related shock, as Haiti's indicator implementation was very low both long before and long after the earthquake struck. It is unknown how it impacted implementation elsewhere in the region, for example by diverting external financial and other assistance to the Haitian earthquake from the regional NCD cause.

5. Gender Predictors of Indicator Implementation

In order to identify possible gender-specific predictors of indicator implementation, this study explored the impact of several gender variables of both an indicator-specific and member specific type. The indictor-specific variables were a gender compliance catalyst in a POSS commitment and gender references in the NCD portions of CARICOM's subsequent summits. The member-specific variables were, at the societal level of analysis, the gendered vulnerabilities to CVD, diabetes, tobacco, BMI, cholesterol and blood pressure, female labour force participation and female students in tertiary education. At the state (governmental) level of analysis they were the presence of a female leader, and the portion of female parliamentarians. All variables had adequate data for most members for most years from 2006-2014.

The data collected indicated that there is some match between implementation and several of these gender variables. Higher implementation is predicted by higher male mortality from respiratory illness, a higher portion of female parliamentarians, and a higher portion of females in tertiary education, and to a lesser extent by higher mortality from diabetes, and more female leaders from 2006-2014. Members whose implementation rates fall in the top ten of 20 tend to have a greater presence of females across several predictor variables. This is particularly true for Barbados the top-implementing member, which has among the highest portion of parliamentary

seats held by women, portion of females in tertiary level education, the highest rates of female labour participation. Guyana is also notable as one of the top ten implementing members which has some of the highest percentages across these three variables. However, due to the limited amount of data it is unclear whether these gender variables predict high implementation or if there are other more salient causes.

Gender Compliance Catalysts

The first gender variable, of an indicator-specific type, is the presence of a gender compliance catalyst within the POSS commitment associated with an indicator. In the 27 POSS commitments, there was only one such gender catalyst. It came in POSS 2007-20 which read: "[we declare] Our commitment to take account of the gender dimension in all our programmes aimed at the prevention and control of NCDs."

It is possible that the low level of gender catalysts in the 27 POSS commitments helps predict the modest level of indicator implementation by 2014. However no more direct assessment is possible, as there was no gender indicator included in the set of 26.

Gender Support from Subsequent Summits of CARICOM

The second gender-specific variable, also of an indicator-specific type, is support from CARICOM's subsequent summits, as measured by the degree of references to gender in the NCD portion of such summit's communiqués. There was not a single such reference in the seven subsequent summits. This could relate the modest level of implementation by 2014.

Gendered Vulnerabilities to CVD, Diabetes, Tobacco, BMI and Cholesterol

The third gender variable, now of a member-specific type, is citizens' vulnerabilities to the core NCDs of CVD, cancer, diabetes and respiratory illness and their precursors, tobacco, BMI and cholesterol.

Interpretation of the vulnerability data is difficult as the date of the data reported differs between members. It ranges from as early as 2004 to as recently in 2012. However, the majority of the data is reported between 2010 and 2012 (see Appendix D-1).

For cardiovascular disease, mortality rates do not differ widely between men and women. In 11 of the members CVD death rates were higher among females, in 8 they were higher among men and in one they were equal.

For cancer, deaths were disproportionately higher in men across members. Sixteen of the members had higher rates of deaths caused by cancer in men and four had higher rates in women.

For diabetes, deaths were disproportionately higher in women across members. Seventeen of the members had higher rates of deaths caused by diabetes in women and three members had higher rates in men.

For respiratory illness, deaths were disproportionately higher in men across members. Fourteen of the members had higher rates of deaths caused by respiratory illness in men, three members had higher rates in women and three members had equal rates between men and women.

In terms of the four diseases, the most significant difference in death rates by gender is in respiratory illness, with 65% of the overall deaths being male and 35% female. The difference in death rates by gender in diabetes is less significant, with 57% of overall deaths being female and 43% male. Even less significant are death rates by gender in cancer, with 54% being male and 46% female. Death rates in CVD were roughly 50/50 male and female.

The gendered disparities in respiratory illness mortality, in particular the higher male portion, may have some predictive power for members' cumulative implementation by 2014. The higher female mortality in diabetes could have some, if less, predictive power too.

Female Labour Force Participation

The fourth gender variable is the percentage of the female adult population in the labour force. The most recent data is from 2012 and was available for only 10 of the 20 members (see Appendix F). Among the top four implementing members two, Barbados and Bahamas, have some of the highest rates of female labour force participation. However, Haiti, the lowest implementing member, also has high rates of female participation. It should be noted that there is an unexplained drop in female labour force participation in Haiti in 2006 from 56.3% to 39.3% and a subsequent surge in 2009 to 57.7%. This calls into question the accuracy and validity of Haiti's data reporting. Enhanced data quality and availability are required for more confident conclusions.

Female Students in Tertiary Education

The fifth gender variable is the percentage of students in tertiary level education who are female. The figure recorded is a cumulative average from the years 2006 to 2012. Among the top-implementing members, Barbados and Jamaica have the highest percentages of females in tertiary level education at 69.1% and 68.9%. Cayman Islands and St. Lucia, with medium-high implementation, also have high percentages of females in tertiary education at 68.9% and 68.4%. The member with the lowest percentage of female students in tertiary education, Suriname at 50.6%, ranks at a medium level of implementation. Data was unavailable for seven out of 20 members. More females in tertiary education thus appears to predict higher implementation by 2014.

Female Leaders

The sixth gender variable is the total number of years between 2006 and 2014 there has been a female head of state. Among the four top-implementing members, two — Trinidad and Tobago and Jamaica — have the highest number of years with a female head of state at five and four respectively. Dominica and the British Virgin Islands, with three and two years respectively, rank at a medium level of implementation. All other members have never had a female head of state. A female leader thus appears to have a positive predictive effective on higher implementation by 2014.

Female Parliamentarians

The seventh and final gender variable is the percentage of parliamentary seats held by women in 2014. Members with the highest percentage are Grenada at 33.3% and Guyana at 31.3%, which have high implementation rates but are not among the top-implementing members. Trinidad and Tobago and Barbados, two of the top-implementing members have high percentages at 28.6% and 16.7%. And Belize, the member with the lowest percentage of parliamentary seats held by women ranks at the lower middle end of the implementation scale. Data was unavailable for six of the 20 members. Nonetheless, a higher portion of female parliamentarians predicts higher implementation by 2014.

6. Recommendations

This analysis offers several substantial conclusions about predictors of implementation (see Appendix G). They provide a basis for offering several recommendations in regard to future research, a revised UN-compatible, gender-sensitive NCD evaluation grid, and actions to strengthen the implementation of POSS and UNHLM NCD commitments.

Recommendations for Further Research

1. Definitive Indictors for POSS Implementation

The first recommendation is to obtain, produce and verify detailed definitions of each of the 26 indicators and assess how they are commonly understood, applied and reported on by the relevant individuals in each of the 20 CARICOM members every year. Developing confidence in the quality, integrity and comparability of the indicator data set is important in determining how much and which forms of quantitative analysis are appropriate for assessing the patterns and predictors of implementation it has.

2. Detailed Data Sets on Tobacco and CWD

The second recommendation, to further confirm the reliability and validity of the indicator core data, is to follow the 2011 study by taking a more detailed look at the critical indicators of FCTC implementation (now disaggregated into in the critical components of smoke free place, taxes, advertisement and labelling) and CWD participation (now disaggregated into two components).

3. Compliance Assessments for POSS Commitments

The third recommendation is to conduct and complete as soon as possible compliance assessments for each of the 27 POSS commitments, including commitment #20 on gender, according to the methodology developed by the G8 Research Group since 1996. This will help verify the validity of the indicator data in cases where commitments have a corresponding indicator, provide data on the commitments with no corresponding indicator (notably the single gender commitment) and on the critical first POSS year where the indicator data is incomplete and not fully reliable. It is also necessary for Objective Five, on the POSS implementation by international institutions, as six of the 27 POSS commitments require compliant implementing action by both CARICOM members and by mandated international institutions.

4. Additional Predictors

The fourth recommendation is to identify additional possible predicators, develop data sets on each and match them to the implementation data on the indicators. A list of the most important additional predictors would be based on the results of those seen as most powerful in the previous current studies. This should begin with updated member-specific data on the NCD risk factors of tobacco use, cholesterol, obesity and BMI.

5. Detailed Bivariate Analysis

The fifth recommendation is to develop the current bivariate analysis on a more detailed basis, by expanding the number of observations used. The vulnerability of each member to a specific risk factor such as tobacco should be matched with its implementation on the substantively similar indicator(s). The cumulative implementation data by 2014 could have added implementation data by each year and matched with the predictors where annual data is available.

6. Multivariate Analysis

The sixth recommendation is to move to multivariate analysis, in order to assess the relative predictive strength of several possible predictors. Such a move depends importantly on developing greater confidence in the indicator implementation data set, as outlined in recommendation one. The ultimate goal would be to conduct a large N regression analysis simultaneously testing the relative salience of all measureable causes in changing the implementation achieved, over the 3,640 observations potentially available. Here standard tests of statistical significance would be applied as appropriate to the particular regression analysis formula employed.

7. Non-CARICOM Comparators

The seventh recommendation is to assemble and compare the data on both implementation and predictors from countries/territories which are not CARICOM members but which are comparable in other respects. This could start with the Dominican Republic. At some point Cuba could be relevant too.

8. Detailed Process Tracing

The eighth recommendation is to conduct a detailed process tracing, using the evidence produced by colleagues conducting the relevant interviews for the project as a whole, to specify how each of the possible predictors that appear well matched to implementation might be connected step by step to the particular implementation level observed (see Objective 3). This will include “the factors promoting and hindering success in policy formulation and implementation.”

Recommendation for a Revised Grid

9. A POSS Evaluation Grid Compatible with the UN Aimed at a Single Set

The ninth recommendation is to develop a strengthened POSS evaluation grid that is increasingly compatible with and that ultimately could be fused with the PAHO, WHO and UN

ones. It should contain gender indicators. An initial step is to determine how best to assess implementation of the UNHLM-NCD 2011 commitments, both by compliance and by indicators.

Recommendation for Improving POSS Implementation

10. A POSS Plus Ten Summit

The tenth recommendation is to develop a strategy to shape a POSS plus Ten (POSS+10) summit, to help complete the implementation of the 2007 one and to address other NCD and health challenges that have emerged since. Such a strategy would need to take account of the relevant UN summits and their commitments, including the set of Sustainable Development Goals to be launched at the UN Summit in September 2015.

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Appendix A-1: The Systemic Hub Model of Summit Governance

A. Dimensions of Performance

Domestic political management

Deliberation

Direction setting

Decision making

Delivery (compliance)

Development of global governance

Distinctive mission done

Deaths delayed

B. Causes of Performance

Shock-activated vulnerability

Multilateral organizational failure

Predominant equalizing capability

Common political characteristics and principles

Political cohesion

Constricted club participation at a network hub

Appendix A-2: List of Variables

Implementation

1. Cumulative level by 2014
2. Indicator-specific implementation (26)
3. Member-specific implementation (20)
4. Time-specific implementation (7)

Predictors

Indicator-Specific Predictors

a. Constricted club participation at the hub
    1. Compliance Catalysts
    2. CARICOM NCD conclusions, 2007-2014
    3. CARICOM NCD conclusions by indicator subject, 2008-2014
    4. Surrounding summit support, Summit of the Americans (SOA) and Commonwealth Heads of Government Meeting (CHOGM) NCD conclusions

b. Multilateral organizational failure
    1. UNHLM NCD commitments, 2011

Member-Specific Predictors

a. Shock-activated vulnerability
    1. BMI
    2. Blood pressure
    3. Cholesterol
    4. Tobacco use
    5. Cardiovascular disease mortality
    6. Cancer mortality
    7. Diabetes mortality
    8. Respiratory illness

b. Predominant equalizing capability
    1. GDP, 2014 (overall exchange rate)
    2. GDP, 2014 (purchasing power parity)

3. Population, 2014
4. GDP per capita, 2014 (purchasing power parity)
5. Income level, 2015
6. Hospital beds, years vary as indicated

c. Common political characteristics and principles
    1. Constitutional health clauses
d. Political cohesion
    1. Leader presence at POSS
    2. Leader continuity, years in power
    3. Leader competence on NCDs, medical background

Time-Specific Predictors

a. Shock-activated vulnerability
    1. CARICOM summit recognized shocks and vulnerabilities, 2006-2013
    2. World oil prices, 1975-2014

Gender-Specific Predictors

a. Shock-activated vulnerability
    1. CVD mortality (M/F)
    2. Cancer mortality (M/F)
    3. Diabetes mortality (M/F)
    4. Respiratory illness (M/F)
    6. Blood pressure (M/F)
    7. Cholesterol (M/F)
    8. Tobacco use (M/F)
b. Predominant equalizing capability
    1. Labour force participation, % of adult population, 2012 (F/M)
    2. Percentage of females in tertiary level education, 2006-2012
c. Political cohesion
    1. Gender of leader, 2014
    2. Overall number of years with female leader, 2006-2014
    3. Percentage of parliamentary seats, 2014 (F/M)

Appendix B-1: Cumulative Implementation of Indicator by Category

NCD Progress Indicator	Indicator Average (+0.16)
COMMITMENT	
NCD Plan	0.55
NCD budget	-0.10
NCD Summit convened	0.45
Multi-sectoral NCD Commission appointed and functional	0.20
General Average	+0.28
TOBACCO (4)	
FCTC ratified	0.87
Tobacco taxes >50% sale price	0.00
Smoke Free indoor public places	0.35
Advertising, promotion and sponsorship bans	-0.25
Tobacco Average	
NUTRITION	
Multi-sector Food and Nutrition plan implemented	0.47
Trans fat free food supply	-0.83
Policy and standards promoting healthy eating in schools	0.16
Trade agreements for national food security/health goals	-0.79
Mandatory labelling of packaged foods for nutrition content	-0.63
Nutrition Average	
PHYSICAL ACTIVITY	
Mandatory PA in all grades in schools	0.28
Mandatory provision for PA in new housing developments	-0.53
Ongoing, mass Physical Activity or New public PA spaces	0.68
Physical Activity Average	
EDUCATION / PROMOTION	
NCD Communications plan	-0.10
CWD multi-sectoral, multi-focal celebrations	0.80
≥50% of public and private institutions with physical activity and healthy eating programmes	-0.59
≥30 days media broadcasts on NCD control/year	0.11
Education/promotion average	
SURVEILLANCE (4)	
Surveillance: STEPS or equivalent survey	0.50
Minimum data set reporting	0.55
Global Youth Tobacco Survey	0.65
Global School Health Survey	0.65
Surveillance average	
TREATMENT	
Chronic Care Model/NCD protocols in ≥ 50% PHC facilities	0.10
QOC CVD or diabetes demonstration project	0.30
Treatment Average	
Overall Average	0.16

Appendix B-2: Cumulative Implementation of Indicator by 2014

Indicator	Full Implementation (+1.00)	Partial Implementation (0)
Caribbean Wellness Day (education/promotion)	85%	10%
Global youth tobacco survey (surveillance)	80%	5%
Global school health survey	80%	5%
Physical activity/new public spaces (physical activity)	75%	5%
NCD summit convened (general commitment)	70%	5%
FCTC ratification (tobacco)	70%	0%
Minimum data set reporting (surveillance)	70%	15%
Surveillance: STEPS (surveillance)	65%	20%
NCD Plan (general commitment)	65%	15%
Multi-sector food and nutrition plan implemented	60%	15%
Smoke free indoor public places	55%	20%
QOC CVD or diabetes demonstration project	50%	35%
Multi-sectoral NCD Commission appointed and functional	45%	35%
Mandatory PA in all grades in schools	45%	25%
Tobacco taxes >50% sale price	40%	15%
>30 days media broadcasts on NCD control/year (risk/treat)	40%	20%
NCD budget	40%	10%
Advertising, promotion and sponsorship bans	30%	15%
Policy/standards promoting healthy eating in schools	30%	50%
Chronic Care Model/NCD treatment protocols in	30%	10%
NCD Communications plan	25%	40%
Mandatory provision for PA in new housing developments	15%	5%
Trade agreements for food security and health	5%	10%
Trans-fat free food supply	0%	15%
Mandatory labelling of packaged foods for nutrition	0%	45%
Half of institutions with physical activity/healthy eating	0%	35%

Note: Compiled by John Kirton, February 2015.

Appendix B-3: Implementation by Member, 2008-2014

Rank	Country	2008	2009	2010	2011	2012	2013	2014	Speed
1	Barbados	5	9	16	19	20	20	20	5
2	Trinidad and Tobago		13	17	19	19	19	19	4
3	Jamaica	11	12	15	16	17	17	18	7
4	Bahamas		7	9	10	13	17	17	6
5	Grenada		8	10	11	16	16	16	5
6	Cayman Islands		6	6	11	15	15	16	7
7	Guyana	6	12	14	14	15	15	15	5
8	St Lucia		6	12	13	14	15	15	6
9	Suriname	4	4	8	9	12	14	15	7
10	Antigua		4	9	11	14	14	14	5
11	Bermuda		11	10	11	12	12	12	5
12	British Virgin Islands	2	6	10	11	11	11	11	4
13	Dominique	5	5	8	11	11	11	11	4
14	Belize	3	7	7	8	9	9	9	5
15	St. Kitts and Nevis		5	5	8	12	9	8	7
16	St. Vincent and the Grenadines	3	4	7	7	7	7	7	3
17	Anguilla		4	3	3	4	4	5	7
18	Montserrat	1	3	2	2	2	3	2	3
19	Turks and Caicos Islands	1	3	2	2		2	2	3
20	Haiti			1	1	1	1	1	3
Speed = N of years from 2007 to hit the highest level the country achieved									

Notes: Compiled by Caroline Bracht, March 2015. Number in cell is the number of commitments/indicators fully implemented by the country that year (of the 26 indicators available).

Appendix B-4: Implementation by Indicator, 2008-2014

	NCD Progress Indicator	2008	2009	2010	2011	2012	2013	2014
General Commitment								
1	NCD Plan	5	35	45	55	68	65	65
2	NCD budget			10	20	42	40	40
3	NCD Summit convened	15	30	35	50	63	70	70
4	Multi-sectoral NCD Commission Appointed and functional	10	35	35	35	42	45	45
5	NCD Communications plan	0	15	15	20	21	20	25
Tobacco								
6	FCTC ratified	30	60	65	70	74	70	70
7	Tobacco taxes >50% sale price	5	20	20	20	32	30	40
8	Smoke Free indoor public places	5	35	45	45	47	50	55
9	Advertising, promotion and sponsorship bans	0	25	25	30	32	35	30
Nutrition								
10	Multi-sector Food and Nutrition plan implemented	0	60	60	60	63	60	60
11	Trans fat free food supply			0	0	0	0	0
12	Policy and standards promoting healthy eating in schools implemented	0		20	20	32	30	30
13	Trade agreements utilized to meet national food security and health goals			5	5	5	5	5
14	Mandatory labelling of packaged foods for nutrition content			0	0	0	0	0
Physical Activity								
15	Mandatory PA in all grades in schools			20	30	37	45	45
16	Mandatory provision for PA in new housing developments			10	10	11	15	15
17	Ongoing, mass Physical Activity or New public PA spaces	10	55	60	75	79	75	75
Education/Promotion								
18	CWD multi-sectoral, multi-focal celebrations	0	95	95	95	95	95	85
19	≥50% of public and private institutions with physical activity and healthy eating programmes			0	0	0	0	0
20	≥30 days media broadcasts on NCD control/year (risk factors and treatment)			30	35	47	40	40
Surveillance								
21	Surveillance: — STEPS or equivalent survey	20	45	35	45	58	60	65
22	- Minimum Data Set reporting	5	10	25	65	79	70	70
23	- Global Youth Tobacco Survey	45	70	70	70	79	75	80
24	- Global School Health Survey	15	45	55	60	84	80	80
25	Chronic Care Model / NCD treatment protocols in ≥ 50% PHC facilities	5	15	25	25	37	30	30
26	QOC CVD or diabetes demonstration project	10	35	45	45	53	50	50

Notes: Compiled by Caroline Bracht, January 16, 2014. All numbers are percentages of members who have fully implemented the indicator. Empty space indicates no data available. 2012 is based on 19 countries while the rest of the years are based on 20 countries.

Appendix C-1: POS Commitment Compliance Catalysts

	Indicator	Average	Speed	Commit-ment	Text	Catalyst	Total Catalysts
1	CWD multi-sectoral, multi-focal celebrations	85%	2	27	We hereby declare the second Saturday in September "Caribbean Wellness Day"	Target	1
2	Global Youth Tobacco Survey	80%	2	25	[we declare] That we will establish, as a matter of urgency, the programmes necessary for research and surveillance of the risk factors for NCDs with the support of our Universities and the Caribbean Epidemiology Centre/Pan American Health Organisation (CAREC/PAHO);	surveillance, specified agent, core international organization, international organization surveillance	4
3	Global School Health Survey	80%	3	25	[we declare] That we will establish, as a matter of urgency, the programmes necessary for research and surveillance of the risk factors for NCDs with the support of our Universities and the Caribbean Epidemiology Centre/Pan American Health Organisation (CAREC/PAHO);	surveillance, specified agent, core international organization, international organization surveillance	4
4	Ongoing, mass physical activity or new public PA spaces	75%	2	18 and 19	[we declare] That we will promote policies and actions aimed at increasing physical activity in the entire population, e.g. at work sites, through sport, especially mass activities, as vehicles for improving the health of the population and conflict resolution #19 in this context we commit to increasing adequate public facilities such as parks and other recreational spaces to encourage physical activity by the widest cross-section of our citizens;		0
5	FCTC ratified	70%	2	2	[We declare] Our commitment to pursue immediately a legislative agenda for passage of the legal provisions related to the International Framework Convention on Tobacco Control;	international law	1
6	NCD summit convened	70%	4				
7	Minimum data set reporting	70%	4	25	[we declare] That we will establish, as a matter of urgency, the programmes necessary for research and surveillance of the risk factors for NCDs with the support of our Universities and the Caribbean Epidemiology Centre/Pan American Health Organisation (CAREC/PAHO);	surveillance, specified agent, core international organization, international organization surveillance	4
8	Surveillance: STEPS or equivalent survey	65%	5	25	[we declare] That we will establish, as a matter of urgency, the programmes necessary for research and surveillance of the risk factors for NCDs with the support of our Universities and the Caribbean Epidemiology Centre/Pan American Health Organisation (CAREC/PAHO);	surveillance, specified agent, core international organization, international organization surveillance	4
9	NCD plan	65%	4				
10	Multi-sector food and nutrition plan implemented	60%	2				

	Indicator	Average	Speed	Commit-ment	Text	Catalyst	Total Catalysts
11	Smoke free indoor public spaces	55%	6	3	[we] support the immediate enactment of legislation to limit or eliminate smoking in public places,		0
	Highest average	73%	3.25				2.25
12	QOC CVD or diabetes demonstration project	50%					
13	Multi-sectoral NCD commission appointed and functional	45%					
14	Mandatory PA in all grades in schools	45%		11 & 12	[we declare] That we will mandate the re-introduction of physical education in our schools where necessary, #12 [we declare that we will] provide incentives and resources to effect [the re-introduction of physical education in our schools]		0
15	Tobacco taxes greater than 50% sale price	40%		8	[we will] introduce such fiscal measures as will reduce accessibility of tobacco;		0
16	NCD budget	40%					
17	Greater than or equal to 30 days media broadcasts on NCD control/year (risk factors/treatment)	40%		24	[we will] embrace the role of the media as a responsible partner in all our efforts to prevent and control NCDs;	civil society	1
18	Advertising, promotion and sponsorship bans	30%		5 & 6	[we support the immediate enactment of legislation to] ban the advertising [of tobacco products to children] #6 [we support the immediate enactment of legislation to] ban the promotion [of tobacco products to children]		0
19	Chronic care model/NCD treatment protocols in more than 50% PHC facilities	30%					
20	Policy and standards promoting healthy eating in schools implemented	30%		13	[we will] ensure that our education sectors promote programmes aimed at providing healthy school meals and promoting healthy eating;		0
21	NCD Communications plan	25%					
22	Mandatory provision for PA in new housing developments	15%					
23	Trade agreements utilized to meet national food security and health goals	5%		16	[we declare] Our support for the efforts of the Caribbean Regional Negotiating Machinery (CRNM) to pursue fair trade policies in all international trade negotiations thereby promoting greater use of indigenous agricultural products and foods by our populations and reducing the negative effects of globalisation on our food supply;	specified agent	1

	Indicator	Average	Speed	Commit-ment	Text	Catalyst	Total Catalysts
24	Trans fat free food supply	0%		15	[we declare] our strong support for the elimination of trans-fats from the diet of our citizens, using the CFNI as a focal point for providing guidance and public education designed toward this end;	specified agent	1
25	Mandatory labelling of packaged foods for nutrition content	0%		17	[we declare] Our support for mandating the labelling of foods or such measures as are necessary to indicate their nutritional content through the establishment of the appropriate regional capability;		0
26	more than 50% of public and private institutions with physical activity and health eating programs.	0%					
	Average Lowest	24%					0.38
	Average Overall	48%					1.30

Notes: The AVE column reports the percentage of CARICOM members that have implemented the indicator based on 2014 data. In this analysis the catalyst "core international organization" is PAHO as it is the most central and external issue specific multilateral organization as the regional organization of the World Health Organization. Speed indicates the number of years it took for the indicator to be implemented by 50% of the CARICOM member.

Appendix C-2: CARICOM Summit Conclusions NCD References, 2008-2014

Year	# of Words	% of Total Words	# of Paragraphs	% of Total Paragraphs	# of Documents	% of Total Documents	# of Dedicated Documents
2008 July Antigua	111	TBD	1	TBD	TBD	TBD	TBD
2009 July Guyana	146	TBD	1	TBD	TBD	TBD	TBD
2010 July Jamaica	313	TBD	5	TBD	TBD	TBD	TBD
2011 June St. Kitts and Nevis	136	TBD	3	TBD	TBD	TBD	TBD
2012 July St. Lucia	0	TBD	0	TBD	TBD	TBD	TBD
2013 Trinidad and Tobago	180	TBD	2	TBD	TBD	TBD	TBD
2014 Antigua and Barbuda	77	TBD	1	TBD	TBD	TBD	TBD
Total	886	TBD	12	TBD	TBD	TBD	TBD
Average	148	TBD	2	TBD	TBD	TBD	TBD

Notes: Compiled by Julia Kulik, Caroline Bracht and John Kirton, February 27, 2015. TBD=To be determined. Data are drawn from all official documents released by CARICOM leaders as a group. Charts are excluded. # Words is the number of words in NCD–related passages, excluding document titles and references. The unit of analysis is the paragraph. % Total Words refers to the total number of words in all documents issued by the summit. # Paragraphs is the number of paragraphs containing references to NCDs for the summit. Each point is recorded as a separate paragraph. % Total Paragraphs refers to the total number of paragraphs in all documents for the summit. # Documents refers to documents containing references to NCDs and excludes dedicated documents. % Total Documents refers to the total number of documents for the summit. # Dedicated Documents refers to total number of documents dedicated to NCDs issued by the summit.

Appendix C-3: CARICOM Summit NCD Conclusions by Indicator Subject, 2008-2014

Commitment/Indicator	2008	2009	2010	2011	2012	2013	2014	Total
NCD General	1	0	0	0	0	2	1	4
POS	2	1	1	1	0	0	0	5
CWD	2	1	1	1	0	0	0	5
Tobacco	1	0	0	1	0	0	0	2
Salt	1	0	0	0	0	0	0	1
Fat	1	0	0	0	0	0	0	1
Exercise	1	0	0	0	0	0	0	1
Blood Pressure	1	0	0	0	0	0	0	1
Hypertension	1	0	0	0	0	0	0	1
Diabetes	1	0	0	1	0	0	0	2
Cardiovascular Disease	1	0	0	1	0	0	0	2
Obesity	1	0	0	0	0	0	0	1
Governments	1	0	0	0	0	0	0	1
Private Sector	1	0	0	0	0	0	0	1
Labour	1	0	0	0	0	0	0	1
Individuals	1	0	0	0	0	0	0	1
Nassau Declaration	0	1	2	0	0	0	0	3
Regional Health Strategy	0	1	0	0	0	0	0	1
Identified Projects	0	1	0	0	0	0	0	1
Donor Forum	0	1	0	0	0	0	0	1
CARPHA	0	1	2	0	0	1	0	4
Trinidad and Tobago (Host)	0	1	0	0	0	0	0	1
Six Super Priorities	0	1	0	0	0	0	0	1
National Level	0	1	0	0	0	0	0	1
Caribbean Cooperation in Health Initiative	0	0	1	0	0	0	0	1
PANCAP	0	0	1	0	0	1	0	2
CARICOM Ambassadors to the UN	0	0	1	0	0	0	0	1
UNHLM	0	0	3	1	0	0	0	4
Caribbean Community's Peoples	0	0	1	2	0	0	0	3
Conference in 2008	0	0	1	0	0	0	0	1
UN	0	0	0	1	0	0	0	1
Chronic Respiratory Illness	0	0	0	1	0	0	0	1
Cancer	0	0	0	1	0	0	0	1
Diet	0	0	0	1	0	0	0	1
Physical Inactivity	0	0	0	1	0	0	0	1
Alcohol Use	0	0	0	1	0	0	0	1
Risk Factor Reduction	0	0	0	1	0	0	0	1
Health Systems Reform	0	0	0	1	0	0	0	1
Access to Medicines	0	0	0	1	0	0	0	1
Surveillance, Monitoring and Evaluation	0	0	0	1	0	0	0	1
Regional Development Agenda	0	0	0	0	0	1	0	1
Development Partners	0	0	0	0	0	1	0	1
Development Banks	0	0	0	0	0	1	0	1
Suriname Tobacco Legislation	0	0	0	0	0	1	0	1
Jamaica Tobacco Legislation	0	0	0	0	0	1	0	1
St. Kitts Health Advocacy	0	0	0	0	0	1	0	1
Total	18	10	14	18	0	10	1	71

Note: Compiled by Julia Kulik, March 4, 2015. Data is drawn from the NCD-related passages in the CARICOM Summit Communiqués and indicates the number of references to the commitment/indicator. The unit of analysis is the sentence.

Appendix C-4: Surrounding Summit NCD Conclusions

Summit of the Americas

Year	# words	Total # words	% words	# paragraphs	Total # paragraphs	% paragraphs	# documents	% documents	# dedicated documents
2009	391	9,367	4.2%	4	97	4%	1	100%	0
2012	0	1,447	0%	0	35	0%	0	0%	0

Note: Compiled by Caroline Bracht, March 2, 2015. Data are drawn from all official documents released at the Summit of the Americas by the leaders as a group. Charts are excluded. # Words is the number of words in NCD–related passages, excluding document titles and references. The unit of analysis is the paragraph. % Total Words refers to the total number of words in all documents issued by the summit. # Paragraphs is the number of paragraphs containing references to NCDs for the summit. Each point is recorded as a separate paragraph. % Total Paragraphs refers to the total number of paragraphs in all documents for the summit. # Documents refers to documents containing references to NCDs and excludes dedicated documents. % Total Documents refers to the total number of documents for the summit. # Dedicated Documents refers to total number of documents dedicated to NCDs issued by the summit.

Commonwealth Heads of Government Meeting

Year	# words	% words	# paragraphs	% paragraphs	# documents	% documents	# dedicated documents
1995	0	0	0	0	0	0	0
1997	0	0	0	0	0	0	0
1999	0	0	0	0	0	0	0
2002	0	0	0	0	0	0	0
2003	0	0	0	0	0	0	0
2005	0	0	0	0	0	0	0
2007	49	0.56	1	0.9	1	100	0
2009	176	1.84	1	0.86	1	100	0
2011	73	0.84	1	3	1	67	0
2013	249	2.8	2	2	1	100	0
Average	54.7	0.604	0.5	0.676	0.4	36.7	0

Note: Compiled by Julia Kulik, March 6, 2015. Data are drawn from all official documents released by the Commonwealth Heads of Government Meeting by the leaders as a group. Charts are excluded. # Words is the number of words in NCD–related passages, excluding document titles and references. The unit of analysis is the paragraph. % Total Words refers to the total number of words in all documents issued by the summit. # Paragraphs is the number of paragraphs containing references to NCDs for the summit. Each point is recorded as a separate paragraph. % Total Paragraphs refers to the total number of paragraphs in all documents for the summit. # Documents refers to documents containing references to NCDs and excludes dedicated documents. % Total Documents refers to the total number of documents for the summit. # Dedicated Documents refers to total number of documents dedicated to NCDs issued by the summit.

Appendix C-5: POSS-UNHLM Commitment Matching

POSS Indicator	United Nations High Level Meeting on Non-communicable Diseases 2011	
	# matched commitments	Matching commitments
General	**7**	
NCD Plan	2	91, 92
NCD Budget	5	106, 107, 108, 109, 110
NCD Summit	0	
NCD Commission	0	
Tobacco	**10**	
FCTC Ratified	7	1, 9, 17, 25, 33, 41, 68
Tobacco Taxes	3	13, 29, 45
Smoke Free Places	0	
Tobacco Ad Bans	0	
Nutrition	**6**	
Nutrition Plan	0	
Transfat Free Food	2	75, 79
School Eating	3	6, 22, 38
Trade for Food	1	81
Food Labelling	0	
Physical Activity	**3**	
Schools PA	3	7, 23, 39
Housing PA	0	
PA Activity/Spaces	0	
Education/Promotion	**10**	
Communication Plan	9	54, 56, 57, 59, 61, 62, 64, 66, 67
Wellness Celebration	0	
Institutions PA/Eating	1	69
Media Broadcasts	0	
Surveillance	**0**	
STEPS Survey	0	
Data Reporting	0	
Youth Tobacco Survey	0	
School Health Survey	0	
Treatment	**12**	
Healthcare Facilities	12	97, 98, 99, 100, 101, 102, 103, 104, 105, 130, 133, 134
QOC-CVD/Diabetes	0	

Note: Compiled by John Kirton and Caroline Bracht, April 7, 2015. None: 2, 3, 4 (alcohol), 5, 8, 10, 11, 12, 14, 15, 16, 18, 19, 20, 21, 24, 26, 27, 28, 30, 31, 32, 34, 35, 36, 37, 40, 42, 43, 44, 46, 47, 48, 49, 50, 51, 52, 53, 55, 58, 60, 65, 63, 70, 71, 72, 73, 74, 76, 77, 78, 80, 82, 83, 84, 85, 86, 87, 88, 89, 90, 93, 94, 95, 96, 111, 112, 113, 114, 115, 116, 117, 118, 119, 120, 121, 122, 123, 124, 125, 128, 129, 131, 132, 135, 136, 137, 138, 139, 140, 141, 142, 143, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155, 156, 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183, 184, 185, 186, 187, 188, 189, 190, 191, 192, 193, 194, 195, 196, 197, 198, 199, 200, 201, 202, 203, 204, 205. UN HLM commitment categorization had two main steps. The first key word in the commitment identified the relevant category. The second key word in the commitment text indicated the indicator within that category and whether or not there was a match. Missing data: Commitments 126, 127, 144.

Appendix D-1: CARICOM NCD Vulnerabilities by Country, 2010

	Body Mass Index[a]	Blood Pressure[b]		Cholesterol[c]		Tobacco[d]		Diabetes Incidence % [s]	Cancer		Hassel Compliance Rank	UWI Compliance Rank
		Male	Female	Male	Female	Male	Female		Incidence[t]	Mortality [t]		
						Combined						
Antigua and Barbuda	26.1	124.6	123.0	5.5	5.5	14.4%[e]		7.1			8	16
Bahamas	26.6	139.2	142.4	5.7	5.7	18.6%[f]		10.2	511	296	11	11
Barbados	29.0	123.6	119.0	5.5	5.5	17.4%	3.5%	9.2	758	456	4	1
Belize	25.4	124.6	123.0	5.3	5.3	10.2%[g]		7.9	226	147	13	13
Dominica	28.5[h]	124.6	123.0	5.3	5.3	20.5%[i]		11.5			14	4
Grenada	25.8	124.6	123.0	5.4	5.4	16.4%		8.5			9	8
Guyana	24.8[j]	124.6	123.0	5.2	5.2	10.1%[k]		10.2	1079	653	3	5
Haiti	22.4[l]	122.4[m]	120.7[m]	5.0	5.0	18.5%[n]		5.9	8414	5360	20	19
Jamaica	26.3[o]	NA	NA	5.2	5.2	28.0%	16.3%	10.2	5063	3151	1	7
St. Lucia	25.9[p]	126.8	122.2	5.3	5.3	28.9%[q]	12.3%[q]	9.3			10	9
St. Kitts and Nevis	26.1	124.6	123.0	5.5	5.5	20.4%[r]	15.7%[r]	9.0			18	12
St. Vincent and the Grenadines	25.5	124.6	123.0	5.3	5.3	19.3%[q]	6.1%[q]				17	17
Suriname	25.2	124.6	123.0	5.2	5.2	NA		10.3	676	376	7	15
Trinidad and Tobago	28.6	128.4	123.3	6.1	6.0	35.9%[q]	7.8%[q]	11.4	2080	1358	2	2
Average	26.16	125.94	123.97	5.39	5.39	16.86%		9.28	2350.9	1474.6		

Notes: Compiled by Jenilee Guebert, 2010. World Health Organization 2011. WHO Global Infobase. <apps.who.int/infobase> (February 2011). Data unavailable for the members and associates not listed. [a] Unit of measure = mean body mass index kg/m², sample age = 15–100. Figures given are from 2010 and include both sexes unless otherwise noted. [b] Unit of measure = mmHg, systolic blood pressure. Sample age = 15–100. Figures given are from 2010 unless otherwise noted. [c] Unit of measure = mmol/l total cholesterol, sample age = 15–100. Figures given are from 2010 unless otherwise noted. [d] Unit of measure = current user, all tobacco products, sample age = 13–15. Figures given are from 2010 unless otherwise noted. [e] Data from 2004. [f] Data from 2000. [g] Sample age is 20–100. Data from 2006. [h] Sample is females aged 20–55. Data from 1997. [i] Data from 2000. [j] Sample age is 20–100. Data from 1997. [k] Data from 2004. [l] Sample is females aged 15–49. Data from 2006. [m] Sample age is 18-100. Data from 2000. [n] Data from 2001. [o] Sample age is 25–74. Data from 1996. [p] Sample age is 25–100. Data from 1994. [q] Sample age is 15–100. [r] Data from 2002. [s] Data from 2010 [t] Data from 2008. Diabetes information: from International Diabetes Federation http://www.diabetesatlas.org/map. Cancer incidence includes all cancers excl. non-melanoma skin cancer, data is from http://globocan.iarc.fr/.

Appendix D-2: Mortality Rates from NCDs

Country	Indicators implemented of 26	Scientific Score	Cardiovascular Disease			Cancer			Diabetes			Respiratory Illness			Year
			All	M	F	All	M	F	All	M	F	All	M	F	
Barbados	20	0.62	708	324	384	526	248	278	206	77	129	75	38	37	2011
Trinidad and Tobago	19	0.62	3,206	1,691	1,515	1,386	748	638	1,343	666	677	277	172	105	2009
Jamaica	18	0.6	4,544	2,108	2,436	2,758	1,584	1,174	1,696	633	1,063	531	376	155	2006
Bahamas	17	0.46	706	353	353	389	209	180	86	38	48	51	30	21	2011
Cayman Islands	15	0.42	43	21	22	32	21	11	6	2	4	4	0	4	2010
Grenada	15	0.38	281	136	145	177	102	75	94	34	60	13	8	5	2012
Guyana	15	0.56	1,949	1,016	933	484	215	269	481	204	277	73	47	26	2011
St. Lucia	15	0.35	364	170	194	247	130	117	85	36	49	37	26	11	2012
Antigua and Barbuda	14	0.2	169	85	84	97	56	41	37	17	20	17	10	7	2012
Suriname	14	0.31	802	421	381	354	189	165	206	93	113	71	44	27	2012
Bermuda	12	0.41	122	59	63	134	76	58	19	12	7	22	11	11	2010
British Virgin Islands	11	0.17	23	17	6	16	11	5	10	6	4	4	0	4	2010
Dominica	11	0.12	237	112	125	104	60	44	53	17	36	19	13	6	2012
Belize	9	-0.04	326	193	133	173	79	94	148	65	83	70	46	24	2010
St. Kitts and Nevis	8	0.08	110	44	66	57	30	27	33	14	19	5	4	1	2012
St. Vincent and the Grenadines	7	-0.08	301	146	155	132	77	55	104	50	54	26	21	5	2012
Anguilla	5	0.44	18	6	12	16	10	6	7	3	4	3	3	0	2012
Montserrat	2	-0.42	13	9	4	9	7	2	8	5	3	2	1	1	2012
Turks and Caicos Islands	2	-0.67	18	12	6	8	3	5	1	0	1	2	1	1	2009
Haiti	1	-0.82	416	181	235	98	51	47	80	28	52	23	7	16	2004
All (N=20)			14,356	7,104	7,252	7,197	3,906	3,291	4,703	2,000	2,703	1,325	858	467	
Average (N = 20)			718	355	363	360	195	165	235	100	135	66	43	23	

Notes: Compiled by John Kirton, Madeline Koch and Caroline Bracht, April 10, 2015. Source: http://www.paho.org/hq/index.php?option=com_content&view=article&id=10169:deaths-due-to-noncommunicable-diseases-in-countries-of-the-americas&Itemid=41161&lang=en

Appendix D-3: CARICOM Relative Capabilities by Country

Country	2014 Implementation		Capabilities					Specialized Capabilities
	Level	Speed	GDP (OER)	GDP (PPP)	Population	GDP Per Capita (PPP)	Income Level	Hospital Beds
Barbados	20	5	4.26 b	7.00 b	289,680	25,100	High	6.6 (2010)
Trinidad and Tobago	19	4	27.1 b	27.1 b	1,223,916	20,300	High	2.1 (2010)
Jamaica	18	7	14.4 b	25.1 b	2,930,050	9,000	Upper middle	1.8 (2010)
Bahamas	17	6	8.37 b	11.4 b	321,834	32,000	High	3.1 (2010)
Grenada	16	5	800 m	1.46 b	110,152	13,800	Upper middle	3.5 (2011)
Cayman Islands	16	7	2.25 b	2.25 b	54,914	43,800	High	N/A
Guyana	15	5	3.02 b	6.59 b	735,554	8,500	Lower middle	2 (2009)
St. Lucia	15	6	1.38 b	2.22 b	163,362	13,100	Upper middle	1.6 (2011)
Suriname	15	7	5.01 b	7.12 b	573,311	12,900	Upper middle	3.1 (2010)
Antigua	14	5	1.22 b	1.61 b	91,295	18,400	High	2.1 (2011)
Bermuda	12	5	5.60 b	5.60 b	69,839	86,000	High	N/A
British Virgin Islands	11	4	1.01 b	500 m	32,680	42,300	N/A	N/A
Dominica	11	4	495 m	1.02 b	73,449	14,300	Upper middle	3.8 (2011)
Belize	9	5	1.64 b	3.08 b	340,844	8,800	Upper middle	1.1 (2011)
St. Kitts and Nevis	8	7	767 m	952 m	51,538	16,300	High	4.8 (2011)
St. Vincent and the Grenadines	7	3	742 m	1.34 b	102,918	12,100	Upper middle	2.7 (2011)
Anguilla	5	7	175 m	175 m	16,086	12,200	N/A	N/A
Montserrat	2	3	N/A	43.8 m	5,215	8,500	N/A	N/A
Turks and Caicos Islands	2	3	N/A	632 m	49,070	29,100	High	N/A
Haiti	1	3	8.29 b	13.4 b	9,996,731	1,300	Low	1.3 (2007)

Notes: Compiled by Julia Kulik March 30, 2015. GDP (OER)-Gross Domestic Product (Official Exchange Rate), GDP (PPP)-Gross Domestic Product Purchasing Power Parity, Pop.-Population, GDP PC (PPP)-Gross Domestic Product Per Capita (Purchasing Power Parity). Source: CIA Factbook, The World Factbook, https://www.cia.gov/library/publications/the-world-factbook/fields/2227.html.

Source: World Bank. Country and Lending Groups. (2015). http://data.worldbank.org/about/country-and-lending-groups#Low_income.

Appendix D-4: Common Political Characteristics and Cohesion

Country	2014 Implementation		Governmental Determinants			
	Level	Speed	Constitution References	Leadership Presence	Current Leadership Continuity	Current Leadership Competence
Barbados	20	5	0	N	5	N
Trinidad and Tobago	19	4	0	N	5	N
Jamaica	18	7	0	N	3	N
Bahamas	17	6	0	N	3	N
Grenada	16	5	0	N/A	2	N
Cayman Islands	16	7	2	N/A	2	N
Guyana	15	5	2	N/A	4	N
St. Lucia	15	6	0	N	4	N
Suriname	15	7	3	N	5	N
Antigua	14	5	0	N	1	N
Bermuda	12	5	0	N/A	1	N
British Virgin Islands	11	4	1	N/A	4	Y
Dominica	11	4	0	Y	11	N
Belize	9	5	1	N/A	7	N
St. Kitts and Nevis	8	7	0	N	>1	N
St. Vincent and the Grenadines	7	3	0	Y	14	N
Anguilla	5	7	N/A	N/A	5	N
Montserrat	2	3	0	N	1	N
Turks and Caicos Islands	2	3	0	N/A	3	Y
Haiti	1	3	2	N/A	4	N

Note: Compiled by Julia Kulik, March 30, 2015. Constitution References = references to the right to health in the member country's constitution; N/A = constitution was unavailable. Leadership Presence = whether the current leader was present at POSS; N/A = minister was sent to POSS. Current Leadership Continuity = the number of years the current leader has been in power; excludes previous years in power if re-elected. Current Leadership Competence = whether current leader has a medical background or has held a health portfolio.

Appendix E-1: CARICOM Summit Recognized Shocks and Vulnerabilities, 2006-2014

Year	# words	% total words	# paragraphs	# SAV references	Shock/Vulnerability Subject	Shock/Vulnerability Type
2008 Antigua	111	TBD	1	0	0	TBD
2009 Guyana	146	TBD	1	0	0	TBD
2010 Jamaica	313	TBD	5	2	climate, global economic	indirect, indirect
2011 St. Kitts and Nevis	136	TBD	3	0	0	TBD
2012 St. Lucia	0	TBD	0	0	0	TBD
2013 Trinidad and Tobago	180	TBD	2	1	healthcare costs	Direct
Total	886	TBD	12	3	Economy = 2, Environment = 1	TBD
Average	148	TBD	2	.5	N/A	TBD

Note: Compiled by John Kirton, February 2015. TBD = To be determined. Data drawn from all official documents released by CARICOM leaders as a group. Charts are excluded. # Words is the number of words in NCD-related passages, excluding document titles and references. The unit of analysis is the paragraph. % Total Words refers to the total number of words in all documents issued by the summit. # Paragraphs is the number of paragraphs containing references to NCDs for the summit. Each point is recorded as a separate paragraph. # SAV References is the number of references to shocks and vulnerabilities within the NCD-related passage. Shock/Vulnerability Subject describes the subject of shock and vulnerability. Shock/Vulnerability Type refers to the directness of the shock to NCD implementation.

Appendix E-2: World Oil Prices

Date	Crude Oil Price	Summit Month	Crude Oil Price
Jan-75	48.55	Nov-75	45.74
Jan-76	45.50	Jun-76	48.57
Jan-77	53.86	Apr-77	52.51
Jan-78	53.86	Jul-78	51.23
Jan-79	49.28	Jun-79	59.88
Jan-80	94.69	Jun-80	108.26
Jan-81	99.00	Jul-81	89.08
Jan-82	81.36	May-82	85.01
Jan-83	72.29	May-83	68.55
Jan-84	66.04	May-84	66.90
Jan-85	55.09	Apr-85	61.09
Jan-86	47.46	Apr-86	26.82
Jan-87	38.04	Jun-87	40.00
Jan-88	33.62	Jun-88	31.75
Jan-89	33.65	Jul-89	35.79
Jan-90	40.28	Jul-90	32.40
Jan-91	42.03	Jul-91	35.65
Jan-92	30.89	Jun-92	36.18
Jan-93	30.33	Jun-93	29.93
Jan-94	23.26	Jul-94	30.01
Jan-95	27.13	Jun-95	27.38
Jan-96	27.72	Jun-96	29.58
Jan-97	35.86	Jun-97	27.11
Jan-98	23.44	May-98	20.69
Jan-99	17.20	Jun-99	24.40
Jan-00	36.50	Jul-00	39.05
Jan-01	38.29	Jul-01	33.78
Jan-02	25.18	Jun-02	32.15
Jan-03	41.09	May-03	34.76
Jan-04	41.94	Jun-04	45.43
Jan-05	55.67	Jun-05	68.09
Jan-06	74.88	Jul-06	82.88
Jan-07	61.11	May-07	69.17
Jan-08	99.81	Jul-08	137.51
Jan-09	44.81	Jul-09	67.46
Jan-10	81.82	Jun-10	78.36
Jan-11	92.04	May-11	100.90
Jan-12	100.39	May-12	89.52
Jan-13	96.40	Jun-13	93.54
Jan-14	94.53	May-14	98.52

Note: Compiled by Julia Kulik, February, 2014. World crude oil prices, US dollars. Source: http://www.macrotrends.net/1369/crude-oil-price-history-chart. For summits that take place in the first week of the month the price of oil from the month prior was used. Summit refers to G7/G8 Summit.

Appendix F: Gender-Specific Indicators

	2014 Implementation		Gender Specific Indicators				
			Gender of Leader		Labour		% of F in TL
Country	Level	Speed	2014	2006-2014 (years)	Force % F/M (2012)	PS % F/M (2014)	edu. (2006-2012)
Barbados	20	5	M	0	65.9/76.7	16.7/83.3	69.1
Trinidad and Tobago	19	4	F	5	52.9/75.5	28.6/71.4	55.4
Jamaica	18	7	F	4	56.1/71.0	12.7/87.3	68.9
Bahamas	17	6	M	0	69.3/79.3	13.2/86.8	N/A
Grenada	16	5	M	0	N/A	33.3/66.7	57.1
Cayman Islands	16	7	M	0	N/A	N/A	68.9
Guyana	15	5	M	0	42.3/80.9	31.3/68.7	66.8
St. Lucia	15	6	M	0	62.6/76.0	16.7/83.3	68.4
Suriname	15	7	M	0	40.4/68.8	11.8/88.2	50.6
Antigua	14	5	M	0	N/A	10.5/89.5	68.0
Bermuda	12	5	M	2	N/A	N/A	66.4
British Virgin Islands	11	4	F	3	N/A	N/A	64.7
Dominica	11	4	M	0	N/A	12.9/87.1	N/A
Belize	9	5	M	0	49.1/82.3	3.1/96.9	62.4
St. Kitts and Nevis	8	7	M	0	N/A	6.7/93.3	67.3
St. Vincent and the Grenadines	7	3	M	0	55.7/78.2	13.87	N/A
Anguilla	5	7	M	0	N/A	N/A	N/A
Montserrat	2	3	M	0	N/A	N/A	N/A
Turks and Caicos	2	3	M	0	N/A	N/A	N/A
Haiti	1	3	M	0	60.6/70.8	4.2/95.8	N/A

Note: Compiled by Julia Kulik, April 7, 2015. Labour Force %=percentage of adult population (Female/Male) in labour force. PS% = Percentage of Parliamentary Seats held by females and males. % of F in TL edu. = percentage of total students that are female in tertiary level education, average from 2006-2012. N/A = Data unavailable. Source: United Nations. World Statistics Pocketbook 2014 Edition. http://unstats.un.org/unsd/pocketbook/WSPB2014.pdf.

Appendix G: Matched Predictors

Substantial Predictors (14)

Commitment catalyst of core international organization

Commitment catalyst of specified agent

Commitment catalyst of surveillance

Commitment catalyst of organization surveillance

CARICOM summit iteration by non-communicable disease

Cardiovascular disease mortality

Cancer mortality

Diabetes mortality

Respiratory illness mortality

Gross domestic product and purchasing power parity

Gross domestic product and official exchange rate

Male mortality from respiratory illness

Female parliamentarians

Females in tertiary education

Smaller Predictors (6)

CARICOM summit iteration of non-communicable diseases overall

Income level

Leaders' recognized shocks

Global oil price shocks

Female mortality from diabetes

Female leaders

No Predictive Match (14)

Compliance catalysts: all others

Health references by the Summit of the Americas

Health References by the Commonwealth Heads of Government Meeting

2011 United Nations High Level Meeting on Non-communicable Diseases compliance on the Framework Convention on Tobacco Control

2011 United Nations High Level Meeting on Non-communicable Diseases commitments by subject

Gross domestic product per capita

Population

Hospital beds per 1,000 people

Constitutional references to health

Current leader's presence at Port of Spain Summit

Current leader's continuity in office

Current leader's competence in health

Cardiovascular disease mortality by gender disparity

Cancer mortality by gender disparity

Unable to Determine (4)

Objective shocks within region

Compliance catalyst of gender

CARICOM summit iteration of gender

Female labour force participation

Appendix A4.2: Methodology protocol for the Seven National In-depth Case Studies

Specific Background and Rationale for Objective 3

The 2007 CARICOM Heads of Government Port of Spain Declaration on Chronic Non-Communicable Diseases contained 27 commitments (NCDs)[1]. These commitments were essentially statements of intent made by CARICOM Governments to take a broad range of actions designed to raise awareness about and promote the prevention, control and surveillance of NCDs in their populations. Inevitability, given the nature of a succinct declaration on a complex topic, most of the commitments within the Port of Spain Declaration were broad, requiring Governments to develop and implement their own detailed policies. Additional guidance on what to develop, implement and monitor came from the joint CARICOM /PAHO strategic plan on NCDs[2], which contained six broad areas for policy development. Further guidance on what Governments should be doing, to which members of CARICOM are signed up to, is the World Health Organization's Global Action Plan on NCDs[3].

To date, monitoring of CARICOM Governments' responses to the 2007 Declaration and subsequent guidance has largely involved completion of a questionnaire-grid[4], based on the 27 commitments, by an NCD focal point within the Ministry of Health. This has provided much useful information, but by its nature lacks detail to understand fully the extent and nature of policy development and implementation. The work in this objective is designed to complement this questionnaire-grid approach, through undertaking detail reviews of policy documents (formulated or stated policy) and extent to which formulated policy has been implemented. More ambitiously, part of the overall goal of this objective is to derive generalizable lessons from the case studies, on what has worked well and why, to inform more effective policy development and implementation across CARICOM and in other settings.

Therefore, a major part of the challenge of this objective is to try to understand the policy process within the 7 case studies, and to do this in way that supports useful and credible (evidence-based) guidance for other settings. There is no simple formulaic approach to doing this. It is clear that the commonly taught 'policy cycle'[1], while useful for focusing attention on different aspects, is not useful for understanding how policy is actually made and implemented[5,6]. Widely used health policy evaluation frameworks, such as the policy triangle[7] or 'content-process-outcome'[8], provide excellent structures for describing current policy (stated and implemented) but of themselves do not provide frameworks for understanding the policy process. In order to get beyond description to more generalizable understanding, one of more theories of the policy process are required.[5-7]

In deciding on our theoretical perspective we have been guided by approaches to policy evaluation from the social sciences which examine the importance of contextual factors in whether or not an intervention is effective. 'Realist evaluation', for example, asks the question, 'what works for whom, in what circumstances and in what respects and how'[9,10]. It aims to understand the mechanisms through which an intervention works, the contextual factors that assist or hinder those mechanisms and the outcomes that result from particular combinations of

[1] E.g. agenda setting to policy formulation to legitimation to implementation to evaluation back to agenda setting

context and mechanism. The comparison of the seven case studies has the potential to help identify such causal combinations of mechanism and context.

Objectives

Undertaking in-depth case studies within 7 countries and territories in order to address the following objectives:

A. The agreement between reported implementation of the 27 commitments and substantive change (effective implementation)
B. The degree of use of multi-sectoral approaches including the engagement of civil society, the private sector and Government ministries and agencies in addition to Health
C. Factors associated with success and those associated with difficulties in achieving (a) and (b), including the political impact nationally
D. What evidence exists on the impact of the implementation on risk factors and health outcomes.

Theoretical considerations and frameworks

Objectives A&B

A detailed list of desired policy interventions, reflecting the 27 commitments for the Port of Spain Declaration, will be drawn up against which data will be collect by document review and key informant interviews. The list will be informed by the monitoring grid[4], the content of the CARICOM/PAHO strategic document[2] (which groups the 27 commitments into 5 strategic areas), the data requirements for the Framework Convention on Tobacco Control[11] and the WHO Global Action Plan[11] and the requirements of the requirements of the linked Global Monitoring Framework[12]. The intention is to provide a detailed up to date description of policy formulation and implementation in the 7 countries.

In addition to describing the content of a policy, the following process factors will also be elicited: the processes of policy development and implementation; the role of different stakeholders in those processes; the involvement of other sectors outside of health, and the existence of mechanisms for facilitating inter-sectoral involvement. The design of the data collection tools will be informed by the policy analysis frameworks of Brownson[8] and Walt[7]. Data collection on inter-sectorality will be guided by the framework proposed for examining Health in All Policies[13]

Objective C

A evaluation framework that is informed by realist approaches to policy evaluation will be used to help identify factors associated with success and with difficulty in formulating and implementing policy across the broad strategic areas outlined in the World Health Organization Global Action Plan on NCDs[3]. The action plan has six broad objectives, which briefly are:

1. Advocating and raising priority internationally
2. Strengthening national capacity, leadership and multi-sectoral action

3. Reduce modifiable risk factors and underlying social determinants through creation of health promoting environments
4. Strengthen and orientate health systems to address the prevention and control of NCDs and social determinants through people centre primary health care and universal coverage
5. Promote and support high quality research and development for prevention and control
6. Monitor trends and determinants

The focus of the analysis from the 7 case studies will be on objectives 2 to 6. The realist approach as described by Pawson and Tilley[10] aims to identify 'context, mechanism and outcome configurations' (CMOCs). This is not a simple process and distinguishing between what is 'context' and what is 'mechanisms' can prove difficult and contentious[14]. Partly for this reason it has been decided to take, what on the face of it at least, is a more pragmatic approach. The approach we will take is also firmly based in the realist school of evaluation, seeking to understand the interactions between contexts and outcomes. The approach will be based on approaches described by Cartwright and Hardie[15]. Rather than identifying CMOCs, the aim will be to identify combinations of factors that need to be in place to achieve a certain outcome. This can be conceived of as identifying 'causal pies', which is an approach to considering causation that is widely used in epidemiology[16]. Using this approach, it is possible to conceive of different combinations of factors that are *sufficient* to cause a particular outcome. In addition, there may be some factors that are always *necessary* to generate a particular outcome. Another type of causal factor that Cartwright and Hardie identify is what they call a '*trump*' factor – something that can override all others. Finally, it should be noted that factors can of course combine as sufficient causes for both desired and undesired outcomes. It is an important of objective C to identify what worked well and why, and what did not work well and why.

The starting point is to hypothesize 'causal pies' relevant to the area of interest. Examples might include the factors that need to be in place that lead to the successful establishment of a working National NCD commission, or the successful implementation of a national smoke free public places policy. Having hypothesized the factors that make up one or more sufficient causes, data collection and analysis aims to test them, and propose, as appropriate, new factors and causal pies.

There are three recent Caribbean studies to help inform a priori causal pies for this evaluation. These three studies are complementary, in that they examine NCD policy from different perspectives. One is an analysis of country level characteristics associated with progress as assessed by the monitoring grid[1]. The second study is an in-depth case study of NCD policy agenda setting, formulation and implementation in Barbados[17]. This study made use of the Multiple Streams Framework[18] to help interpret the policy process over the past 10 years in Barbados. The most recent study that will be used to help hypothesise a priori causal pies was undertaken by the Healthy Caribbean Coalition and University of the West Indies. It examined NCD policy in 9 Caribbean countries and territories and investigated in particular the role of civil society in contributing to policy agenda setting, formulation and implementation[19].

Hypothesized causal pies will be reviewed and refined at the first workshop for the teams of data collectors (see below).

Objective D

We will investigate the possibility of examining whether trends in relevant health outcomes (e.g. risk factors, disease/event rates, NCD specific mortality) are associated with the degree of compliance with NCD policy recommendations. This will involve working closely with investigators on objective 2, who are identifying currently available data. In addition, the availability of any further data (e.g. ad hoc studies, or health facility morbidity data) will be enquired about during the case studies. Clearly, the 'gold standard' for assessing the impact of an intervention, a randomised controlled trial, is not an option. However, non randomised designs and 'natural experiments' can provide good evidence for the health impact of an intervention[20]. Study designs include time series analyses and comparison of trends in countries with different levels of policy implementation. Limited time series analyses may be possible for some interventions in some countries arising out of POS where there is a clear time point or period of implementation, such as banning smoking in public places *and* data are available on a suitable outcome measure, such as hospital admissions for myocardial infarction[21], at several time points either side of the intervention. We acknowledge that it may not be possible to draw confident conclusions on the health impacts of policy measures within these case studies. However, we strongly believe that it is important to investigate health impacts, and at the very least this will inform how such impact can be better assessed going forward.

Settings and Participants

The following criteria were used to guide the choice of the 7 countries and territories for the case studies:

I. The countries/territories should include a range of socio-economic conditions that exist in CARICOM
II. There should be at least one mainland country
III. The range of population sizes that exist in CARICOM should be covered, from over 1 million in the largest countries to less than 100,000 in the smallest
IV. At least one United Kingdom Overseas Territory
V. The countries/territories should include the three that are chosen for objective 4b i.e. on the potential for raising revenue from tobacco and alcohol taxes.

Basic characteristics of the 20 CARICOM countries and territories are shown in the table, and the 7 that have been chosen for this objective, and the three that have been chosen for objective 4b, are indicated. Note that Barbados is not included because a NCD policy analysis of this country was recently carried out by three of the investigators [17], and although not identical to what will be conducted here, it will provide much comparable data.

Data Collection

Mixed methods will be used for data collection that include document review, key informant (KI) interviews, and in collaboration with objective 2, the analysis of quantitative data on outcomes, as far as they exist, for each country and territory.

Data collection methods and tools

Data collection on policy content will aim to determine and distinguish between explicit or documented policy, implicit or undocumented policy and what has actually been implemented. The two main methods used will be the review of policy documents and interviews with key informants. Data abstraction forms for document review will be designed based on the content of the 27 commitments, the CARICOM/PAHO NCD Strategic Document, reporting requirements for the Framework Convention on Tobacco Control and the WHO Global Action Plan. Clearly there is a huge amount of overlap between these documents, but work is required to ensure that what is captured by data collection is able to adequately inform key aspects of them all. Semi structured interview guides for the key informant interviews will be designed to capture the same range of information.

Table – CARICOM countries and territories by population size and World Bank[1] income group, and indicating those chosen for the case studies and economic studies

	Population ['000]	Population category	Case study	Econ' study
Haiti	9,993	>5mill		
Jamaica	2,741	1-5 mil	Yes	Yes
Trinidad & Tobago	1,341		Yes	Yes
Guyana	754	250-999,000		
Suriname	525			
Bahamas	343			
Belize	312		Yes	
Barbados	286		**	
Saint Lucia	161	<250,000		
Grenada	108		Yes	Yes
Saint Vin' & Gren	104			
Antigua & Barbuda	87		Yes	
Dominica	73			
Bermuda	68			
*Cayman Islands	50			
Saint Kitts & Nevis	50		Yes	
*Turks & Caicos Islands	43			
*British Virgin Islands	25		Yes	
*Anguilla	15			
*Montserrat	5			
TOTAL	17,084			

[1]World Bank income category: red = low income; orange = low middle income; yellow = high middle income; green = high income.*UK Overseas Territory **Comparable data from a case study conducted in Barbados in 2013 will be available

Data collection methods on the policy process will also include policy document review and KI interviews. The content of the data abstraction forms for the policy document review and of the KI interview guides will be informed by the hypothesized causal pies. Data items are likely to include: the identification of different stakeholders, across multiple sectors, relevant to NCD prevention and control within each country/territory, and a stakeholder analysis[22]; how the problem and potential solutions to NCD epidemic is articulated and discussed within stakeholder groups; stakeholder perspectives on reasons for successes and failures in responding to the POS declaration; the explicit identification of local relevant contextual factors. The time frame considered for data collection on the policy process will be from the year 2000, with particular interest in any developments that can be related to the 2007 Port of Spain Declaration, the 2011 UN High Level Meeting and most recently in response to WHO Global Action Plan.

In addition, the possibility of searching electronically the content of national newspapers will be investigated, as this could contribute to understanding the context in which policy has been made, and the role of media in promoting specific policy changes.

Data collection organisation

Data collection for the 7 case studies will be shared between researchers at two sites: University of the West Indies, Cave Hill (lead site), Barbados and University of the West Indies, Mona, Jamaica. Data collection will take place through small teams (3 individuals) visiting each case study country/territory for 4 to 5 days. Key to the success of these visits will be substantial preparation prior to them, including arrangement of interviews and ensuring the availability of relevant documents.

The data collection tools and protocols for their analysis will be led by Cave Hill, with input from the other centres. A workshop will be held to pilot test and finalise the tools and protocols. At this workshop the hypothesized causal factors contributing to success in policy formulation and implementation will be reviewed and refined as necessary.

The natural initial contact points for KI interviews include the Chief Medical Officer, the MoH NCD focal point, and the Chair of the NCD commission (where one exists). Additional key informants will be identified through the stakeholder analysis and 'snowballing' (i.e., suggestions arising from informants already interviewed). The exact number of key informant interviews is not knowable in advance, but is likely to be around 10 to 15 per case study (reaching saturation). Interviews are projected to last from anything as short as 20 minutes to an hour or more – depending on the key informant. All key informants will be asked to identify and provide potentially relevant documents for document review. They will also be asked if they know of quantitative data on NCD outcomes (both intermediate, such as risk factors and treatment coverage and hard endpoints).

Standard Operating Protocols

Standard operating protocols for data collection and analysis of the 7 case studies will be developed before the first training workshop. These protocols will give separate and specific instructions for personnel to conduct and analyze key informant interviews, as well as document data retrieval and abstraction. In this way we aim to ensure that procedures for handling data are similar across case studies.

Data analysis and interpretation

A form of framework analysis [23] will be used summarise and map the contents of all the documents reviewed. This will be done against the POS commitments and the WHO Action Plan[24]. This will include identifying overlapping areas between documents. From the document review a 'gap analysis' of data and programmes will be performed.

All key informant interviews will be recorded and transcribed. Framework analysis, which is explicitly geared towards using qualitative data collection to inform policy and practice[23], will be used to analyse them, with the aid of Dedoose[25], a qualitative analysis software tool. After familarisation with the data, a thematic analysis will be undertaken to develop a coding scheme. The coding scheme will be guided by, but not limited to, the hypothesized causal factors.

One of the limitations of the 'causal pie' approach is that it lacks a time dimension, and thus of itself does not generate an understanding of what happened when, in what order and why. At the analysis stage therefore an attempt will be made to diagrammatically represent the sequence of events leading to policy change and implementation. The approach that will be taken will be decided at the time of data analysis but is likely to include one or both of drawing logic models[26] and system maps[27].

Document review and analysis of KI interview transcripts will be performed across the data collection teams, thus enabling consistency checks between them in this aspect of data collection and analysis. The final syntheses and interpretation of the findings will be discussed and agreed at a workshop involving all researchers from the two sites.

Data presentation and dissemination

While the main dissemination of the evaluation as will be coordinated as part of objectives 7 and 8, it will be very important to provide feedback to the policy makers, other participants and general populations in the case study countries. This feedback will include:

A 'policy brief', 2 to 4 pages maximum with clearly presented main findings and recommendations. There will be a brief prepared for each country. This will be disseminated to all participants, any additional health policy makers (or were not key informants), local health related civil society organisations (using the membership list of the Healthy Caribbean Coalition) and, with the agreement of the Ministry of Health, to the local media.

Web based access to the full technical report describing the findings from the 7 cases studies. Hard copies will be circulated to the key informants who participated in the study.

Consideration will be given to reporting the main findings from the case studies as part of a short video that would be available through the internet.

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Appendices for Chapter 5

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Appendix A5.A: Regional institutions with POS mandates

Commitment	**Institution**	**Mandate re Caricom Strategic plan 2011-2015**
C7-Effective warning labels for tobacco	CROSQ :Non Required	Develop regional standard for labeling
C9-Employ public revenue from tobacco, alcohol or other such products for preventing chronic NCDs, promoting health and supporting work of the Commission	Non Required: The UWI -Cave Hill Non Required: CAREC Non Required: IADB	Identify regional and national funding mechanisms
C10- Establish comprehensive plans for screening and management of chronic disease and risk factors	Non Required: The UWI -Cave Hill Non Required: CAREC Non Required: IADB	Establish regional guidelines
C14 - Enhance food security	**CFNI: Required** **CARDI:Required**	Enhance food security
C15 - Elimination of transfat in diets	**CFNI: Required** **CARDI:Required**	Policy guidance and public relations
C16 - Fair trade policies	**CRNM: Required**	Negotiate fair trade policies in international trade agreements
	CRNM: Required	Review WHO rules and advise on scope to adjust tariffs and subsidies on particular foods without violating any country's
	CRNM: Required	Review CET to promote affordable health eating
C17 -Nutritional Labeling of foods	CROSQ : Non Required	Develop regional standard for labeling
C18 - Public outreach	**Required: (Category: Media)** **Caribbean Broadcasting Union**	Promote Health education
C21- Incentives for public education in support of wellness	Required: The UWI -Cave Hill Required: CAREC	Develop regional guidelines
C22- Incentives for public education programmes in support of healthy lifestyle changes	Required: The UWI -Cave Hill Required: CAREC Required: IADB	
C23 - Incentives for comprehensive public education for improved self management of NCDs	Non Required: The UWI -Cave Hill Non Required: CAREC Non Required: IADB	Develop regional guidelines
C25 - Establish programmes for research and surveillance	**Required Category : Universities (The UWI)** **Required: Caribbean Epidemiology Centre** **Required: PAHO**	Research and surveillance of risk factors for NCDs
C26 Support for CCH Initiative (to control and prevent burden of NCDS	**Required: Caribbean Cooperation in Health Initiative Secretariat**	1. Revision of regional plan for prevention and control of NCDs 2. Monitoring and Evaluation of Declaration commitments

Appendix A5.B: Critical Case Studies

A5.B-1: Case Study: The Healthy Caribbean Coalition

The Creation of Civil Society Organization to Advocate and Monitor

Dinah Hippolyte

The idea of the establishment of the Healthy Caribbean Coalition (HCC) emerged during the Healthy Caribbean Conference of regional civil society stakeholders convened in Barbados in 2008 "as an outcome of and in direct response to" the 2007 POS Declaration[2]. Following this meeting, civil society groups, citing the role assigned to civil society and other social actors in the POS declaration, issued the Caribbean Civil Society Bridgetown Declaration: Tackling the Caribbean Epidemic of Chronic Disease which affirmed civil society commitment to support the fight against NCDs through their support of the POS declaration and the establishment of a Civil Society Organization (soon to be officially named the Healthy Caribbean Coalition) which would engage in, *inter alia*, advocacy, coalition building, public relations campaigns and monitoring and evaluation of the implementation of POS commitments with a view to accelerating progress on NCDs prevention and control in the Caribbean[3].

The identification of civil society as important actors in the fight against NCDs in the POS Declaration provided the legitimacy for the establishment of the HCC and its role in the regional framework for fighting NCDs. The establishment of the HCC was facilitated through the role of several who carried the political influence, access and credibility needed to build support amongst national civil society groups in the formation of the HCC. In addition, the support of several institutions including the Pan American Health Organization (PAHO), The University of West Indies (Cave Hill Campus) which was and continues to this day, to be a leading regional institution on NCD research, the support of the Caribbean Development Bank (as co sponsors of the conference) provided credibility and legitimacy to the Coalition in its formative period.

The HCC Membership currently comprises over 60 Caribbean-based health NGOs, over 65 not-for-profit organisations, and private sector entities and in excess of 250 individual members based in the Caribbean and across the globe[4].

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[2] Trevor Hassell. 2008. Foreward . Healthy Caribbean 2008 Caribbean Chronic Disease Conference A wellness revolution event. Chronic Disease Research Centre Technical Report Series (1). http://www.cavehill.uwi.edu/cdrc/resources/cdrc_healthy_caribbean_report.aspx

[3] Caribbean Civil Society Bridgetown Declaration 2008. http://www.hsfbarbados.org/%28S%28ehgfvsr0mraxbk55bo5cpvzn%29%29/CNCD/hc_declaration_08.pdf.

[4] Healthy Caribbean Coalition. Membership. Accessed January 15 2016. http://www.healthycaribbean.org/membership/membership.html

The HCC 2011-2013 Strategic Plan had as its frame of reference the POS declaration and offered support for it[5]. In addition to providing the raison d'etre of the HCC, the Port of Spain declaration also legitimized the HCC as the regional civil society health based organization both at the regional and international level. This legitmization has been viewed as one of the critical factors, in its successful engagement with partners in supporting the implementation of POS Commitments. For example, in 2013, the HCC was awarded a grant under the Australian High Commission Direct Aid Program to launch the Caribbean Civil Society Cervical Cancer Prevention Initiative (C4PI), a multi country cervical cancer prevention initiative which stengthened the capacity of national CSOs (Belize, Dominica, Grenada, Guyana, Jamaica) to deliver services including raising awareness and educating women on cervical cancer to improve attitudes about cervical cancer screenings and increasing access to screenings[6]. The initiative supported POS Commitments (20) which called for national plans for screening of chronic disease, POS Commitment 21 which aimed at increasing public outreach and POS Commitment 23 which focused on public education programmes.

POS Commitment 26 mandates the joint CARICOM Secretariat and PAHO (Caribbean Cooperation in Health initiative secretariat) to monitor the implementation of the Declaration. The Monitoring Grid developed in 2008 and revised in 2009 is limited in that it focuses on member state compliance and relies on self reporting[7].

In 2013, the HCC was selected as the regional implementing partner on the NCD Alliance program 'Strengthening Health Systems, Supporting NCD Action' designed to build the capacity of NCD civil society to monitor national progress on NCDs and advocate for improved NCD policies and the strengthening of health systems[8].

In 2014, as part of the program, the HCC conducted the Caribean's first Civil Society Regional Status Report: Responses to NCDs in the Caribbean Community (the Status Report). Whilst the Status report only covered nine countries, it was useful a useful monitoring tool as it provided detailed assessments of the progress on mandates issued to regional organizations as well as member states; the response of civil society; an analysis of implementation gaps and the challenges facing stakeholders in meeting the POS commitments and a plan of action for

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[5] UWI Cavehill. Pg 11
http://www.cavehill.uwi.edu/cdrc/resources/cdrc_healthy_caribbean_report.aspx

[6] Dominica Sun. Australian High Commission supports Caribbean Cervical Cancer Prevention. Accessed January 15 2016. http://sundominica.com/articles/australian-high-commission-supports-caribbean-cerv-841/.

[7] Alafia Samuels, John Kirton and Jenilee Guebert. 2013. Monitoring compliance with high-level commitments in health: the case of the CARICOM Summit on Chronic Non-Communicable Diseases. Bulletin of the World Health Organization 92:270-276B. Accessed January 15 2016. doi: http://dx.doi.org/10.2471/BLT.13.126128

[8] Healthy Caribbean Coalition. Strengthening Health Systems, Supporting NCD Action Accessed January 15 2016. http://www.healthycaribbean.org/projects/strengthening-health-systems-supporting-ncd-action.html.

moving forward[9]. Two key findings of the Status report were that 1) national health frameworks for policy implementation were weak in many states and 2) there were low levels of implementation of national policies requiring multisectoral action including bans on smoking and sponsorship of tobacco related products, advertising of unhealthy foods to children, salt reduction and reducing harmful use of alcohol.

The Status report has been used to inform the work of national NCD commissions mandated as a multi-sector approach at the national level to address NCDs For example, in response to the Status report findings, the HCC in collaboration with the Commonwealth Secretariat launched the NCD Commissions Strengthening Project (NCDCSP) which aimed to enhance multi-sectoral coordination and foster action on these mandates by strengthening NCD Commissions and deepening engagement with the regional private sector[10]. The HCC with support of the NCD Alliance and the Commonwealth Secretariat conducted a detailed "Assessment of National NCD Commissions in the Caribbean: Recommendations for more effective multi-sectoral mechanisms in response to NCDs" which presented assessments of National NCD Commissions, best practices for effective functioning of National NCD Commissions, detailed lessons learned and provided recommendations for structure and roles of Commissions together with specific outputs[11,12]. In June 2015, the HCC convened a meeting of national NCD commissions to discuss the findings of the report, discuss best practices and develop effective action plans.

The HCC has also fostered deeper engagement with the private sector in support of the "whole of society" approach to NCD prevention and control. In 2008, a joint PAHO/Caribbean Association of Industry and Commerce meeting of private sector represenatives issued the Caribbean Private Sector Statement in Support of "Declaration of Port of Spain: Uniting to Stop the Epidemic of Chronic Non Communicable Disease) in which the private sector committed to participate in and support multisectoral action on NCDs [13] . Since then co ordinated regional action on private sector engagement with NCDs had stalled. In 2015, the HCC conducted a situational analysis of the region's private sector response to NCDS and developed from the findings, a draft Framework for Action for private sector engagement to support multisectoral action on NCD prevention and Control. The HCC in collaboration with the Commonwealth Secretariat, CARPHA and PAHO convened a 'Caribbean NCD Private Sector Forum: Measuring and Engaging the Business Sector

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[9] Healthy Caribbean Coalition. 2014. Civil Society Regional Status Report: Responses to NCDs in the Caribbean Community. Accessed January 15, 2016. http://ncdalliance.org/sites/default/files/resource_files/HCC NCDA RSR FINAL.pdf

[10] Healthy Caribbean Coalition Concept note. Strengthening The Multi-Sectoral Response to NCDs in the Caribbean National NCD Commissions. June 5 2015. Accessed January 18 2016file://localhost/. http/::www.healthycaribbean.org:meetings-june-2015:june-5:resources:HCC-COMSEC-NNCDC-MEETING-JUN 5-2015-CONCEPT-NOTE.pdf

[11] ibid.

[12] Healthy Caribbean Coalition. 2015.A CIVIL SOCIETY REPORT ON NATIONAL NCD COMMISSIONSIN THE CARIBBEAN: Towards a more Effective Multisectoral Response to NCDs

[13] Caribbean Private Sector Statement in Support of "Declaration of Port of Spain: Uniting to Stop the Epidemic of Chronic Non Communicable Disease.2008. Accessed January 16 2016. http://www.energy.tt/plugins/p2009_download_manager/getfile.php?categoryid=26&p2009_sectionid=2&p2009_fileid=253&p2009_versionid=259

Response to NCDs to discuss the Framework for Action and re engage regional private sector in NCD prevention and control.[14] The meeting served as a useful platform for raising awareness about efforts to prevent and control NCDs in the region. An important outcome of the meeting was the Caribbean Private Business Sector: Statement of support on Prevention and Control for NCDs which affirmed the sector's support for a multisectoral approach to Prevention and Control of NCDs through actions in their workplaces, products and services.

The POS declaration civil society as a necessary partner in the fight against NCDs and provided the HCC legitimacy. The HCC's close alignment of its mandate and work plan with the mandates of the POS Declaration combined with the work of key individuals with experience, political access and influence provided the credibility needed to engage with national, regional and international partners. These factors have enabled the HCC to harness the power of civil society in collaboration with governments to support the implementation of the POS Declaration with a view to reducing death and disability from NCDs.

[14] Healthy Caribbean Coalition. 2015. The Caribbean Private Sector Response to Non Communicable Diseases: A Situational Analysis and Framework for Action. Accessed January 16 2016. http://www.healthycaribbean.org/meetings-june-2015/june-4/resources/The-Caribbean-Private-Sector-Response-to-Non-Communicable-Diseases-A-Situational-Analysis-and-Framework-for-Action.pdf

A5.B-2: Case Study: Caribbean Public Health Agency (CARPHA)

The Caribbean Public Health Agency was established in 2013 following a decision of Caricom Heads of Government in 2007. It is an amalgamation of five pre existing Regional Health Institutions (RHIs), namely: the Caribbean Epidemiology Centre (CAREC), the Caribbean Environmental Health Institute (CEHI), the Caribbean Food and Nutrition Institute (CFNI), the Caribbean Health Research Council (CHRC), and the Caribbean Drug Testing Laboratory (CRDT) to better serve the health needs of the region[15]. CARPHA is governed by an Executive Board of Directors comprising the CARICOM Health Ministers within the Council of Human and Social Development (COHSOD), Permanent Secretaries, Chief Medical Officers, which reports to the CARICOM Heads of Government. A Technical Advisory Committee provides guidance on the scientific program of the Agency, supported by a number of expert groups, e.g., Research Advisory, Public Health Nutrition, Laboratory, etc.

The Caribbean Co operation in Health - Phase 111 (CCH111) identifies Non communicable diseases as a priority area and includes the Strategic Plan of Action for the Prevention and Control of NCDS for countries of the Caribbean Community (2011-2015) (the NCD Strategic Plan of Action) emanating from the POS declaration.
CARPHA as the regional public health Agency serves as the main delivery mechanism for achieving the goals of the CCH 111 on food and nutrition and food security, working with other relevant partners and the CARICOM Secretariat, and in turn, achieving the mandates issued to the pre existing RHIs in the POS Declaration.[16] In addition, CARPHA works on the strengthening of surveillance/surveys and data analysis capacity for NCDs, cancer prevention and control, public information, etc.

The identification of NCDs as a priority and the development of action areas under Nutrition and Food Security in the CCH111 as well as the completion of the NCD Strategic Plan of Action, both informed and guided by the POS Declaration and its monitoring mechanism, which showed commitments related to diet and nutrition security had hardly moved in any country. This was been a critical success factor in the work of CARPHA on NCDs prevention and control. These strategic documents have served as a blueprint in guiding CARPHA's focus and provided the legitimacy need by the newly formed agency to take leadership and foster engagement with traditional and non-traditional partners, and greatly deepen the engagement with the CARICOM community's policy making mechanisms, relevant to NCDs and healthy diet. In 2013, the first year of its operations, CARPHA, working with CARICOM member states, set the strategic goal of reducing avoidable deaths from non-communicable diseases (NCDs) by 25% by 2025,[17] in alignment with the overall global goal.

The Agency's approach to addressing NCDs has been guided by a research to policy framework built and informed by previous research and initiatives from pre existing RHIS, and by the PAHO/WHO Strategic and Action plans. Most notably, CARPHA utilized existing regional

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[15] Caricom Secretariat. Community Organs. Accessed December 11 2015. http://www.caricom.org/jsp/community_organs/carpha/carpha_main_page.jsp?null&prnf=1
[16] CARPHA Annual Report. 2013. "Strategic Planning. Accessed February 11 2016. http://carpha.org/downloads/CARPH ANNUAL REPORT 2013 EVERSION.pdf pg.16
[17] CARPHA. Childhood Obesity and Prevention Control. Accessed February 11, 2016.http://carpha.org/articles/ID/39/Childhood-Obesity-Prevention-and-Control

research from CFNI which identified, increased access to fats, sugars and oils, exacerbated by food environments dominated by high sugared and fat meals, and the aggressive promotion and advertising of energy dense foods as the main contributors to obesity[18], with obesity rates in children increasing. The Agency has focused specifically on the issue of childhood obesity, noting that the most significant impact of childhood obesity was its persistence into adulthood along with the sequelae of non communicable disease complications and associated increased healthcare costs for the region,[19] and that the problem is one primarily of "obesogenic environments" – the sum total of the influences on what we eat. The review of evidence also showed that a number of factors needed to be in place for any chance of success – evidence informed interventions, sufficiently sustained, multi-faceted, e.g., combining top down and bottom up components. The evidence showed that a strong public policy and regulatory approach was also needed, led by Governments and with the full participation of other sectors of government and non-government sectors.

The identification of a "whole of society approach" to addressing NCDs and the multi sectoral nature of actions to address NCDS in the POS Declaration is reflected in the CCH111 commitment to engage traditional and nontraditional stakeholders. This has informed CARPHA's engagement with a wide cross section of stakeholders in addressing NCDs. The agency has engaged a wide cross section of sectors at the regional, global and national levels.

In 2013, cognizant of the multisectoral nature of the actions required to address childhood obesity, CARPHA established a multisectoral regional task force, the Public Health Nutrition Advisory Committee (PHNAC), to provide guidance to develop a five year Plan of Action entitled "Promoting Healthy Weights in the Caribbean: Prevention and Control of Childhood Obesity", with the goal of halting and reversing the rise in child and adolescent obesity in the region.[20] The Committee comprised diverse and experienced representatives across sectors including trade (Office of Trade Negotiations), civil society (Healthy Caribbean Coalition), academia (University of the West Indies Centre for Health Economics; Tropical Medicine Research Institute, agriculture (Caribbean Agricultural Development Institute) and health associations for nutrition and nursing (Caribbean Association of Health Economics and Caribbean Association of nursing respectively). The PHNAC serves as useful platform for engaging sector stakeholders, encouraging buy in and co coordinating action on childhood obesity at the regional level. It also serves as a useful space for dialogue in addressing challenges and opportunities to ensure a feasible, regionally supported plan of action is crafted and rolled out.

CARPHA has also provided support in fostering greater civil society engagement in addressing NCDs. In 2013, the agency provided support in facilitating an Australian Grant to the HCC to address cervical cancer related issues. The agency also collaborated with the HCC to host two key regional NCD stakeholder meetings in June 2015. The first, *"Measuring and Engaging the Business Sector Response to NCDs – The Caribbean NCD Private Sector Forum"* focused on

[18] CARPHA. Plan of Action for Promoting Healthy weights in the Caribbean: prevention and Control of Childhood Obesity pg.5. Accessed February 13 2015. http://carpha.org/Portals/0/docs/HealthyWeights.pdf
[19] http://news.gov.dm/index.php/news/2319-carpha-calls-region-to-focus-on-childhood-obesity
[20] Caribbean Public Health Agency. 2014. "Promoting Healthy Weights in the Caribbean: Prevention and Control of Childhood Obesity 2014-2019".

fostering greater private sector engagement in the civil society response to NCDs[21]. The second regional meeting *"Strengthening The Multi-Sectoral Response to NCDs in the Caribbean National NCD Commissions"* focused on broadening the 'whole of society', multi-sectoral response to NCDs in the Caribbean through the strengthening of National NCD Commissions[22].

POS Commitment 14 mandates the CFNI and other intergovernmental agencies to enhance food security as follows " [we declare] our endorsement of the efforts of the Caribbean Food and Nutrition Institute (CFNI) and the regional inter-governmental agencies to enhance food security." Cognizant of the multisectoral nature of the actions required to implement the five year Plan of Action, CARPHA also addressed the Council for Trade and Economic Development (COTED) to work together to examine the use of trade policies and set standards for food imports into the region to reduce the obesogenic environment and improve the accessibility and availability of nutritious foods as a means of ensuring food security[23],[24].

A follow up COTED meeting was held and a Report presented, "Childhood Obesity: Economic Sector Related Aspects of its Prevention". This report presented a six-point policy package for addressing the obesogenic environment. The policies are: mandatory nutritional labelling; regulating the school feeding environment; product reformulation to reduce harmful levels of fat, sugar, salt; marketing to children; trade and fiscal measures; and fruit and vegetable promotion – and were presented to the CARICOM COTED for approval in 2015[25]. Very importantly, other relevant regional agencies are also engaging.[26] CARPHA's success in its initiatives to engage with other Community Councils, most notably the COTED and COHSOD, in addressing NCD issues has been attributed to the legitimacy that the POS Declaration affords the agency in its advocacy efforts. Careful cultivation and building of relationships with key colleagues is also important, as is careful preparation for the engagements. The policy frameworks and mechanisms of CARICOM relevant to diet and nutrition security

The Agency has been mindful to identify and address the needs of member states in pursuing their own POS mandates. For example, CARPHA has focused its efforts on promoting the use of legislation to promote healthier food environments.[27] Recognizing the dearth of legislative capacity in the region as a challenge to member states regulation for healthy environments, CARPHA in June 2014 signed an MOU with the International Development Law Organization

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[21] NCD Alliance. News. Healthy Caribbean Coalition hosts three key regional NCD meetings http://ncdalliance.org/news/healthy-caribbean-coalition-hosts-three-key-regional-ncd-meetings

[22] ibid.

[23] CARPHA. **CARPHA and COTED Agree to Tackle Obesity in the Caribbean**. Accessed February 13 2016. **http://carpha.net/**

[24] OTN Special Update: Economic Trade Policies and Diet Related to Obesity in Caricom. November 2013. Accessed February 14, 2016. http://www.crnm.org/index.php?option=com_docman&task=doc_download&Itemid=113&gid=1592

[25] Pride. CARICOM Trade Ministers Discussed Health Of Caribbean Population. Accessed February 15, 2016.**http://pridenews.ca/2015/11/18/caricom-trade-ministers-discussed-health-of-caribbean-population/**

[26] Caribbean Regional Organization on Standards and Quality; Caribbean Agricultural Research Inst., Caribbean Single Market and Economy Unit; Office of Trade Negotiation; Caribbean Development Export; Caribbean Development Bank; Caribbean Development Fund.

[27] http://www.compasscayman.com/journal/2014/12/03/Obesity-weighs-on-Cayman/

on non-communicable diseases which pledged joint action to strengthen legal frameworks for addressing obesogenic environments in CARICOM member states with a view to expanding capacity to tackle cardiovascular disease, obesity and diabetes and promote healthy diets and physical activity. In keeping with CARPHA's multi sectoral approach, the MOU action plan includes civil society and national and regional legal institutions including universities and bar associations).[28]

The agency's research agenda has also been impacted by the POS declaration. POS Commitment 25 addresses surveillance of NCDs as follows "[we will] establish, as a matter of urgency, the programmes necessary for research and surveillance of the risk factors for NCDs with the support of our Universities and the Caribbean Epidemiology Centre/Pan American Health Organization (CAREC/PAHO). In 2013, the agency undertook a survey of member states to determine the status of childhood obesity policies, programmes and initiatives in the region subsequently used to inform the drafting of the Childhood Obesity Plan. The 59th **Caribbean Health Research Conference held in 2014 entitled " NCDs – Through the Life Course focused on Non communicable Diseases** and focused on pursuing evidence based decision-making on NCDs in the region as well as promoting the use of legislation to reduce obesogenic environments.[29] CARPHA has also provided support for strengthening national NCD surveillance systems to facilitate monitoring of NCD risk factors. In 2015, CARPHA in collaboration with PAHO conducted a regional workshop aimed at building country capacity for reporting on regional and global Indicators for Non-Communicable Diseases (NCDs) and for use of data generated for in country action.[30] The initiative led to the development of national targets and indicators; national Scorecards showing reporting gaps for the GMF validated and finalized and the training of a number of health professionals in methods to use data to inform policy action.[31]

The Agency is also working to strengthen surveillance for cancer and has signed an MOU and grant with the IARC to establish a Caribbean Cancer Registry Hub to support member states in this area, as functional registries will be essential for monitoring the trends in cancer as required under the Global monitoring framework for NCDs and risk factors.

With respect to tobacco control, an application has been made to Bloomberg philantrophies, in close collaboration with the Heart Foundation of Jamaica and the Inter American Health Foundation, to strengthen policy and legislative measures in Caribbean countries, giving initial priority to 'low hanging' fruit of implementing smoke free spaces and CARICOM labelling norms.

On the issue of built environment and health, e.g., use of alternative transport such as biking and walking and rapid mass transport, the Agency has partnered with the Public Health Agency of Canada, the Canadian and Caribbean Planners Associations, the UWI and PAHO/WHO to

[28] IDLO. Tackling Lifestyle disease in the Caribbean. Accessed February 11 2016. http://www.idlo.int/news/highlights/tackling-lifestyle-diseases-caribbean
[29] http://carpha.org/articles/ID/15/Health-Research-Conference
[30] This initiative was also in line with the calls for building national capacity to strengthen national policies and plans, with special emphasis on monitoring and evaluation in the 2011 UN High Level declaration on NCDS.
[31]

develop a roadmap on built environment and health. A paper will be presented at the Caribbean Urban Forum in Suriname in March 2016.

Resource mobilization and partnership forms a strategy for NCDs in CARPHA. Approaches have been made for funding to a number of agencies: CDC, IARC, PHAC, IDRC, World Diabetes Foundation, the European Union – Intra-ACP Fund, Australia and Bloomberg philanthropies. Approaches have also been made to the Social Security Directors of CARICOM, and to the two major private insurance companies, Guardian Life and Sagicor.

The Agency is currently working with Argentina and member states on a project aimed at improving systems for Non communicable Disease and Nutrition surveillance in selected Caribbean countries[32].

The collaboration with Argentina also includes a focus on reducing transfat, salt and sugar CARPHA has held sensitization workshops with Trinidad & Tobago manufacturers to reduce the use of transfat in food manufacturing and production. This initiative is particularly critical as Trinidad & Tobago dominates regional food exports. The Trade policy recommendations provided to the joint COTED/COHSOD meeting to address childhood obesity also included providing minimum standards for transfats in food imports. This initiative falls in line with POS Commitment 15 - [we declare] our strong support for the elimination of trans-fats from the diet of our citizens, using the CFNI as a focal point for providing guidance and public education designed toward this end."

CARPHA has also worked toward the preparation of guidelines in collaboration with other stakeholders on "Managing Hypertension and Managing Diabetes in the Caribbean".[33] This initiative falls in line with POS Commitment 10 - "Develop regional guidelines to establish comprehensive plans for screening and management of chronic disease and risk factors". The guidelines are in their third iteration and an APP for mobile phones is being prepared to facilitate use of the guidelines by primary health care providers and by the patients with NCDs.

The Port of Spain declaration has had a concrete impact on the programme and activities of CARPHA. It has provided the organization with the legitimacy required to under these initiatives across the region and fostered greater engagement with non traditional partners such as civil society.

[32] CARPHA presentation to the 12th Meeting of Caribbean National Epidemiologists & Laboratory Directors. 17th September 2014.

[33] CARPHA Annual Report 2013. "Strategic Planning. http://carpha.org/downloads/CARPH ANNUAL REPORT 2013 EVERSION.pdf pg.16

A5.B-3: Case Study: The Office of Trade negotiations (OTN)

The POS Declaration mandated the Office of Trade Negotiations (OTN)[34] to pursue fair trade policies in all international trade negotiations thereby promoting greater use of indigenous agricultural products and foods and reducing the negative effects of globalization on the region's food supply

The OTN reports to and its work programme directed by member states through decisions and mandates issued by the Council for Trade and Economic Development (COTED). The COTED comprises Caricom Ministers with responsibility for external trade. Technically, the issuance of the POS Declaration in September 2007 had no immediate effect on the OTN. As the CRNM is not a decision-making body, actions related to trade policy are triggered through a mandate from the COTED or a request from a member state via a saving gram. In the months following the POS Declaration, neither mechanism was triggered; the assumptions being that the OTN would pick up the mandate issued and commence work. The steps required to formally trigger OTN action on its POS declaration mandate would not take place until 2009.

Nonetheless, the OTN informally took action to fulfill its POS mandate by the close of 2007 and continues to engage in activities and policies under this mandate (discussed in further detail below). This informal response by the OTN was prompted in large part by the organization's early technical work/expertise on trade policies Prior to the 2007 POS Declaration, the Office of Trade Negotiations (then called the Caribbean Regional Negotiating Machinery) had begun work investigating the link between trade policy and health and identifying how international trade policies could be used to address NCDs. The OTN staff had also worked closely with the Caricom Secretariat in preparations for the Summit of Caricom Heads of Government (CHOG) at which the Declaration was issued. The technical work and expertise of the OTN had been used to inform the recommendations presented to and adopted by the CARICOM Heads of Government in the Port of Spain Declaration in September 2007[35]. The OTN staff also participated in the Summit by presenting their work on the trade policies and NCDs.

The early engagement of the OTN in the preparation of the Summit was crucial to ensuring that the region's main trade agreement, the CARIFORUM EU Economic Partnership Agreement, which regulates the new terms of trade between CARIFORUM states and the European Union aligned to the POS declaration mandates.[36] The negotiating mandate issued to the OTN for the Cariforum EU negotiations, which commenced in 2004, preceded the 2007 POS Declaration.

[34] The Office of Trade Negotiations was formerly known as the Caribbean Regional negotiating Machinery prior to June 2009.
[35] http://www.bbc.co.uk/caribbean/news/story/2007/09/printable/070917_chronicstory.shtml
[36] CARIFORUM" stands for the "Caribbean Forum of ACP States". The region is composed of CARICOM member states and the Dominican Republic. The EPA was signed by the parties in October 2008.

Notwithstanding, the OTN had already been advocating for the use of fair trade policies to member states in recommendations for the formulation of national and regional negotiating positions in line with their recommendations during the preparations for the summit. In particular, the OTN advised on the inclusion of domestic support measures in the Agreement on Agriculture, the inclusion of programmes of development co-operation in the Economic Partnership Agreement (EPA) to boost domestic production and the selective use of import duties to influence consumer choice and serve as an incentive to boost domestic production[37]. These efforts impact the region to present day. For example, Article 40 of the Development Co operation Chapter prioritizes the availability of, or access to, foodstuffs or other products essential to ensure food security over trade commitments[38]. Article 41 includes promotion of investment in Caribbean agricultural, fisheries sectors including and small-scale activities.[39]

A review of the CARIFORUM EU EPA Goods schedule reveals that the OTN has negotiated a goods schedule which speaks to its POS mandate[40]. The region has sought to foster growth in the regional agricultural sector by excluding several key agricultural products from tariff liberalization including tomatoes, fresh or chilled (HS code 0702.0) most chilled or fresh vegetables (0709.9), bananas and plantains (HS code 0803), citrus fruit (HS code 0805), and rice in the husk (HS code 1006.10). Tariffs on key agricultural inputs including rice for sowing and seeds (HS code 1006.10.10), fruits and spores for sowing (HS code 1209.9) have been fully liberalized, which should lead to a reduction the overall cost of food production in the sector and an increase in the availability and affordability of more nutritious foods The majority of energy dense, ultra processed foods were excluded from tariff liberalization including sweetened fruit juices (HS 2009); Ice cream (HS2105; Sugars and sugar confection (HS 1700) as well as pastries, cakes and biscuits (HS 1905). The expected medium term effect is a reduction in consumption as prices of these imported goods become comparatively high and a reduction in the obesogenic environment as demand for these goods fall.

The 2007 POS Declaration also provided legitimacy to the work of the OTN and bolstered support among member states for "health friendly" trade policies. For example, the negotiating mandate given to the CRNM for negotiations with Canada to replace the non-reciprocal Caribbean Canada Trade Agreement of 1986 (CARIBCAN) did not expressly reference NCDs or the POS declaration. However, the OTN has been able to use the Port of Spain declaration to legitimize recommendations for health friendly national and regional negotiating positions with Canada. These efforts have been further bolstered by member state support for these recommendations based on their own national mandates under the POS declaration.

It has also led to the expansion of the work of the OTN, which now formally includes Trade and Health as part of its work programme (institutionalizing health as an important aspect of trade policy in the region). Although not formally included as a theme in the organization's strategic

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[37] Economic Commission for Latin America and the Caribbean. 2008. Review of CARIFORUM EU EPA in Development Co operation and WTO Compatibility,p3 http://www.cepal.org/publicaciones/xml/5/34435/L.177.pdf

[38] CARIFORUM EU Economic Partnership Agreement. http://www.sice.oas.org/Trade/CAR_EU_EPA_e/CAR_EU_e.asp - P2T1C5

[39] ibid.

[40] CARIFORUM EU Economic Partnership Agreement: CARIFORUM Goods Schedule

work plan until 2011, there was been increased activity by the OTN both regionally and internationally in advocating for health trade polices to be prioritized in multilateral trade agreements and work related to assessing the implications of global trade policies for the control and prevention of obesity, particularly for developing countries with (WHO/FAO/PAHO)[41], (World Public health and Nutrition Association)[42] and Regional universities and International universities[43]. The OTN has also increased its engagement and partnerships to include regional and international health institutions. For example, the OTN is a member of the Caribbean Advisory Council on Public Health and supported the development of the CARPHA Plan of Action for Promoting Healthy Weights in the Caribbean: Prevention and Control of Childhood Obesity through its participation in the Public Health *Nutrition Advisory Committee. The organization is also represented on the* LANCET Commission for Obesity.[44]

The POS Declaration legitimized the advocacy efforts of the OTN in promoting health trade policies at regional and international fora and fostered greater engagement with non traditional partners. The POS Declaration also fostered greater co operation among member states and the OTN in crafting healthy fair trade policies when negotiating trade agreements. Although misunderstandings about the formal mechanisms for triggering the OTN's mechanism to act on its mandate delayed formal engagement, the POS Declaration impacted the institution in concrete ways. Informal channels of communication between OTN staff and other CARICOM agencies who championed the mandate, national level influences from the health sector urging member states to meet their mandates issued in the POS Declaration during OTN consultations with member states facilitated the impact of the POS Declaration on the OTN.

[41] See for example: Trade Policies relevant to Nutrition: CARICOM/Barbados

Country Case Studies: Vincent Atkins, CARICOM

http://www.fao.org/fileadmin/user_upload/agn/pdf/CaribICN2Report7-3-13bt_FINAL_HAI_rev__2_.pdf pg 26

[42] http://www.wphna.org/Oxford2014/wp-content/uploads/2014/09/Atkins-abstract-TRADE-changing-its-impact-on-health-2.pdf

[43] McGill 2007 Health Challenge Think Tank (expert statement) https://www.mcgill.ca/files/mwp/BA_TT_PROG_FINAL.pdf

[44] http://www.worldobesity.org/what-we-do/lancetcommission/lancet-commissioners/

Appendix A5.C: Institutions

A5.C-1: Required Institutions

Acronym	Organization	# Mentions	# Commitments Mentioned
CARICOM S	CARICOM Secretariat	1	1
CARICOM	CARICOM		
PAHO	Pan American Health Organization	3	3
WHO	World Health Organization	1	1
CFNI	Caribbean Food and Nutrition Institute	2	2
CRNM/OTN	Caribbean Regional Negotiating Machinery/Office of Trade Negotiations	1	1
CAREC	Caribbean Epidemiology Centre	1	1
CARDI	Caribbean Agricultural Research and Development	1	1

Commitments

2007-1: [We declare] Our full support for the initiatives and mechanisms aimed at strengthening regional health institutions, to provide critical leadership required for implementing our agreed strategies for the reduction of the burden of Chronic, Non-Communicable Diseases as a central priority of the *Caribbean Cooperation in Health Initiative Phase III (CCH III),* being coordinated by the CARICOM Secretariat, with able support from the Pan American Health Organisation/World Health Organisation (PAHO/WHO) and other relevant partners;

2007-14 [we declare] Our endorsement of the efforts of the Caribbean Food and Nutrition Institute (CFNI), Caribbean Agricultural Research and Development Institute (CARDI) and the regional inter-governmental agencies to enhance food security

2007-15: [we declare] our strong support for the elimination of trans-fats from the diet of our citizens, using the CFNI as a focal point for providing guidance and public education designed toward this end;

2007-16: [we declare] Our support for the efforts of the Caribbean Regional Negotiating Machinery (CRNM) to pursue fair trade policies in all international trade negotiations thereby promoting greater use of indigenous agricultural products and foods by our populations and reducing the negative effects of globalisation on our food supply;

2007-25: [we declare] That we will establish, as a matter of urgency, the programmes necessary for research and surveillance of the risk factors for NCDs with the support of our Universities and the Caribbean Epidemiology Centre/Pan American Health Organisation (CAREC/PAHO);

2007-26: [we declare] Our continuing support for CARICOM and PAHO as the joint Secretariat for the Caribbean Cooperation in Health (CCH) Initiative to be the entity responsible for revision of the regional plan for the prevention and control of NCDs, and the monitoring and evaluation of this Declaration.

A5.C-2: Formally Relevant International Institutions

Commitment	Institution	Mandate
2007-7: Tobacco warning labels	Caribbean Regional Organization on Standards Quality	Develop regional standard for tobacco product labelling
2007-10: Screening	University of West Indies Cave Hill Caribbean Epidemiology Centre	Establish regional guidelines
2007-17: Food labelling for nutrition	Caribbean Regional Organization on Standards Quality	Develop regional standard for labelling
2007-18: Mass physical education	Caribbean Broadcasting Union	Health education

A5.C-3: Informally Relevant International Institutions

Organization	# References	# Commitments
Caribbean Food and Nutrition Institute	119	8
Pan American Health Organization	111	15
World Health Organization	38	8
World Health Organization Framework Convention on Tobacco Control	28	6
Codex Alimentarius	14	1
Caribbean Association of Home Economists	13	1
Caribbean Regional Negotiating Machinery/Office of Trade Negotiations	12	1
International Organization of Standardization	12	1
Caribbean Education Sector HIV/AIDS Coordination Network	11	1
UNESCO	10	2
Caribbean Agricultural Research and Development Institute	10	1
Caribbean Cooperation in Health III	10	1
World Health Assembly	9	1
Food and Agriculture Organization	7	1
World Diabetes Foundation	6	1
Inter-American Institute for Cooperation on Agriculture	5	1
Child Family Health International	5	1
Inter American Development Bank	5	1
UNICEF	4	2
CARICOM	4	1
Caribbean Epidemiology Centre	3	1
Dependiente de la Organización de Estados Americanos	1	1
United Nations Environment Programme	1	1
Global Environment Facility	1	1
Caribbean Development Bank	1	1
United States Department of Agriculture	1	1
Caribbean Association of Industry and Commerce	1	1
Rural Agricultural Development Authority	1	1
Institute of Nutrition of Central America and Panama	1	1
Total	444	

Note: This list was compiled by reviewing and extracting the name of any organization mentioned in the country analysis in the compliance reports on the 27 Port of Spain Summit commitments done in a parallel study by the Global Health Diplomacy Program at the University of Toronto.

A5.C-4: Other CARICOM-Relevant Institutions

Organization	Number of References
Council for Human and Social Development	19
CARICOM	13
Caribbean Public Health Agency	5
United Nations	4
CARICOM Secretariat	3
Pan Caribbean Partnership Against HIV and AIDS	3
Caribbean Food and Nutrition Institute	2
Council for Trade and Economic Development	2
CARICOM Summit	2
World Health Organization	1
World Health Organization Framework Convention on Tobacco Control	1
International Criminal Court	1
Caribbean Epidemiology Centre	1
Regional health institutions	1
Caribbean Health Research Council	1
Caribbean Regional Drug Testing Laboratory	1
Organization of Eastern Caribbean States	1
CARICOM Single Market Economy	1
Caribbean Regional Office on Standards and Quality	1
Council for Foreign and Community Relations	1

Note: The list was compiled by looking at CARICOM communiqués after 2007, using the coding rules for development of global governance to identify organizations prospectively relevant to the whole-of-the-regional governance approach.

Appendix A5.D: First-Year Compliance of Port of Spain Summit Commitments

Commit–ment	Average	Anguilla	Antigua & Barbuda	Bahamas	Barbados	Belize	Bermuda	British Virgin Islands	Cayman Islands	Dominica	Grenada	Guyana	Haiti	Jamaica	Montserrat	Saint Kitts & Nevis	Saint Lucia	Saint Vincent & Grenadines	Suriname	Trinidad & Tobago	Turks & Caicos
11	0.65	1	1	1	1	1	1	0	1	0	1	1	−1	1	−1	1	1	1	0	1	1
12	0.40	1	1	1	1	1	1	−1	1	1	0	0	−1	1	−1	1	1	1	−1	1	−1
27	0.35	1	0	0	0	1	0	1	0	0	0	0	0	1	0	1	0	0	1	1	0
25	0.25	0	−1	1	1	1	−1	0	−1	0	1	1	−1	1	0	1	0	1	1	1	−1
8	0.14		0	0	1	0	1			1	0	0		0		0	−1	0	0	0	
21	0.10	0	0	−1	1	1	1	0	1	0	1	1	−1	0	−1	0	1	−1	0	0	−1
22	0	1	0	0	1	0	−1	0	0	1	0	1	−1	1	−1	−1	1	0	−1	0	−1
24	0	0	0	0	0	0	1	0	0	0	0	0	−1	1	−1	−1	0	0	0	1	0
26	0	−1	0	1	1	0	0	−1	−1	0	0	0	0	0	0	0	0	0	0	1	0
2	−0.07		−1	0	0	0	0		0	0	0	0		0		0	−1	0	0	1	
13	−0.10	0	0	0	0	0	1	0	0	0	0	0	−1	0	0	0	0	0	−1	0	−1
9	−0.14		−1	−1	0	0	0			0	−1	0		1		0	0	0	0	0	
16	−0.15	−1	1	0	0	0	−1	−1	−1	0	1	0	0	1	−1	0	0	0	0	0	−1
17	−0.20	−1	0	−1	−1	0	−1	0	−1	0	1	1	−1	0	−1	0	0	1	−1	1	0
1	−0.25	−1	0	0	0	0	−1	0	−1	0	0	0	−1	0	0	0	−1	1	0	0	−1
14	−0.25	−1	1	0	−1	0	−1	−1	−1	0	1	0	−1	1	−1	0	1	0	−1	0	−1
15	−0.30	0	0	0	−1	0	−1	0	−1	0	0	0	−1	0	0	0	−1	0	−1	0	0
10	−0.45	−1	1	−1	1	0	−1	−1	−1	1	1	0	−1	−1	0	−1	−1	−1	−1	−1	−1
23	−0.45	0	−1	−1	1	0	−1	−1	0	−1	1	−1	−1	1	−1	0	0	−1	−1	−1	−1
3	−0.50		−1	−1	−1	0			1	−1	−1	0		0		−1	−1	−1	−1	1	
5	−0.50		−1	1	−1	−1			1	−1	−1	−1		0		−1	−1	−1	−1	1	
6	−0.57		−1	1	−1	−1			1	−1	−1	−1		−1		−1	−1	−1	−1	1	
7	−0.62		−1	0	−1	−1				−1	−1	0		1		−1	−1	−1	−1	0	
4	−0.64		−1	−1	−1	−1			1	−1	−1	−1		0		−1	−1	−1	−1	1	
19	−0.65	−1	0	−1	−1	−1	−1	−1	−1	−1	−1	1	−1	1	−1	−1	−1	−1	−1	1	−1
18	−0.70	0	−1	−1	−1	−1	0	−1	−1	−1	−1	−1	−1	1	−1	−1	−1	−1	−1	1	−1
20	−0.90	−1	−1	−1	−1	−1	−1	−1	−1	−1	0	−1	−1	−1	0	−1	−1	−1	−1	−1	−1
Average	−0.21	−0.21	−0.22	−0.15	−0.07	−0.07	−0.23	−0.42	−0.17	−0.19	0	0	−0.84	0.37	−0.58	−0.26	−0.30	−0.22	−0.52	0.41	−0.63

Appendix A5.E: Multiyear Compliance and Implementation

A5.E-1: Year 1–4 Compliance with Selected POSS Commitments

Commitment	2008	2009	2010	2011	2012	2013	2014
2007-01	−0.25						
2007-02	−0.07	+0.10	+0.20	+0.20	+0.45		
2007-03	−0.50						
2007-04	−0.64						
2007-05	−0.50						
2007-06	−0.57						
2007-07	−0.62						
2007-08	+0.14						
2007-09	−0.14						
2007-10	−0.45						
2007-11	+0.65						
2007-12	+0.40						
2007-13	−0.10						
2007-14	+0.25*	+0.35	+0.35	+0.35			
2007-15	−0.30						
2007-16	−0.15						
2007-17	−0.20						
2007-18	−0.70						
2007-19	−0.65						
2007-20	−0.90						
2007-21	+0.10						
2007-22	+0						
2007-23	−0.45						
2007-24	0						
2007-25	+0.25						
2007-26	0						
2007-27	+0.35						
Average	+0.19	+0.23	+0.28	+0.28	+0.45		

*indicates that the compliance average was updated when new information was found.

A5.E-2: CCH3 Indicator Implementation, 2011, 2013, 2014

CCH3	2011, N15	2013, N21	2014, N19
1. National Chronic Disease Policy	−20%	−5%	+32%
2. Behavioural risk factor surveillance system	+7%	−33%	−5%
3. 90% cigarettes have FCTC compliant labels	−7%	+10%	+11%
4. Reduction in drunk driving fatalities	−80%	−48%	−26%
5. Transfat free policies	−100%	−91%	−90%
6. Nutritional standards for schools, workplaces and institutions	+47%	−14%	+32%
7. Food based dietary guidelines	−7%	0%	+42%
8. Salt consumption has declined	−100%	−71%	−58%
9. Promote physical activity	+40%	−10%	+16%
10. car-free Sundays or mass physical activity event	−40%	−48%	+32%
11. faith-based organisations in responding to NCD's	+47%	+29%	+37%
12. A behavioural risk factor surveillance system is in operation in my country	−33%	−29%	+5%
13. My country has 100% smoke-free public spaces	+60%	−48%	+11%
14. Evidence based protocols for prevention and control of NCDs	+67%	+19%	+56%
15. Evidence based protocols for screening, prevention and control of NCDs	−47%	+10%	+42%
16. 80% of at risk populations screened and treated	+60%	−29%	−5%
17. improved access to Primary Care services for cardiovascular risk	−47%	+14%	+42%
18. Chronic Care Model has been implemented in 50% of health facilities	−60%	−24%	+5%
19. Reduction of childhood obesity	+87%	−67%	−74%
20. Programmes for prevention and control of cancers	+87%	+43%	+79%
21. Training for Public Health Care	+100%	+48%	+68%
22. Reporting data at least annually on NCDs	−87%	+67%	+56%
23. Standardised monitoring and evaluation systems	−60%	−48%	−5%
24. Progress reports of NCDs	+60%	−38%	−37%
25. Production of media packages on healthy eating	−20%	+29%	+56%
26. Social Change Communication strategies	−60%	−14%	+16%
27. Restrict advertising of unhealthy products to children	−20%	−57%	−84%
28. Intersectoral NCD Commissions	−20%	+5%	+26%
29. National NCD Plan developed and finalised	+7%	+14%	+32%
30. At least two priority interventions from NCD plan have been implemented	−13%	+14%	+37%
31. National health expenditure budget is at least 6% of GDP	−13%	+14%	+26%
32. Additional (new) financial resources for health financing	+73%	+5%	+56%
33. My country has formularies for vital, essential and necessary NCD drugs	+73%	+76%	+84%
34. generic drugs for NCDs are accessible	+93%	+100%	+95%
Overall Average	+2%	−5%	+17%

A5.E-3: Informally Relevant Institutions' Involvement

POSS Commitment		First-Year Compliance	2011 CCH3	2013 CCH3	2014 CCH3	# Institutions Involvements	# Institutions Involved
11	Physical education mandated	+0.65				26	4
12	Incentives/resources for physical education in schools	+0.40				16	4
27	Caribbean Wellness Day	+0.35				4	2
25	Research surveillance	+0.25	−13%*	−31%*	0%*	43	9
8	Tobacco fiscal measures	+0.14				17	2
21	Public education incentives on wellness	+0.10				21	4
22	Public education incentives on changes	+0				51	3
24	Media partners	+0	−20%	+29%	+56%	12	3
26	Monitoring and evaluation	+0	−74%*	+10%*	+26%*	17	3
Average 9 commitments/3 indicators		+0.21	−36%	+3%	+27%	23	3.8
2	Legislate FCTC	−0.07	−7%	+10%	+11%	5	1
13	Health meals/eating through education	−0.10	+47%	−14%	+32%	18	1
9	Tobacco/alcohol revenue for health	−0.14	+73%	+5%	+56%	25	3
16	Fair trade	−0.15				12	1
17	Food labelling for nutrition	−0.20	−7%	0%	+42%	44	4
Average 14 commitments/7 indicators		+0.09	0%	1%	+32%	22.2	3.1
1	Strengthen regional institutions	−0.25				0	0
14	Food security	−0.25				40	7
15	Transfats	−0.30	−100%	−91%	−90%	26	2
10	Screening	−0.45	+33%*	+8%*	+39%*	0	0
23	Public education incentives NCD self-mgt	−0.45				0	0
3	Smoking ban in public places	−0.50	+60%	−48%	+11%	19	2
5	Smoking ad ban for children	−0.50	−20%	−57%	−84%	8	2
6	Tobacco promotion ban for children	−0.57				7	2
7	Tobacco warning labels	−0.62	+47%	+29%	+11%	8	2
4	Smoking sale ban to children	−0.64				6	2
19	Parks for physical education	−0.65	+33%*	+8%*	+39%*	19	1
18	Mass physical education	−0.70	0%*	−29%*	+24%*	0	0
20	Gender	−0.90				0	0
Average of 17 commitments with −1 scores		−0.39				13.6	1.7
Average of bottom 13 commitments/7 indicators		−0.52	+8%	−26%	−7%	10.23	1.54
Average of 27 commitments/14 indicators		−0.21	+4%	−12%	+12%	16.4	2.4
Total						444	64

Note: FCTC = Framework Convention on Tobacco Control; NCD = non-communicable diseases.
Blank cells indicate there was no match between the POSS commitment and a CCH3 Indicator.
* indicates the percentage is an average of the CCH3 indicator average.

Appendix A5.F: Compliance Catalysts

A5.F-1: Compliance Catalysts, Detailed

Commitment	Text	Total Catalysts	Catalyst	First-Year Compliance	CCH3 Indicator	2011	2013	2014
2007-25	[we declare] That we will establish, as a matter of urgency, the programmes necessary for research and surveillance of the risk factors for NCDs with the support of our Universities and the Caribbean Epidemiology Centre/Pan American Health Organisation (CAREC/PAHO);	4	surveillance, specified agent, core international organization, international organization surveillance	+0.25	2,12	−13%*	−31%*	0%*
Average				+0.25	2	−13%*	−31%*	0%*
2007-2	[We declare] Our commitment to pursue immediately a legislative agenda for passage of the legal provisions related to the International Framework Convention on Tobacco Control;	1	international law	−0.07	2	−7%	+10%	+11%
2007-15	[we declare] our strong support for the elimination of trans-fats from the diet of our citizens, using the CFNI as a focal point for providing guidance and public education designed toward this end;	1	specified agent	−0.30	5	−100%	−91%	−90%
2007-16	[we declare] Our support for the efforts of the Caribbean Regional Negotiating Machinery (CRNM) to pursue fair trade policies in all international trade negotiations thereby promoting greater use of indigenous agricultural products and foods by our populations and reducing the negative effects of globalisation on our food supply;	1	specified agent	−0.15				
2007-24	[we will] embrace the role of the media as a responsible partner in all our efforts to prevent and control NCDs;	1	civil society	0.00	25	−13%	−31%	0%
Average				−0.13	1	−30%	−41%	−26%
2007-1				−0.25				
2007-3	[we] support the immediate enactment of legislation to limit or eliminate smoking in public places,	0		−0.50	13	+47%	−14%	+32%
2007-4				−0.64				
2007-5	[we support the immediate enactment of legislation to] ban the advertising [of tobacco products to children]	0		−0.50	27	−20%	−57%	−84%
2007-6	[we support the immediate enactment of legislation to] ban the promotion [of tobacco products to children]	0		−0.57				

2007-7				−0.62				
2007-8	[we will] introduce such fiscal measures as will reduce accessibility of tobacco;	0		+0.14				
2007-9				−0.14				
2007-10				−0.45				
2007-11	[we declare] That we will mandate the re-introduction of physical education in our schools where necessary	0		+0.65				
2007-12	[we declare that we will] provide incentives and resources to effect [the re-introduction of physical education in our schools]	0		+0.40				
2007-13	[we will] ensure that our education sectors promote programmes aimed at providing healthy school meals and promoting healthy eating;	0		−0.10	6	+47%	−14%	+32%
2007-14				+0.25*				
2007-17	[we declare] Our support for mandating the labelling of foods or such measures as are necessary to indicate their nutritional content through the establishment of the appropriate regional capability;	0		−0.20	7	−7%	0%	+42%
2007-18	[we declare] That we will promote policies and actions aimed at increasing physical activity in the entire population, e.g. at work sites, through sport, especially mass activities, as vehicles for improving the health of the population and conflict resolution	0		−0.70	9, 10,	0%	−29%	+24%
2007-19	in this context we commit to increasing adequate public facilities such as parks and other recreational spaces to encourage physical activity by the widest cross-section of our citizens;	0		−0.65	15, 16, 20	+33%	+8%	+39%
2007-20				−0.90				
2007-21				+0.10				
2007-22				0				
2007-23				−0.45				
2007-26				0				
2007-27				+0.27				

A5.F-2: Compliance Catalysts, Summary

Commitment	First-Year Compliance	Total Catalysts
25	+0.25	4
27	+0.35	1
2	−0.07	1
24	0	1
16	−0.15	1
15	−0.30	1
18 & 19	−0.70 & −0.65	0
11 & 12	+0.65 & +0.40	0
8	+0.14	0
5 & 6	−0.50 & −0.57	0
13	−0.10	0
17	−0.20	0

Appendix A5.G: Relevant Institutions Institutional Compliance, 2008

Commitment		Institution Assessed	Degree of Relevance	Institutional Compliance	2008 Compliance
7	Tobacco Labels	CROSQ	Medium Formally	0	−0.62
14	Food Security	CARDI	High Required	+1.00	−0.25
14	Food Security	CFNI	High Required	+1.00	−0.25
16	Fair Food Trade	OTN	High Required	+1.00	−0.15
25	Research/Surveillance	CAREC	High Required	+1.00	+0.25
25	Research/Surveillance	UWI/"our universities"	High Required	0	+0.25
26	Revision/Monitoring	CCHI	High Required	0	0
Average all				+0.57	−0.10
Average high (6)				+0.67	−0.03
Average medium (1)				0	−0.62
Difference				+0.67	+0.59

Note: CARDI = Caribbean Agricultural Research and Development Institute; CAREC = Caribbean Epidemiology Centre; CCHI = Caribbean Cooperation in Health Initiative; CFNI = Caribbean Food and Nutrition Institute; CROSQ = Caribbean Regional Organization for Standards and Quality; OTN = Office of Trade Negotiations; UWI = University of the West Indies.

Appendix A5.H: Compliance Reports for Regional Institutions

A5.H-1: Compliance Report: Caribbean Food and Nutrition Institute

The Caribbean Food and Nutrition Institute (CFNI) was a specialized Centre of the Pan American Health Organization/World Health Organization established with the aim of forging a regional approach to solving the nutrition problems of the Caribbean. Its organizational mandate was the attainment of food security with an emphasis on optimal nutritional health services. The CFNI ceased operations in 2012 and its functions were subsumed within the Caribbean Public Health Agency which commenced operations in 2013.

Compliance Average: 1

Mandate	-1	0	+1
C14 - [we declare] Our endorsement of the efforts of the Caribbean Food and Nutrition Institute (CFNI), Caribbean Agricultural Research and Development Institute (CARDI) and the regional inter-governmental agencies to enhance food security			X

Background

In 2007, the CARICOM Summit took on the challenge of preventing and controlling non-communicable diseases (NCDs). Leaders at the summit focused on the "big four" NCDs: cardio-vascular disease, diabetes, cancer and respiratory disease, and consequently, the four key drivers risk factors of those diseases: lack of physical activity, tobacco use, alcohol abuse and unhealthy diets. The commitment to enhance food security is directly linked to the challenge of unhealthy diets[45]. In the Caribbean, unhealthy diets have been linked to dietary consumption patterns that have a negative impact on health[46]. In particular, the dietary/nutritional transition from diets based on indigenous staples, local fruits,

[45] Controlling NCDs through Summitry: The CARICOM Case, University of Toronto. Accessed July 26, 2015. http://www.ghdp.utoronto.ca/pubs/caricom-case-study.pdf.

[46] The Caribbean Food and Nutrition Institute. 2007. Overview Vulnerability and Food and Nutrition Security in the Caribbean. Accessed July 23, 2015. http://www.euacpcommodities.eu/files/17_Vulnerability.pdf

vegetables, and legumes, to more energy-dense diets based on more processed foods/beverages, more of animal origin, more added sugar, fats[47]. The nutritional deficiencies and diet imbalances being experienced were attributed to this transition. The mandate to CFNI indicated the Heads recognition of the importance of nutrition as an integral component of food security.

Mandate Features:

The Food and Agricultural Organization defines food security as occurring when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. This points to four dimension of food security points: (1) the availability of sufficient quantities of food of appropriate quality, (2) access by individuals to adequate resources (entitlements) for acquiring appropriate foods for a nutritious diet (3) utilization of food through adequate diet, clean water, sanitation and health care to reach a state of nutritional well-being where all and (4) stability which requires that persons should not risk losing access to food as a consequence of sudden shocks (e.g. an economic or climatic crisis)[48].

Enhancing food security requires that the institution must improve or increase availability of locally produced nutritious foods, particularly amongst vulnerable groups including farmers, sub urban and per urban communities. This includes programmes that focus on (1) improving farming techniques; (2) address climate change issues which may affect food systems (3) improving the reliability and stability of the food distribution and supply. To be awarded a score of full compliance this must have been done within a year of the Port of Spain Declaration.

Score Ruberic:

Score	Description
-1	The institution has not engaged in programmes targeted to vulnerable populations to increase food availability AND/OR addressed the impact of external shocks such as climate change or economic shocks on food systems. AND/ OR promoted farming practices which improved the nutrition value of foods produced.
0	The institution engaged in programmes targeted to vulnerable populations to increase food availability OR addressed the impact of external shocks such as climate change or economic shocks on food systems OR promote farming techniques which improved the nutrition value of foods produced.

[47]

[48] Food and Agricultural Organization. *Food Security Policy Brief*. Accessed 26 July 2015. http://www.fao.org/forestry/13128-0e6f36f27e0091055bec28ebe830f46b3.pdf .

+1	The institution engaged in programmes targeted to vulnerable populations to increase food availability AND addressed the impact of external shocks such as climate change or economic shocks on food systems AND promoted farming techniques which improved nutrition of foods produce within the compliance period.

Notes:

The institution met its mandate within the compliance period. In 2008, the CFNI organized a regional symposium on food security in the Caribbean

to address rising food prices, an effect of the global financial crisis and agree on a strategy for partnerships to reduce the vulnerability of poor populations[49]. The meeting supported the development of a list of prioritized food items to meet the nutritional requirements that are essential for the region's people.[50] The CFNI also provided technical support to build capacity in understanding issues of food security including support to provide farmers and farming families with information on disaster mitigation strategies and appropriate food and nutrition practices[51].

Mandate	**-1**	**0**	**+1**
C15 - [we declare] our strong support for the elimination of trans-fats from the diet of our citizens, using the CFNI as a focal point for providing guidance and public education designed toward this end;			X

Background

In 2007, the CARICOM Summit took on the challenge of preventing and controlling non-communicable diseases (NCDs). Leaders at the summit focused on the "big four" NCDs: cardiovascular disease, diabetes, cancer and respiratory disease, and consequently, the four key drivers risk factors of those diseases: lack of physical activity, tobacco use, alcohol abuse and unhealthy diets. This commitment is directly linked to the challenge of unhealthy diet and one of its key factors: consumption of transfat.

[49] Caribbean Food and Nutrition Institute. 2008. Annual Report 2008. Accessed July 23 2015. http://iris.paho.org/xmlui/bitstream/handle/123456789/2785/AnnualReport08%20CFNI.pdf?sequence=1&isAllowed=y.
[50] ibid.
[51] ibid.

Mandate Features:

Providing guidance and public education toward the elimination of transfats from diets includes the development of regional population dietary (nutritional) goals and recommendations for use in public eating spaces in line with international standards[52]. Public education includes engaging in advocacy, communication and information dissemination through websites, newsletters, television and radio advertisements to inform citizens of the benefits of eliminating transfat in diets and nutritious food options that lead to a reduction in the consumption of transfats.To be awarded a score of full compliance the institution must have undertaken both activities within a year of the POS Declaration.

Score Ruberic:

Score	Description
-1	The institution did not develop regional population dietary (nutritional) goals and recommendations for use in public eating spaces in line with international standards AND/OR engage in advocacy, communication or information dissemination through to inform citizens of the benefits of eliminating transfat in diets and nutritious food alternatives.
0	The institution developed regional population dietary (nutritional) goals and recommendations for use in public eating spaces in line with international standards. OR engaged in advocacy, communication or information dissemination through to inform citizens of the benefits of eliminating transfat in diets and nutritious food alternatives.
+1	The institution developed regional population dietary (nutritional) goals and recommendations for use in public eating spaces in line with international standards. AND engaged in advocacy, communication or information dissemination through to inform citizens of the benefits of eliminating transfat in diets and nutritious food alternatives.

Notes:

The CFNI met this mandate within the compliance period. In 2008, the CFNI supported Caribbean Nutrition day themed: "*Healthy Active Living-Be aware of transfat*". Activities included raising awareness of sources of trans fat in diets and the possible impact on the human body and providing member countries with materials outlining changes that persons can make towards healthier eating and a more active lifestyle.[53]

[52]

[53] Caribbean Food and Nutrition Institute.2008. Annual Report 2008. Accessed July 24 2015. http://iris.paho.org/xmlui/bitstream/handle/123456789/2785/AnnualReport08%20CFNI.pdf?sequence=1&isAllowed=y.

A5.H-2: Compliance Report: Caribbean Agricultural Research and Development Institute

The Caribbean Agricultural and Research Development Institute (CARDI) was established in 1975 with the organizational mandate of providing for research and development needs of the region's agricultural sector to improve the productivity of the sector[54].

Compliance Average: 1

Mandate	-1	0	+1
C14 - [we declare] Our endorsement of the efforts of the Caribbean Food and Nutrition Institute (CFNI), Caribbean Agricultural Research and Development Institute (CARDI) and the regional inter-governmental agencies to enhance food security			X

Background

In 2007, the CARICOM Summit took on the challenge of preventing and controlling non-communicable diseases (NCDs). Leaders at the summit focused on the "big four" NCDs: cardio-vascular disease, diabetes, cancer and respiratory disease, and consequently, the four key drivers risk factors of those diseases: lack of physical activity, tobacco use, alcohol abuse and unhealthy diets[55].. This mandate is directly linked to the challenge of unhealthy diets In the Caribbean, unhealthy diets have been linked to food insecurity, a situation in which there is inadequate access to foods and dietary consumption patterns that have a negative impact on health as opposed to lack of food availability[56].

The region's agricultural sector has been tied to food security in terms of the availability of wholesome foods and deficiencies in the distribution system[57]. The sector was experiencing declining food production and increased food imports leading to and a negative trade balance in the food sector. The

[54] Caribbean Agricultural Research and Development Institute. *About Us*. Accessed 26 July 2015. http://www.cardi.org/welcome-to-cardi/cardi-mandate/.

[55] Controlling NCDs through Summitry: The CARICOM Case, University of Toronto. Accessed July 26, 2015. http://www.ghdp.utoronto.ca/pubs/caricom-case-study.pdf.

[56] The Caribbean Food and Nutrition Institute. 2007. Overview Vulnerability and Food and Nutrition Security in the Caribbean. Accessed July 23, 2015. http://www.euacpcommodities.eu/files/17_Vulnerability.pdf

[57] ibid.

susceptibility of the region to natural disasters also increase the vulnerability of the region's food supply[58]. The experience of the rising and double burden of the impacts of malnutrition and obesity led to an emphasis on agriculture's role in terms of adequate and wholesome supplies of food.

Mandate Feature:

The Food and Agricultural Organization defines food security as occurring when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life. This points to four dimension of food security points: (1) the availability of sufficient quantities of food of appropriate quality, (2) access by individuals to adequate resources (entitlements) for acquiring appropriate foods for a nutritious diet (3) utilization of food through adequate diet, clean water, sanitation and health care to reach a state of nutritional well-being where all and (4) stability which requires that persons should not risk losing access to food as a consequence of sudden shocks (e.g. an economic or climatic crisis)[59].

Enhancing food security requires that the institution must improve or increase availability of locally produced nutritious foods, particularly amongst vulnerable groups including farmers, sub urban and per urban communities. This includes programmes that focus on (1) improving farming techniques; (2) address climate change issues which may adversely affect food systems (3) improving the reliability and stability of the food distribution and supply. To be awarded a score of full compliance this must have been done within a year of the Port of Spain Declaration.

Score Ruberic:

Score	Description
-1	The institution has not engaged in programmes targeted to vulnerable populations to increase food availability AND/OR addressed the impact of external shocks such as climate change or economic shocks on food systems. AND/ OR promoted farming practices which improved the nutrition value of foods produced.
0	The institution engaged in programmes targeted to vulnerable populations to increase food availability OR addressed the impact of external shocks such as climate change or economic shocks on food systems OR promote farming techniques which improved the nutrition value of foods produced.
+1	The institution engaged in programmes targeted to vulnerable populations to increase food availability AND

[58] ibid.

[59] Food and Agricultural Organization. *Food Security Policy Brief*. Accessed 26 July 2015. http://www.fao.org/forestry/13128-0e6f36f27e0091055bec28ebe830f46b3.pdf .

	addressed the impact of external shocks such as climate change or economic shocks on food systems AND promoted farming techniques which improved nutrition of foods produce within the compliance period.

Notes:

CARDI met its mandate within the compliance period. In 2008, CARDI supported member states in improving food security by expanding technical support for the expansion of farmer production of traditional staples such as sweet potato, cereals and legumes and soya beans and other vegetables[60]. CARDI also participated in an initiative to develop and evaluate technologies for undercover vegetable production with the first project completed in St. Lucia at the end of 2008[61]. These activities were conducted with the view to securing supplies of wholesome foods from local and regional sources. The institution also developed an initiative to evaluate the CARDI impact of climate change on agricultural development which was executed in 2009.[62]

A5.H-3: Compliance Report: Caribbean Cooperation in Health Initiative Secretariat

The Caribbean Cooperation in Health (CCH) Secretariat is jointly run by the Caricom Secretariat and Pan American Health Organization. It is mandated to develop and implement programmes which focus action and resources on priority health issues of common concern to the Caribbean community, with particular consideration given to vulnerable groups.

Compliance Average: 1

Mandate	-1	0	+1
C 26 - we declare] Our continuing support for CARICOM and PAHO as the joint Secretariat for the Caribbean Cooperation in Health (CCH) Initiative to be the entity responsible for revision of the regional plan for the prevention and control of NCDs, and the monitoring and evaluation of this Declaration.		X	

[60] Caribbean Agricultural Research and Development Institute. 2008 Annual Report. Accessed 26 July 2015. http://www.cardi.org/wpcontent/themes/default/files/annualreports/AR2008.pdf
[61] ibid.
[62] Caribbean Agricultural Research and Development Institute. 2009 Annual report, Introduction http://www.cardi.org/wp-content/themes/default/files/annualreports/CARDI%20AR%202009.pdf

Background:

Mandate Features:

The institution must update or modify the plan of action to control and prevent NCDs in the Caribbean to reflect commitments in the POS Declaration, keep record of progress and determine the extent to which the POS commitments are being implemented within a year of the Port of Spain declaration.

Ruberic Score:

Score	Description
-1	The institution did not update the NCD Plan AND/OR track member state progress towards compliance with commitments AND/OR track progress of institutions towards implementation of mandates .
0	The institution updated the NCD Plan OR tracked member state progress towards compliance with commitments OR tracked progress of institutions towards implementation of mandates .
+1	The institution updated the NCD Plan AND tracked member state progress towards compliance with commitments AND tracked progress of institutions towards implementation of mandates within a year of the POS Declaration

Notes:

The institution met its mandate outside the compliance period. A Strategic Plan of Action for the Prevention and Control of NCDs in Countries of the Caribbean Community (2011-2015) was drafted in 2009 in line with the POS declaration. The institution has also provided support for monitoring and evaluation of member state implementation in 2008. In 2009, a monitoring compliance GRID was developed as a monitoring and evaluating tool for presentation to Ministers. The GRID in its current form does not track institution compliance with mandates issued in the POS Declaration.

A5.H-4: Compliance Report: Office of Trade Negotiations (OTN)

The Office of Trade Negotiations (OTN) formerly the Caribbean Regional Negotiating Machinery) is a specialized department of the Caribbean Community (CARICOM) secretariat. Its mandate is to develop, coordinate and execute an overall negotiating strategy for various external trade negotiations in which the Caribbean Community member states are involved. The OTN develops and maintains a cohesive and effective framework for the coordination and management of the Caribbean Region's negotiating resources and expertise.

Mandate	-1	0	+1
C16 - [we declare] Our support for the efforts of the Caribbean Regional Negotiating Machinery (CRNM) to pursue fair trade policies in all international trade negotiations thereby promoting greater use of indigenous agricultural products and foods by our populations and reducing the negative effects of globalisation on our food supply;			X

Background

In 2007, the CARICOM Summit took on the challenge of preventing and controlling non-communicable diseases (NCDs). Leaders at the summit focused on the "big four" NCDs: cardio-vascular disease, diabetes, cancer and respiratory disease, and consequently, the four key drivers risk factors of those diseases: lack of physical activity, tobacco use, alcohol abuse and unhealthy diets. This mandate is directly linked to the challenge of unhealthy diets[63]. The background paper recognized the link between unhealthy diets and international trade. International trade lowers the costs of energy dense foods and diets relative to nutrient rich foods and diets. Consumers in the Caribbean are shifting away from traditional (high nutrient and fibrous) staple foods to consume more highly refined, often imported, foods, dietary patterns associated with increased risk of diet-related disease. In particular, the consumption of energy dense foods which are nutrient poor were found to be a contributing factor to over eating and obesity amongst the poor and disadvantaged in developing countries such as the Caribbean.

[63] Controlling NCDs through Summitry: The CARICOM Case, University of Toronto. Accessed July 26, 2015. http://www.ghdp.utoronto.ca/pubs/caricom-case-study.pdf.

Mandate Features:

Fair trade policies are defined in POS Declaration as policies which promote the use of indigenous products and foods and protect the region from the negative effects of globalization on the food supply [64]. They may include but are not limited to:

- maintaining import tariff levels on food imports which can be substituted with locally or regionally produced foods;
- development cooperation programmes within trade agreements to promote innovation and improve local and or regional food production systems.

To be awarded a score of full compliance the institution must have negotiated terms within trade agreements which encourage use of food products from national and regional sources within a year of the Port of Spain Declaration.

Score ruberic:

Score	Description
-1	The institution did not negotiate trade agreements which maintained tariffs on most locally or regionally produced local foods, AND/OR included co operation programmes for improving local and regional food production systems.
0	The institution negotiated trade agreements which maintained tariffs on most locally or regionally produced goods OR included co operation programmes for improving local and regional food production systems.
+1	The institution negotiated agreements which maintained tariffs on most locally or regionally produced foods AND included co operation programmes for improving local and regional food production systems.

Notes:

The OTN met its mandate within the compliance period. In 2008, the OTN (then the CRNM) negotiated the CARIFORUM European Union Economic Partnership Agreement (the EPA). Terms negotiated by the OTN include support to producers for research and development; innovation and the

[64] CARICOM Ministers of Agriculture.
Declaration of St. Ann: Implementing Agriculture and Food Policies to Prevent Obesity and Non Communicable Diseases (NCDs) in the Caribbean Community. Accessed July 31 2015. http://www.caricom.org/jsp/communications/meetings_statements/declaration_st_ann.jsp

protection of intellectual property pertaining to food products[65]. Most agricultural products were excluded from tariff liberalization commitments[66,67]. Following the POS declaration, the OTN has conducted a review or World Trade Organization rules and provided advise on the scope for adjust tariffs and subsidies on priority foods.

A5.H-5: Compliance Report: The Caribbean Epidemiology Centre

The Caribbean Epidemiology Centre (CAREC) was established following a multilateral agreement between Caribbean Community member states and WHO/PAHO. CAREC was mandated with health and disease surveillance, education and training, as well as conducting research on health problems facing the Caribbean. The CAREC was operated by the Pan American Health Organisation/World Health Organisation (PAHO/WHO) until the end of 2012. Its functions were subsumed within the Caribbean Public Health Agency established which commenced operations in 2013.

Compliance Score: 0.2

Mandate	-1	0	+1
C10 - [we declare] That our Ministries of Health, in collaboration with other sectors, will establish by mid-2008 comprehensive plans for the screening and management of chronic diseases and risk factors so that by 2012, 80% of people with NCDs would receive quality care and have access to preventive education based on regional guidelines;		X	

Background:

The Working document identified screening for cardiovascular disease, diabetes, Blood Pressure and some cancers as well as disease management as effective interventions as effective management and

[65] European Parliament. 2008. The Cariforum EU Economic Partnership Agreement: The Development Component, p44. Accessed August 2 2015. http://www.odi.org/sites/odi.org.uk/files/odi-assets/publications-opinion-files/4205.pdf.
[66] Economic Commission for Latin America and the Caribbean. 2008. "The CARIFORUM EU Economic Partnership Agreement (EPA): An Assessment of Issues relating to Market Access, Safeguards and Implications for regional Integration, pg 4. Accessed July 31 2015. http://www.cepal.org/publicaciones/xml/9/35129/L.181.pdf.
[67] CARIFORUM European Union Economic Partnership Agreement Goods Schedule. Accessed July 31 2015.

control[68]. The Caribbean Health Research Council (CHRC) had developed guidelines for management of hypertension and diabetes and the Caribbean Food and Nutrition Institute had also developed guidelines for dietary management of diabetes, obesity[69]. However, the working document noted that the 2005 World Health Organization survey to evaluate national capacity for prevention and control of NCD found that quidelines for quality of care which is critical to prevention of complications of NCDs and risk factors were relatively weak across member states[70]. The Heads of Government recognized the need for adapting existing guidelines and establishing integrated regional guidelines for screening and management of NCDS.

Mandate Features:

The institution must develop quality of care protocols and practices to inform the process for screening and managing NCD factors in collaboration with UWI. To be awarded a score of full compliance these activities must have been completed within a year of the POS Declaration.

Score Ruberic:

Score	Description
-1	The institution made no progress toward identifying and describing best practices, to inform activities for screening and managing NCDs and their risk factors
0	The institution made progress towards identifying and describing best practices, to inform the process for screening and managing NCDs and their risk factors.
+1	The institution identified and described best practices, to inform the process for screening and managing NCDs and their risk factors within a year of the POS Declaration.

Notes:

CAREC in collaboration with UWI (St. Augustine) worked on a regional project entitled **"Regional Non Communicable Diseases (NCD) Surveillance System** with one of its objectives being to develop regional protocols for screening and management of NCDs and their risk factors activities related to addressing NCD concerns in five selected countries (Trinidad & Tobago, Jamaica, Belize, Bahamas and Guyana). The project was funded through the Inter American Development Bank. The project was completed in 2012[71].

[68] Caribbean Community Secretariat. 2007. Working Document for Summit of CARICOM Heads of Government on Chronic Non-Communicable Diseases: Stemming the tide of Non-communicable diseases in the Caribbean Executive Summary. Accessed July 22 2015. http://www.caricom.org/jsp/community/chronic_non_communicable_diseases/executive_summary.pdf

[69] ibid.
[70] ibid
[71] IADB project document at http://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=1276664 pg 6

Mandate	-1	0	+1
C25- we declare] That we will establish, as a matter of urgency, the programmes necessary for research and surveillance of the risk factors for NCDs with the support of our Universities and the Caribbean Epidemiology Centre/Pan American Health Organisation (CAREC/PAHO);			X

Background:

As part of efforts to enhance the possibility of prevention and control of NCDs in the region, a system of behaviour and risk factor survey surveillance was recommended. Heads of Government agreed that immediate collective action was necessary to manage and control NCDs, and also agreed that effective action to achieve these objectives hinge on the availability of accurate, relevant and comparable data on the national and regional NCDs[72]. The UWI was mandated to collaborate with CAREC, and other partners, to support and strengthen the capacity of countries to conduct research and surveillance.

Mandate Features:

Support of research and surveillance in member states includes activities which (1) which enhance the capacity of member states to collect data, (2) improve member state systematization of data, (3) provide resources to facilitate analysis of disease burdens, (4) monitoring of risk factors and the determinants of chronic diseases. To achieve full compliance, the institution must have engaged in these activities within a year of the POS Declaration.

Score Ruberic:

Score	Description
-1	The institution did not provide support to members to enhance the capacity to collect data

[72] Inter American development Bank. 2010. IDB Jointly Surveilling diseases in the Caribbean. Prepared for SSC in the Context of Aid Effectiveness: Telling the Story of Partners in South-South and Triangular Cooperation 2010. Accessed August 5 2015. http://www.southsouth.org/uploads/IDB_-_Jointly_surveilling_diseases_in_the_Caribbean.pdf.

	AND/OR improve member state systematization of data AND/OR analysis of disease burdens AND/OR carry out surveys to monitor risk factors and the determinants of chronic diseases
0	The institution provide support to members to enhance the capacity to collect data OR improve member state systematization of data OR analysis of disease burdens OR carry out surveys to monitor risk factors and the determinants of chronic diseases
+1	The institution provided support to members to enhance the capacity to collect data AND improve member state systematization of data AND analysis of disease burdens AND/ carry out surveys to monitor risk factors and the determinants of chronic diseases within a year of the POS declaration

Notes:

The World Health Organization STEPS Survey is a comprehensive tool for the surveillance and analysis of NCD risk factors and disease[73]. CAREC supported the WHO STEP surveys in Barbados, Dominica and St. Kitts in 2008.

CAREC in collaboration with UWI (St. Augustine) worked on a regional project entitled **"Regional Non Communicable Diseases (NCD) Surveillance System** which provided a gap analysis of NCD national registers and surveillance systems, a prototype for a regional surveillance system for (NCDs) and minimum data set reporting to facilitate monitoring and reporting[74]. In 2009, the Caribbean Minimum Dataset on NCDs was finalized and the six participating countries commenced their annual reporting on NCDs using the Minimum Dataset[75]. CAREC also took part in on a regional project with one

[73] World Health Organization. STEPwise Approach to Surveillance (STEPS). Accessed July 14 2015. http://www.who.int/chp/steps/en/ .

[74] Inter American development Bank. 2010. IDB Jointly Surveilling diseases in the Caribbean. Prepared for SSC in the Context of Aid Effectiveness: Telling the Story of Partners in South-South and Triangular Cooperation 2010. Accessed August 5 2015. http://www.southsouth.org/uploads/IDB_-_Jointly_surveilling_diseases_in_the_Caribbean.pdf.

[75] Ibid.

of its objectives being to establish research and surveillance programmes for (NCDs). The project was funded through the Inter American Development Bank[76]. The project was completed in 2012.

A5.H-6: Compliance Report: Caribbean Regional Organization for Standards and Quality (CROSQ)

The Caribbean Regional Organization for Standards and Quality (CROSQ) is the regional centre for promoting efficiency and competitive production in goods and services, through the process of standardization and the verification of quality.

Compliance Average: 0

Mandate	-1	0	**+1**
C7: [we] insist on effective warning labels [for tobacco]		X	

Background:

In 2007, the CARICOM Summit took on the challenge of preventing and controlling non-communicable diseases (NCDs). Leaders at the summit focused on the "big four" NCDs: cardio-vascular disease, diabetes, cancer and respiratory disease, and consequently, the four key drivers risk factors of those diseases: lack of physical activity, tobacco use, alcohol abuse and unhealthy diets[77]. This mandate is directly linked to the challenge of tobacco use. Caribbean countries signed the World Health Organization Framework Convention on Tobacco Control (WHO FCTC) which seeks to reduce the demand and supply of tobacco[78]. Article 11 of the WHO FCTC requires countries to adopt and implement effective measures to ensure that tobacco product packages carry large health warnings and messages describing the harmful

[76] IADB project document at http://idbdocs.iadb.org/wsdocs/getdocument.aspx?docnum=1276664 pg 6

[77] Controlling NCDs through Summitry: The CARICOM Case, University of Toronto. Accessed July 26, 2015. http://www.ghdp.utoronto.ca/pubs/caricom-case-study.pdf.

[78] World Health Organization . Framework Convention on Tobacco Control. Accessed August 1 2015. http://www.who.int/fctc/about/WHO_FCTC_summary_January2015.pdf?ua=1.

effects of tobacco use; that these warnings cover 50% or more, but not less than 30% of principal display areas and that they are in the Parties' principal language(s)[79].

Mandate Features:

The WHO FCTC Guidelines for implementation of Article 11 of the WHO Framework Convention on Tobacco Control (Packaging and labelling of tobacco products) identify effective warning labels as colored, rotating warnings and messages using larger picture warnings and messages located on principal display areas and at the top of these principal display areas in the country's principal language(s) [80].

The institution must have developed technical specifications that require tobacco product labels to include coloured, rotating graphic health messages and warnings that cover of a minimum of 50% of the product label, located on principal display areas and at the top of these principal display areas in the country's principal language(s). To be awarded a score of full compliance, the standard must have been developed within a year of the POS Declaration.

Score	Description
-1	The institution has not developed technical specifications for tobacco warning labels that require rotating graphic health warnings AND/OR coverage of a minimum of 50% of the product label AND/OR located on principal display areas and at the top of these principal display areas AND/OR in the country's principal language
0	The institution has developed technical specifications for tobacco warning labels that require rotating graphic health warnings OR coverage of a minimum of 50% of the product label OR located on principal display areas and at the top of these principal display areas OR in the country's principal language
+1	The institution has not developed technical specifications for tobacco warning labels that require rotating graphic health warnings AND coverage of a minimum of 50% of the product label AND located on principal display areas and at the top of these principal display areas AND in the country's principal language within a year of the POS declaration.

[79] World Health Organization . Framework Convention on Tobacco Control. Accessed August 1 2015. http://www.who.int/fctc/about/WHO_FCTC_summary_January2015.pdf?ua=1.

[80] World Health Organization. Guidelines for implementation of Article 11 of the WHO Framework Convention on Tobacco Control (Packaging and labelling of tobacco)products. Accessed July 31 2015. http://www.who.int/fctc/guidelines/article_11.pdf?ua=1

Notes:

The institution met its mandate outside the compliance year. CROSQ through the Jamaica Bureau of Standards began work on developing a regional standard for packaging and labelling to include Graphic health Warning labels in 2008. The standard was finalized in 2012 and adopted in 2013. It requires coloured, rotating graphic health warnings covering 50% of the product label located on principal display areas and at the top of these principal display areas in the Parties' principal language(s).

Mandate	**-1**	**0**	**+1**
C17 - [we declare] Our support for mandating the labelling of foods or such measures as are necessary to indicate their nutritional content through the establishment of the appropriate regional capability;		X	

Background:

In 2007, the CARICOM Summit took on the challenge of preventing and controlling non-communicable diseases (NCDs). Leaders at the summit focused on the "big four" NCDs: cardio-vascular disease, diabetes, cancer and respiratory disease, and consequently, the four key drivers risk factors of those diseases: lack of physical activity, tobacco use, alcohol abuse and unhealthy diets[81]. This mandate is directly linked to the challenge of unhealthy diets. Caribbean populations were found to have more calories available per capita than needed and way over-target for per capita consumption of fats, oils and sugars[82]. These unhealthy dietary consumption patterns were linked to the rising rates of obesity[83]. Nutrition labels have been identified as an important means of facilitating choice of and access to

[81] Controlling NCDs through Summitry: The CARICOM Case, University of Toronto. Accessed July 26, 2015. http://www.ghdp.utoronto.ca/pubs/caricom-case-study.pdf.

[82] Caricom Secretariat. 2007. Working Document for Summit of CARICOM Heads of Government on Chronic Non-Communicable Diseases: Stemming the tide of Non-communicable diseases in the Caribbean

Executive Summary. Accessed 31 July 2015.
http://www.caricom.org/jsp/community/chronic_non_communicable_diseases/executive_summary.pdf

[83] ibid.

nutrient-dense foods[84]. It helps consumers make food choices that will enhance health and make food choices that will prevent risk of NCDs.

Mandate Features:

A nutritional label describes the nutrient content of a food. The CODEX identifies two components to nutrition labelling: (1) a nutrient declaration which is a standardized statement or listing of the nutrient content of a food and (2) the nutrition claim states, suggests or implies that a food has particular nutritional properties as well as the content of vitamins and minerals[85]. The institution must have developed or identified technical specifications that lays out approved features for listing of ingredient, nutrition content and claims on prepackaged food labels. To be awarded a score of full compliance, the technical specifications must have been developed within a year of the POS Declaration.

Score Ruberic:

Score	Description
-1	The institution did not develop a standard for nutritional labelling that required an ingredient list AND/OR nutrition contents AND/OR and nutrition claims.
0	The institution developed a standard for nutritional labelling that required an ingredient list OR nutrition contents OR and nutrition claims
+1	The institution developed standard for nutritional labelling that required an ingredient list AND nutrition contents AND and nutrition claims within one year of the POS Declaration.

Notes:

[84] World Health Organization. 2003. Diet, nutrition and the prevention of chronic diseases. Report of a Joint WHO/FAO Expert Consultation. (WHO Technical Report Series, No. 916). Accessed July 21 2015. http://www.who.int/hpr/NPH/docs/who_fao_expert_report.pdf.

[85] Food and Agriculture Organization. 1992. CODEX Guidelines on Nutrition Labelling. Accessed July 20 2015. http://www.fao.org/docrep/005/y2770e/y2770e06.htm

The institution met its mandate outside the compliance period. In 2010, CROSQ developed the CARICOM Regional Standard Specification for Labeling of pre-packaged foods under the supervision of the Regional Technical Committee for Labelling hosted by the Jamaica Bureau of Standards[86]. The CARICOM standard. It conforms to the CODEX guidelines for nutritional labelling and requires that labels of prepackaged foods include transfat, sugar and sodium content levels.

A5.H-7: Compliance Report: University of the West Indies

The University of the West Indies (the UWI) is a public university system serving 18 English-speaking countries and territories in the Caribbean: The UWI consists of three physical campuses at Mona in Jamaica, St. Augustine in Trinidad and Tobago, Cave Hill in Barbados. There are satellite campuses in Trinidad and Tobago Jamaica, and Bahamas as well as Open campus in a few Caribbean countries.

Compliance Average:

Mandate	-1	0	+1
C25- [we declare] That we will establish, as a matter of urgency, the programmes necessary for research and surveillance of the risk factors for NCDs with the support of our Universities and the Caribbean Epidemiology Centre/Pan American Health Organisation (CAREC/PAHO);		X	

Background:

In 2007, the CARICOM Summit took on the challenge of preventing and controlling non-communicable diseases (NCDs). Leaders at the summit focused on the "big four" NCDs: cardio-vascular disease, diabetes, cancer and respiratory disease, and consequently, the four key drivers risk factors of those diseases: lack of physical activity, tobacco use, alcohol abuse and unhealthy diets. Heads of Government agreed that immediate collective action was necessary to manage and control NCDs, and also agreed that effective action to achieve these objectives hinges on the availability of accurate, relevant and comparable data on the national and regional NCDs. They therefore mandated the establishment of regional and national NCDs surveillance systems to track disease, and to better plan, deliver and monitor responses[87].

[86] Caribbean regional Organization for Standards and Quality. 2010. CARICOM Regional Standard Specification for Labeling of pre-packaged foods. Accessed on July 21 2015. https://law.resource.org/pub/crs/ibr/cc.crs.5.2010.html

[87] Inter American development Bank. 2010. IDB Jointly Surveilling diseases in the Caribbean. Prepared for SSC in the Context of Aid Effectiveness: Telling the Story of Partners in South-South and Triangular Cooperation 2010.

Mandate Features:

Research and surveillance include activities include supporting the collection, systematization and analysis of disease burden, risk factors and determinants of chronic diseases. To achieve a partial compliance score, the institution must have conducted at least one of the activities. To be awarded a score of full compliance the institution must have conducted all of the activities including assistance in conducting a national survey in at least one member state a year of the POS Declaration.

Score Ruberic:

Score	Description
-1	The institution did not conduct a gap analysis of NCD national registers and surveillance systems AND/OR develop a regional surveillance system AND/OR assist in conducting the Global Youth Tobacco Survey or the NCD Risk Factor STEPS Survey .
0	The institution conducted a gap analysis of NCD national registers and surveillance systems OR developed a regional surveillance system OR assisted in conducting the Global Youth Tobacco Survey or the NCD Risk Factor STEPS Survey in at least one member state .
+1	The institution conducted a gap analysis of NCD national registers and surveillance systems AND developed a regional surveillance system AND assisted in conducting a Risk factor survey in at least one member state within the compliance period.

Notes:

The UWI fulfilled its mandate outside the compliance period. In 2008, the UWI (St. Augustine and Cave Hill Campus) collaborated with CAREC/PAHO on a regional project entitled **"Regional Non Communicable Diseases (NCD) Surveillance System** which provided a gap analysis of NCD national registers and surveillance systems (2) a prototype for a regional surveillance system for (NCDs) and

Accessed August 5 2015. http://www.southsouth.org/uploads/IDB_-_Jointly_surveilling_diseases_in_the_Caribbean.pdf.

minimum data set reporting to facilitate monitoring and reporting[88]. In 2009, the Caribbean Minimum Dataset on NCDs in March 2009, was finalized with the six participating countries took place in October 2009. These countries commenced their annual reporting on NCDs using the Minimum Dataset[89]. In 2011, the UWI (St. Augustine) provided assistance to Trinidad & Tobago to conduct its PANAMERICAN STEP Chronic Non Communicable Disease Risk Factor Survey.[90]

[88] Inter American development Bank. 2010. IDB Jointly Surveilling diseases in the Caribbean. Prepared for SSC in the Context of Aid Effectiveness: Telling the Story of Partners in South-South and Triangular Cooperation 2010. Accessed August 5 2015. http://www.southsouth.org/uploads/IDB_-_Jointly_surveilling_diseases_in_the_Caribbean.pdf.

[89] Ibid.

[90] Ministry of Health of the Government of Trinidad & Tobago. PANAMERICAN STEPS Chronic Non - Communicable Disease Risk Factor Survey 2011. Accessed August 10 2015. http://www.who.int/chp/steps/TrinidadAndTobago_2011_STEPS_Report.pdf

Appendices for Chapter 6

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Appendix A6.A: Matching Commitments of the Port of Spain Summit 2007 and United Nations High Level Meeting on Non-communicable Diseases 2011

Port of Spain Summit Commitment	Year One Compliance	Matching United Nations High Level Meeting on Non-communicable Diseases Commitments	Frequency	Strength
POS-01	–0.25	91, 92, 93, 94, 95, 96, 97, 98, 99, 100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 123, 124, 125, 134	23	1
POS-02	–0.07	**1, 17**, 33**, 68**, 163	5	2
POS-03	–0.50	0	0	0
POS-04	–0.64	0	0	0
POS-05	–0.50	0	0	0
POS-06	–0.57	0	0	0
POS-07	–0.62	5, 21, 37	3	1
POS-08	0.14	13, 25, **29,** 41, 45	5	2
POS-09	–0.14	0	0	0
POS-10	–0.45	86, 133, 145, 146, 147, 148, 149, 150, 151, 162	10	2
POS-11	0.65	0	0	0
POS-12	0.40	0	0	0
POS-13	–0.10	2, 6, 22, 38, 80, 81	6	2
POS-14	–0.25	0	0	0
POS-15	–0.30	**75,** 79	2	3
POS-16	–0.15	82, 157	2	2
POS-17	–0.20	0	0	0
POS-18	–0.70	3, 7, 11, **15,** 19, 23, 27, 31, 35, 39, **43**, 47, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67	31	3
POS-19	–0.65	69	1	3
POS-20	–0.9	**115, 116**	2	3
POS-21	0.10	87, 88, 89, 90, 193, 194	6	3
POS-22	0	195, 197	2	3
POS-23	–0.45	0	0	0
POS-24	0	180	1	1
POS-25	0.25	131, 132, 189, 190, 191, 192, 196, 198, 199, 200, 201, 202, 203, 204, 205	15	2
POS-26	0	113, 188	2	1
POS-27	0.35	0	0	0

POS-02 Compliance: Year 2 (2009) +0.10; Year 3 (2010) +0.20; Year 4 (2011) +0.20; Year 5 (2012) +0.45

POS-14 Compliance: Year 2 (2009) +0.35; Year 3 (2010) +0.35; Year 4 (2011) +0.35

*Highlighted commitments have been assessed

Appendix A6.B

Appendix A6.B-1: HLM 2011 Compliance by 2012

		Assessor	All	CARICOM	Other	Difference CARICOM-Other
1	Tobacco international agreements	BM	+0.25	+0.11	+0.38	-0.27
15	Physical activity fiscal	BW/BR	-0.10	-0.16	-0.05	-0.11
17	Tobacco cost-effective measures	BM	-0.48	-0.58	-0.38	-0.20
29	Tobacco fiscal measures	BW/BR	+0.23	0.00	+0.38	-0.38
40	Alcohol education	BW/KJ	-0.35	-0.37	-0.33	-0.04
43	Physical Inactivity Legalization	BM	-0.33	+0.21	-0.80	+1.01
68	FCTC implementation	BM	+0.68	+0.95	+0.43	+0.52
75	Transfats	BC	+0.13	0.00	-0.20	+0.20
115	Gender prevention	BW	+0.25	+0.31	+0.19	+0.12
116	Gender control	BW/AW	+0.10	+0.10	+0.09	+0.01
118	Obesity in youth	BW/KJ	0.12	+0.36	-0.09	+0.45
152	Universal primary health care	BW	+0.20	0.00	+0.38	-0.38
154	Sexual/reproductive & maternal/newborn/child health	AW	+0.40	+0.21	+0.52	-0.31
N13	Average		+0.08	+0.09	+0.04	+0.05

*Compiled by Brittaney Warren, August 16, 2016, from the GHDP UNHLM 2011 Compliance Dataset

AW – Alissa Wang
BC – Becky Carpenter
BM – Bailie McGurn
BR – Blane Ranger
BW – Brittaney Warren
KJ – Kayla Jacobs

Appendix A6.B-2: CCH3 Indicator Implementation, 2011, 2013, 2014

CCH3	2011, N15	2013, N21	2014, N19
1. National Chronic Disease Policy	+0.20	−0.05	+0.32
2. Behavioural risk factor surveillance system	+0.07	−0.33	−0.05
3. 90% cigarettes have FCTC compliant labels	−0.07	+0.10	+0.11
4. Reduction in drunk driving fatalities	−0.80	−0.48	−0.26
5. Transfat free policies	−1.00	−0.91	−0.90
6. Nutritional standards for schools, workplaces and institutions	+0.47	−0.14	+0.32
7. Food based dietary guidelines	−0.07	+0.00	+0.42
8. Salt consumption has declined	−1.00	−0.71	−0.58
9. Promote physical activity	+0.40	−0.10	+0.16
10. Car-free Sundays or mass physical activity event	−0.40	−0.48	+0.32
11. Faith-based organisations in responding to NCD's	+0.47	+0.29	+0.37
12. A behavioural risk factor surveillance system in operation	−0.33	−0.29	+0.05
13. My country has 100% smoke-free public spaces	+0.60	−0.48	+0.11
14. Evidence based protocols for prevention and control of NCDs	+0.67	+0.19	+0.56
15. Evidence based protocols NCD screening, prevention & control	−0.47	+0.10	+0.42
16. 80% of at risk populations screened and treated	+0.60	−0.29	−0.05
17. improved Primary Care services access for cardiovascular risk	−0.47	+0.14	+0.42
18. Chronic Care Model implemented in 50% of health facilities	−0.60	−0.24	+0.05
19. Reduction of childhood obesity	+0.87	−0.67	−0.74
20. Programmes for prevention and control of cancers	+0.87	+0.43	+0.79
21. Training for Public Health Care	+1.00	+0.48	+0.68
22. Reporting data at least annually on NCDs	−0.87	+0.67	+0.56
23. Standardised monitoring and evaluation systems	−0.60	−0.48	−0.05
24. Progress reports of NCDs	+0.60	−0.38	−0.37
25. Production of media packages on healthy eating	−0.20	+0.29	+0.56
26. Social Change Communication strategies	−0.60	−0.14	+0.16
27. Restrict advertising of unhealthy products to children	−0.20	−0.57	−0.84
28. Intersectoral NCD Commissions	−0.20	+0.05	+0.26
29. National NCD Plan developed and finalised	+0.07	+0.14	+0.32
30. At least two priority interventions from NCD plan implemented	−0.13	+0.14	+0.37
31. National health expenditure budget is at least 6% of GDP	−0.13	+0.14	+0.26
32. Additional (new) financial resources for health financing	+0.73	+0.05	+0.56
33. Country formularies for vital, essential & necessary NCD drugs	+0.73	+0.76	+0.84
34. generic drugs for NCDs are accessible	+0.93	+1.00	+0.95
Overall Average	+0.02	−0.05	+0.17

Appendix A6.C: Compliance and Indicator Implementation for Port of Spain Summit Commitments

		POSS Compl	CCH3 Implementation			HLM Commitment 2011			Assessed Compliance 2012		
POSS Commitment	CCH3 Indicator(s)	2008	2011	2013	2014	Match Freq.	Match Str.	Assessed	All	CAR	Other
1. Regional institutions	None	−0.25				23	1				
2. Legislate FCTC	None	−0.07				5	2	1, 17, 68	+0.15	+0.16	+0.14
3. Ban smoking in public	13. Smoke-free public places	−0.50	+0.60	-0.48	+0.11	0	0				
4. Ban child tobacco sales	None	−0.64				0	0				
5. Ban child tobacco ads	27. Restrict unhealthy product ads to children	−0.50	-0.20	-0.57	-0.84	0	0				
6. Ban child tobacco promo	None	−0.57				0	0				
7. Warning labels tobacco	3. FCTC Compliant Labels	−0.62	-0.07	+0.10	+0.11	3	1				
8. Fiscal measures tobacco	None	+0.14				5	2	29	+0.23	0.00	+0.38
9. Revenue tobacco alcohol	32. Additional (new) financial resources for health financing	−0.14	+0.73	+0.05	+0.56	0	0				
10. Screening	15. Evidence based protocols NCD screening 16. 80% of at risk population screened	−0.45	-0.47 +0.60	+0.10 -0.29	+0.42 -0.05	10	2				
11. Mandat school phys ed	None	+0.65				0	0				
12. Incentives/resources phys ed. in schools	None	+0.40				0	0				
13. Healthy meals/eating through education	6. Nutritional standards for schools, workplaces and institutions	−0.10	+0.47	-0.14	+0.32	6	2				
14. Food security	None	−0.25				0	0				
15. Transfats	5. Transfat-free policies	−0.30	-1.00	-0.91	-0.90	2	3	75	+0.13	0.00	-0.20
16. Fair trade	None	−0.15				2	2				
17. Food labelling for nutrition	7. Food based dietary guidelines	−0.20	-0.07	0.00	+0.42	0	0				
18. Mass physical education	9. Promote physical activity 10. Car-free Sundays or mass physical activity event	−0.70	+0.40 -0.40	-0.10 -0.48	+0.16 +0.32	31	3	15, 43	-0.22	+0.03	-0.43
19. Parks for phys ed.	None	−0.65				1	3				
20. Gender	None	−0.90				2	3	115, 116	+0.18	+0.21	+0.14
21. Incentives for public education on wellness	None	+0.10				6	3				

POSS Commitment	CCH3 Indicator(s)	POSS Compl	CCH3 Implementation			HLM Commitment 2011			Assessed Compliance 2012		
		2008	2011	2013	2014	Match Freq.	Match Str.	Assessed	All	CAR	Other
22. Incentives for public education on changing behavior	None	0.00				2	3				
23. Incentives for public education on NCD self-management	None	−0.45				0	0				
24. Media partners	25. Production of media packages on healthy eating	0.00	-0.20	+0.29	+0.56	1	1				
25. Research and surveillance	2. Behavioural Risk Factor Surveillance System (BRFSS) 12. BRFSS in operation	+0.25	+0.07 -0.33	-0.33 -0.29	-0.05 +0.05	15	2				
26. Monitoring and evaluation	23. Standardized monitoring and evaluation systems	0.00	-0.60	-0.48	-0.05	2	1				
27. Caribbean Wellness Day	None	+0.35				0	0				
No match	–	-	-	-	-	-	-	118	+0.12	+0.36	−0.09
No match	-	-	-	-	-	-	-	40	−0.35	−0.37	−0.33
No match	-	-	-	-	-	-	-	152	+0.20	0.00	+0.38
No match	-	-	-	-	-	-	-	154	+0.40	+0.21	+0.51
Top-half average		+0.09	+0.03	-0.09	+0.30						
Bottom-half average		-0.52	-0.10	-0.38	-0.19						
Top-Bottom Difference		-0.22	+0.13	+0.29	+0.49						

Blank cells indicate there was no match between the POSS commitment and a CCH3 Indicator

Where there are multiple HLM commitments assessed for compliance the compliance score reported for ALL, Car, and other is the average of all assessed commitments

Appendix A6.D: Western Hemisphere Commitment Compliance and Causes with 2011 United Nations High Level Meeting on Non-communicable Diseases

	Commitment	COMPLIANCE				PREDICTORS				
		40 Average	19 CARICOM	21 Other Ave	5 G20 Average	POSS Precursors	POSS Compliance	POSS-UN Match Frequency	POSS-UN Match Strength	Components Choice
2011-040	Harmful use of alcohol through education	-0.35	-0.37	-0.33	-0.40	-		0	0	3 of 3
2011-118	Obesity in youth	0.13	0.37	-0.10	0.40	-		0	0	2 of 2+
Average	**No POSS precursor (n=2)**	**-0.11**	**0.00**	**-0.21**	**0.00**	**N=2**	-	**0**	**0**	**2.5 of 2.5+**
2011-001	multisectoral interventions on tobacco use	0.25	0.11	0.38	0.20	2007-2	0.14	5	2	3 of 3
2011-015	physical inactivity through fiscal measures	-0.10	-0.16	-0.05	0.60	2007-18	-0.70	31	3	3 of 3
2011-017	cost-effective interventions for tobacco use	0.44	-0.07	0.81	1.00	2007-2	0.14	5	2	3 of 4
2011-029	tobacco use through fiscal measures	0.23	0.00	0.38	0.40	2007-8	-0.07	5	2	2 of 2
2011-043	physical inactivity through education	0.15	0.19	0.00	0.33	2007-18	-0.70	31	3	3 of 3
2011-068	WHO FCTC implem, consum, avail	0.68	0.95	0.43	0.20	2007-2	0.14	5	2	2 of 12
Average	**POSS precursor (n=6)**	**0.27**	**0.17**	**0.33**	**0.46**	**N=6**	**-0.18**	**13.67**	**2.33**	**2.7 of 4.5**
Average All	**n=8**	**1.32**	**0.86**	**1.48**	**3.33**		**-1.75**	**113.00**	**17.00**	

Appendix A6.E: Commitment Match of the 2011 and 2014 United Nations High Level Meetings on Non-communicable Diseases

2011 Commitment	2014 Commitment	Matched Frequency	Matched Strength
#80 (Healthy diet)	#16 (Healthy diet)	1	Complete
#81 (Healthy diet)	#17 (Healthy diet)	1	Complete
#82 (Healthy diet)	#18 (Healthy diet)	1	Complete
#93 (National development plan)	#19 (National development plan)	1	High
#68 (Tobacco)	#15 (Tobacco)	1	High
#132 (NCD prevention & control)	#51 (NCD Monitor) #52 (NCD Monitor) #53 (NCD prevention & control)	3	High
#162 (NCD prevention & control)	#58 (NCD prevention & control) #67 (NCD prevention & control) #76 (NCD prevention & control)	3	High
#163 (Health promotion)	#59 (Health promotion) #68 (Health promotion) #77 (Health promotion)	3	High
#164 (Regulation)	#60 (Regulation) #69 (Regulation) #78(Regulation)	3	High
#166 (Training of health personnel)	#62 (Training of health personnel) #71 (Training of health personnel) #80 (Training of health personnel)	3	High
#167 (Healthcare infrastructure)	#63 (Healthcare infrastructure) #73 (Healthcare infrastructure) #81 (Healthcare infrastructure)	3	High
#168 (Diagnostics)	#64 (Diagnostics) #74 (Diagnostics) #82 (Diagnostics)	3	High
#169 (Transfer of technology)	#65 (Transfer of technology) #74 (Transfer of technology) #83 (Transfer of technology)	3	High
#170 (Medicine)	#66 (Medicine) #75 (Medicine) #84 (Medicine)	3	High
#1 (Multisectoral interventions)	#3 (Multisectoral interventions) #4 (Multisectoral interventions)	2	Low
#2 (Multisectoral interventions)	#3 (Multisectoral interventions) #4 (Multisectoral interventions)	2	Low

2011 Commitment	2014 Commitment	Matched Frequency	Matched Strength
#3 (Multisectoral interventions)	#3 (Multisectoral interventions) #4 (Multisectoral interventions)	2	Low
#4 (Multisectoral interventions: international agreements & strategies)	#3 (Multisectoral interventions) #4 (Multisectoral interventions)	2	Low
#5 (Multisectoral interventions: education)	#6 (Multisectoral interventions: education) #10 (Multisectoral interventions: education) #23 (Multisectoral interventions: education) #24 (Multisectoral interventions: education)	4	Low
#6 (Multisectoral interventions: education)	#6 (Multisectoral interventions: education) #10 (Multisectoral interventions: education) #23 (Multisectoral interventions: education) #24 (Multisectoral interventions: education)	4	Low
#6 (Multisectoral interventions: education)	#6 (Multisectoral interventions: education) #10 (Multisectoral interventions: education) #23 (Multisectoral interventions: education) #24 (Multisectoral interventions: education)	4	Low
#7 (Multisectoral interventions: education)	#6 (Multisectoral interventions: education) #10 (Multisectoral interventions: education) #23 (Multisectoral interventions: education) #24 (Multisectoral interventions: education)	4	Low
#8 (Multisectoral interventions: education)	#6 (Multisectoral interventions: education) #10 (Multisectoral interventions: education) #23 (Multisectoral interventions: education) #24 (Multisectoral interventions: education)	4	Low
#9 (Legislative & regulatory measures)	#6 (Legislature) #10 (Regulation)	2	Low
#10 (Legislative & regulatory measures)	#6 (Legislature) #10 (Regulation)	2	Low
#11 (Legislative & regulatory measures)	#6 (Legislature) #10 (Regulation)	2	Low
#12 (Legislative & regulatory measures)	#6 (Legislature) #10 (Regulation)	2	Low
#13 (Fiscal measures)	#6 (Legislature) #10 (Regulation)	2	Low
#14 (Fiscal measures)	#6 (Legislature) #10 (Regulation)	2	Low
#15 (Fiscal measures)	#6 (Legislature) #10 (Regulation)	2	Low

2011 Commitment	2014 Commitment	Matched Frequency	Matched Strength
#16 (Fiscal measures)	#6 (Legislature) #10 (Regulation)	2	Low
#17 (International agreements & strategies)	#7 (International agreements) #8 (Strategies)	2	Low
#18 (International agreements & Strategies)	#7 (International agreements) #8 (Strategies)	2	Low
#19 (International agreements & strategies)	#7 (International agreements) #8 (Strategies)	2	Low
#20 (International agreements & strategies)	#7 (International agreements) #8 (Strategies)	2	Low
#21 (Education)	#10 (Regulation)	1	Low
#22 (Education)	#10 (Regulation)	1	Low
#23 (Education)	#10 (Regulation)	1	Low
#24 (Education)	#10 (Regulation)	1	Low
#25 (Education)	#10 (Regulation)	1	Low
#26 (Education)	#10 (Regulation)	1	Low
#27 (Education)	#10 (Regulation)	1	Low
#28 (Education)	#10 (Regulation)	1	Low
#29 (Education)	#10 (Regulation)	1	Low
#30 (Education)	#10 (Regulation)	1	Low
#31 (Education)	#10 (Regulation)	1	Low
#32 (Education)	#10 (Regulation)	1	Low
#33 (Population-wide interventions: International agreements & strategies)	#11 (Population-wide interventions: international agreements) #12 (Population-wide interventions: strategies)	2	Low
#34 (Population-wide interventions: international agreements & strategies)	#11 (Population-wide interventions: international agreements) #12 (Population-wide interventions: strategies)	2	Low
#35 (Population-wide interventions: international agreements & strategies)	#11 (Population-wide interventions: international agreements) #12 (Population-wide interventions: strategies)	2	Low
#36 (Population-wide interventions: international agreements & strategies)	#11 (Population-wide interventions: international agreements) #12 (Population-wide interventions: strategies)	2	Low
#37 (Population-wide interventions)	#14 (Population-wide interventions)	1	Low
#38 (Population-wide interventions)	#14 (Population-wide interventions)	1	Low
#39 (Population-wide interventions)	#14 (Population-wide interventions)	1	Low
#40 (Population-wide interventions)	#14 (Population-wide interventions)	1	Low
#41 (Population-wide interventions)	#14 (Population-wide interventions)	1	Low

2011 Commitment	2014 Commitment	Matched Frequency	Matched Strength
#42 (Population-wide interventions)	#14 (Population-wide interventions)	1	Low
#43 (Population-wide interventions)	#14 (Population-wide interventions)	1	Low
#44 (Population-wide interventions)	#14 (Population-wide interventions)	1	Low
#45 (Population-wide interventions)	#14 (Population-wide interventions)	1	Low
#46 (Population-wide interventions)	#14 (Population-wide interventions)	1	Low
#47 (Population-wide interventions)	#14 (Population-wide interventions)	1	Low

Appendix A6.F: UN HLM 2011 Compliance Assessments

Country	01	15	17	29	49	43	68 FCTC	75	115	116	118	152	153	154
Antigua & Barbuda							+1							
Argentina							−1							
Bahamas							+1							
Barbados							+1							
Belize							+1							
Bolivia							+1							
Brazil							+1							
Canada							+1							
Chile							+1							
Colombia							+1							
Costa Rica							+1							
Cuba							−1							
Dominica							+1							
Dominican Republic							−1							
Ecuador							+1							
El Salvador							−1							
Grenada							+1							
Guatemala							+1							
Guyana							+1							
Haiti							+1							
Honduras							+1							
Jamaica							+1							
Mexico							+1							
Nicaragua							0							
Panama							+1							
Paraguay							+1							
Peru							+1							
Saint Kitts & Nevis							+1							
Saint Lucia							+1							
Saint Vincent & Grenadines							+1							
Suriname							+1							
Trinidad & Tobago							0							
United Kingdom[a]							+1							
United States							−1							
Uruguay							0							
Venezuela							0							
Average							+0.64							

a. Anguilla, Bermuda, British Virgin Islands, Cayman Islands and Turks & Caicos are Overseas Territories of the United Kingdom and, as such, fall under the jurisdiction of the UK. The UK became a party to the World Health Organization's Framework Convention on Tobacco Control on March 16, 2005, and extended the treaty to cover these territories.

Appendices for Chapter 8

Submitted by the Health Economics Unit, St Augustine Campus, UWI, Trinidad & Tobago

Appendix A8.A: TaXSim Methodology and Background

TaXSiM Methodology[91]

After close consultations with many countries on the structure and dynamics of their tax structure, the WHO developed a model to assist policy-makers to analyse and assess taxations policy relating specifically to tobacco products. The TaXSiM model was originally designed to examine the impact of changes in the cigarette tax rates and structure on prices, revenues and consumption, among other variables of interest. While the model was not originally designed to simulate the impact of tax changes on alcoholic beverages, it is believed that with a clear understanding of the workings of the model and the dynamics of the tax system of the countries of interest, this model is able to produce results that are sufficiently meaningful to inform taxation alcohol policy.

According to the WHO, the model requires a clear understanding of the types of taxes and the base of the taxes present in the country of interest. The model assumes the final retail price is made up three main components; the producer price Pp, the supply chain margin R_M and the tax T. i.e:

$$P_R = Pp + R_M + T \quad (1)$$

Where T represents a unit value of total taxes and R_M is the supply margin.

After the product leaves the manufacturing facilities, each transaction in the supply chain takes a certain percentage of total transaction value as a profit before handing over the supply to the next supply chain. Consequently, wholesalers, distributors, and retailers receive a certain amount of money (margin) from cigarettes and alcoholic beverages. We refer to this as the supply chain margin. For the simplicity we refer to those margins as retailers' margin R_M in the calculations. If the supply chain margin is assumed as percentage, t_M, then the value of the supply chain margin is can be estimated as:

$$R_M = t_M * P_R \quad (2)$$

Producer's price is also needed as an input for the model. However, in the absence of this data, the TaXSiM estimates this value as follows.

$$Pp = P_R - R_M - T, \quad (3)$$

Where P_R is the retail price of the product, R_M is the supply chain margin (assumed a percentage) and T is total unit tax.

Tax pass-through: We assume that tax increases are ultimately fully passed-on to consumer through an increase in the consumers' price P_R. Note the producers' price may also change depending on market characteristics.

[91] The information was taken from the "World Health Organization's Tobacco Tax Simulation Model, 2013" with some minor changes to reflect inclusion of alcoholic beverages in the analysis.

The post-tax consumer price for brand θ in price segment k will therefore be estimated by the following formula (note subscripts $\theta$and k are omitted for brevity), where the superscript ***** denotes the new situation:

$$P_R^*= P_p^*+ R_M^*+T* \quad (7)$$

The new producer price is estimated as:

$$P_p^*=P_p\ (1+t_p) \quad (8)$$

Where t_p represents the percent increase in producer price.

The new value of retailer's margin is expressed as:

$$R_M^*=t_M P_R^* \quad (9)$$

The new VAT tax per unit is also expressed as:

$$V^*= v_p P_R^* \quad (10)$$

When a uniform specific is levied and the rate is increased, then the new retail price will be estimated by replacing (6), (9) and (10) into (7) as:

$$P\ _R^* = P_p\left(1+\ t_p\right) + t_M P_R^* + v_p P_R^* + E_s^*$$

Or

$$P\ _R^* = \frac{P_p\left(1+t_p\right)+E_s^*}{\left(1-t_M-v_p\right)} \quad (11)$$

where E_s^* is the new specific excise tax per unit.

When uniform ad valorem rate is levied based on retail price and the rate is increased to t_e^*, then the WHO *TaXSiM* will estimate the new retail price by the following formula:

$$P\ _R^* = P_p\left(1+\ t_p\right) + t_M P_R^* + v_p P_R^* + t_e^* P_R^*$$

Or

$$P\ _R^* = \frac{P_p\left(1+t_p\right)}{\left(1-t_M-v_p-t_e^*\right)} \quad (12)$$

However, if the increased uniform ad valorem rate is levied based on the producer's price, then the new retail price will be estimated as:

$$P\ _R^* = P_p\left(1+\ t_p\right) + t_M P_R^* + v_p P_R^* + t_e^* P_R(1+t_p)$$

Or

$$P\ _R^* = \frac{P_p\left(1+t_p\right)(1+t_e^*)}{\left(1-t_M-v_p\right)} \quad (13)$$

Under mixed system, when both specific and ad valorem excise taxes are levied and the rates are increased then the new total excise tax per unit will be expressed as:

$$E^* = E_s^* + t_e^* P_R^* \quad (14)$$

where the ad valorem tax base is assumed to be the (tax inclusive) consumer price. The new retail price will be estimated by replacing (8), (9), (10) and (4) into (7):

$$P\ _R^* = P_p\left(1+\ t_p\right) + t_M P_R^* + v_p P_R^* + E_s^* + t_e^* P_R^*$$

Or

$$P^{*}_{R} = \frac{P_p(1+t_p)+E^{*}_{S}}{(1-t_M-v_p-t^{*}_{e})} \quad (15)$$

We estimate the percentage change in consumer price for brand θ in price band k as:

$$\%\Delta P_{R_{k\theta}} = \left(\frac{P^{*}_{R_{K\theta}} - P_{R_{k\theta}}}{P_{R_{k\theta}}}\right) * 100 \quad (16)$$

where $P^{*}_{R_{K\theta}}$ is the post-tax increase consumer price and $P_{R_{k\theta}}$ is the pre-tax increase consumer price for brand θ in price segment k.

By using the above formula, we can estimate the percentage change in sales by brand θ in price segment k as $\%\Delta Q_{k\theta} = \mu_k * \%\Delta P_{R_{k\theta}}$ where μ_k is the price elasticity corresponding to price segment *k*. Then, we can estimate the total reduction in sales as:

$$\hat{Q} = \sum_{\theta=1}^{n}(\%\Delta Q_{k\theta}\, X\, Q_{k\theta}) \quad (17)$$

Trading-down by smokers and drinkers*:* As prices increase, some drinkers and smokers will reduce their average daily level of consumption of their preferred brand, some will quit outright, while others will more likely choose to "trade-down" to lower priced cigarettes or beverage reflecting the cross-price elasticity of demand for products' brands. We do not have internationally consistent data on the cross-price elasticity of demand for brands belonging to different price segments and therefore we assume that those consumers who substitute their brand with a cheaper one will partly trade-down to cigarettes from the next lowest price segment.

For example, the tax-induced reduction in sales for the products in price segment k_1 measured as $\hat{Q}_{k1}$ may be due to quitting smoking and drinking, reducing the level of consumption and also switching down to brands in the next lowest price segment.

The user needs to make assumption about trading down. For example, one assumes that a percent (α) of $\hat{Q}_{k1}$ might be reduced due to quitting and reduced current smoking and drinking level, and the rest is traded down given $\breve{Q}_{k1} = \hat{Q}_{k1}\,(1-\alpha)$.

TaXSiM can distribute the level of total traded down volume $\breve{Q}_{k1}$ from higher price segments, let's say k_1 to each brands into the next lower price segment k_2 based on each brand's market share $\beta_{k_{2\theta}}$ within their price segment k_2.

Consequently, the post-tax increase sales level $Q^{*}_{K_{2\theta}}$ for brand θ in the lower price segment k_2 deducts the tax-induced reduction of demand for brand θ in segment k_2 and adds the total quantity of demand traded down from price segment k_1 to k_2 (and depending on its market share) to the pre-tax increase sales level $Q_{K_{2\theta}}$. The formula for calculating the post-tax increase sales level $Q^{*}_{K_2}$ for brand θ in price segment k_2 is then:

$$Q^{*}_{k_{2\theta}} = Q_{K_{2\theta}}\left(1 + \%\Delta Q_{K_{2\theta}}\right) + \left(\breve{Q}_{k1} * \beta_{k_{2\theta}}\right)$$

The total decline in sales for price segment k_2 is then calculated:

$$\hat{Q}^{*}_{k_2} = \sum_{\theta=1}^{n}(Q^{*}_{k_{2\theta}} - Q_{K_{2\theta}}) \quad (18)$$

Similarly, the same trading down process can be carried out from other price segments, except for the lowest price segment.

Illicit trade and tax revenue: *Tax* administrators are often concerned that higher taxes will encourage smuggling and illicit trade with a negative impact on tax revenue. It is a very difficult task to explicitly estimate this link. However, in order to address this concern, *TaXSiM* adopts two approaches when estimating sales and revenue outcomes.

In the first instance, we assume that $\alpha_1\hat{Q}_{k1} + \alpha_2\hat{Q}_{k2} + \alpha_3\hat{Q}_{k3} = \alpha\,\hat{Q}_k$ will move out of the legal market either because the consumers quit altogether or they begin to purchase from illicit market sources (i.e. there are zero trading-down effects). *TaXSiM* then calculates excise and total revenues generated from those fewer consumers that remain in the legal market.

The second approach is to assume that the decline in sales within the premium and middle price segments fully shifts to the next lowest price segment (i.e. consumers fully trade down) and that it is only sales in the lowest segment that records the full decline as trade-down to traditional alternatives or shifts to the illegal market. The *TaXSiM* model then calculates expected excise and total tax revenues accordingly.

The total decline in consumption under the first approach is higher than under the second approach because it includes the quantity that is assumed to go to the illicit market. Consequently the total tax revenue estimates using the first approach are lower than under the second approach.

We assume that the first approach (i.e. with zero trading-down effects) will likely be the worst case scenario for the estimation of revenues, and for this reason we describe it as the "lowest expected revenue boundary" while the second approach reflects the "maximum expected revenue boundary" in the TaXSiM.

Appendix A8.B: Simulation Results Tables

Beer Taxation Simulation Summary for Grenada from 2014 to 2015 in XCD

	Price Elasticity of Demand	Distribution Margin (Baseline)	Distribution Margin (Simulation)	Trading-Down	Trading-Up	% Increase in CIF/Producer Price
Premium	-0.2	10%	10%	0%	0%	0%
Mid	-0.5	10%	10%	0%	0%	0%
Low	-0.8	10%	10%	0%	0%	0%

	Average Excise (Cases of 24)				Average Prices (Cases of 24)				Sales Volume			
	Baseline (XCD)	Simulation (XCD)	Change (XCD)	% Change % Change	Baseline (XCD)	Simulation (XCD)	Change (XCD)	% Change % Change	Baseline (Cases of 24)	Simulation (Cases of 24)	Change (Cases of 24)	% Change % Change
Premium	1.4	5.4	4.0	286%	80.0	85.1	5.1	6%	99,234	97,915	-1,319	-1%
Mid	1.4	5.4	4.0	286%	73.6	78.6	5.1	7%	18,713	18,069	-644	-3%
Low	1.4	5.4	4.0	286%	67.6	72.7	5.1	7%	472,249	444,658	-27,591	-6%
All/Average	**1.4**	**5.4**	**4.0**	**286%**	**69.9**	**75.0**	**5.1**	**7%**	**590,196**	**560,641**	**-29,555**	**-5%**

	Total Tax Share		Excise Share		Total Tax Revenue				Excise Revenue			
	Baseline (% of price)	Simulation (% of price)	Baseline (XCD 000s)	Simulation (XCD 000s)	Baseline (XCD 000s)	Simulation (XCD 000s)	Change (XCD 000s)	% Change % Change	Baseline (XCD 000s)	Simulation (XCD 000s)	Change (XCD 000s)	% Change % Change
Premium	15.4%	19.8%	1.7%	6.3%	1,220	1,650	430	35%	138	524	386	281%
Mid	15.7%	20.5%	1.9%	6.8%	216	291	75	35%	26	97	71	273%
Low	16.3%	21.4%	2.0%	7.4%	5,205	6,928	1,723	33%	655	2,379	1,724	263%
All/Average	**16.1%**	**21.1%**	**2.0%**	**7.1%**	**6,641**	**8,869**	**2,228**	**34%**	**818**	**2,999**	**2,181**	**267%**

Baseline Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Excise - Uniform Specific at 1.386101, Other Tax - Specific at 1.65

Simulation Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Excise - Uniform Specific at 5.35, Other Tax - Specific at 1.65

Beer Taxation Simulation Summary for Grenada from 2014 to 2015 in XCD

	Price Elasticity of Demand	Distribution Margin (Baseline)	Distribution Margin (Simulation)	Trading-Down	Trading-Up	% Increase in CIF/Producer Price
Premium	-0.2	10%	10%	0%	0%	0%
Mid	-0.5	10%	10%	0%	0%	0%
Low	-0.8	10%	10%	0%	0%	0%

	Average Excise (Cases of 24)				Average Prices (Cases of 24)				Sales Volume			
	Baseline (XCD)	Simulation (XCD)	Change (XCD)	% Change % Change	Baseline (XCD)	Simulation (XCD)	Change (XCD)	% Change % Change	Baseline (Cases of 24)	Simulation (Cases of 24)	Change (Cases of 24)	% Change % Change
Premium	1.4	9.5	8.1	585%	80.0	90.4	10.4	13%	99,234	96,533	-2,701	-3%
Mid	1.4	9.5	8.1	585%	73.6	83.9	10.4	14%	18,713	17,394	-1,319	-7%
Low	1.4	9.5	8.1	585%	67.6	78.0	10.4	15%	472,249	415,771	-56,478	-12%
All/Average	**1.4**	**9.5**	**8.1**	**585%**	**69.9**	**80.4**	**10.5**	**15%**	**590,196**	**529,699**	**-60,497**	**-10%**

	Total Tax Share		Excise Share		Total Tax Revenue				Excise Revenue			
	Baseline (% of price)	Simulation (% of price)	Baseline (XCD 000s)	Simulation (XCD 000s)	Baseline (XCD 000s)	Simulation (XCD 000s)	Change (XCD 000s)	% Change % Change	Baseline (XCD 000s)	Simulation (XCD 000s)	Change (XCD 000s)	% Change % Change
Premium	15.4%	23.9%	1.7%	10.5%	1,220	2,088	868	71%	138	917	780	567%
Mid	15.7%	24.9%	1.9%	11.3%	216	363	147	68%	26	165	139	537%
Low	16.3%	26.1%	2.0%	12.2%	5,205	8,462	3,257	63%	655	3,950	3,295	503%
All/Average	**16.1%**	**25.6%**	**2.0%**	**11.8%**	**6,641**	**10,913**	**4,272**	**64%**	**818**	**5,032**	**4,214**	**515%**

Baseline Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Excise - Uniform Specific at 1.386101, Other Tax - Specific at 1.65

Simulation Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Excise - Uniform Specific at 9.5, Other Tax - Specific at 1.65

Beer Taxation Simulation Summary for Grenada from 2014 to 2015 in XCD

	Price Elasticity of Demand	Distribution Margin (Baseline)	Distribution Margin (Simulation)	Trading-Down	Trading-Up	% Increase in CIF/Producer Price
Premium	-0.2	10%	10%	0%	0%	0%
Mid	-0.5	10%	10%	0%	0%	0%
Low	-0.8	10%	10%	0%	0%	0%

	Average Excise (Cases of 24)				Average Prices (Cases of 24)				Sales Volume			
	Baseline (XCD)	Simulation (XCD)	Change (XCD)	% Change % Change	Baseline (XCD)	Simulation (XCD)	Change (XCD)	% Change % Change	Baseline (Cases of 24)	Simulation (Cases of 24)	Change (Cases of 24)	% Change % Change
Premium	1.4	13.3	11.9	857%	80.0	95.2	15.2	19%	99,234	95,282	-3,952	-4%
Mid	1.4	13.3	11.9	857%	73.6	88.7	15.2	21%	18,713	16,783	-1,930	-10%
Low	1.4	13.3	11.9	857%	67.6	82.8	15.2	22%	472,249	389,599	-82,650	-18%
All/Average	**1.4**	**13.3**	**11.9**	**857%**	**69.9**	**85.3**	**15.5**	**22%**	**590,196**	**501,664**	**-88,532**	**-15%**

	Total Tax Share		Excise Share		Total Tax Revenue				Excise Revenue			
	Baseline (% of price)	Simulation (% of price)	Baseline (XCD 000s)	Simulation (XCD 000s)	Baseline (XCD 000s)	Simulation (XCD 000s)	Change (XCD 000s)	% Change % Change	Baseline (XCD 000s)	Simulation (XCD 000s)	Change (XCD 000s)	% Change % Change
Premium	15.4%	27.3%	1.7%	13.9%	1,220	2,473	1,252	103%	138	1,263	1,126	819%
Mid	15.7%	28.4%	1.9%	14.9%	216	423	207	96%	26	223	197	758%
Low	16.3%	29.8%	2.0%	16.0%	5,205	9,614	4,409	85%	655	5,166	4,512	689%
All/Average	**16.1%**	**29.2%**	**2.0%**	**15.5%**	**6,641**	**12,510**	**5,868**	**88%**	**818**	**6,652**	**5,834**	**713%**

Baseline Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Excise - Uniform Specific at 1.386101, Other Tax - Specific at 1.65

Simulation Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Excise - Uniform Specific at 13.26, Other Tax - Specific at 1.65

Rum Taxation Simulation Summary for Grenada from 2014 to 2015 in XCD

	Price Elasticity of Demand	Distribution Margin (Baseline)	Distribution Margin (Simulation)	Trading-Down	Trading-Up	% Increase in CIF/Producer Price
Premium	-0.6	10%	10%	0%	0%	0%
Mid	-0.9	10%	10%	0%	0%	0%
Low	-1.1	10%	10%	0%	0%	0%

	Average Excise (Cases of 12)				Average Prices (Cases of 12)				Sales Volume			
	Baseline (XCD)	Simulation (XCD)	Change (XCD)	% Change % Change	Baseline (XCD)	Simulation (XCD)	Change (XCD)	% Change % Change	Baseline (Cases of 12)	Simulation (Cases of 12)	Change (Cases of 12)	% Change % Change
Premium	25.4	39.5	14.1	56%	414.7	432.8	18.0	4%	12,147	11,830	-317	-3%
Mid	25.4	39.5	14.1	56%	299.0	317.0	18.0	6%	34,221	32,466	-1,755	-5%
Low	25.4	39.5	14.1	56%	242.2	260.2	18.0	7%	10,645	9,781	-864	-8%
All/Average	**25.4**	**39.5**	**14.1**	**56%**	**313.0**	**332.1**	**19.0**	**6%**	**57,013**	**54,076**	**-2,937**	**-5%**

	Total Tax Share		Excise Share		Total Tax Revenue				Excise Revenue			
	Baseline (% of price)	Simulation (% of price)	Baseline (XCD 000s)	Simulation (XCD 000s)	Baseline (XCD 000s)	Simulation (XCD 000s)	Change (XCD 000s)	% Change % Change	Baseline (XCD 000s)	Simulation (XCD 000s)	Change (XCD 000s)	% Change % Change
Premium	16.6%	19.6%	6.1%	9.1%	834	1,005	170	20%	308	467	159	52%
Mid	19.0%	23.1%	8.5%	12.5%	1,946	2,373	427	22%	869	1,282	414	48%
Low	21.3%	26.1%	10.5%	15.2%	549	664	114	21%	270	386	116	43%
All/Average	**18.7%**	**22.5%**	**8.1%**	**11.9%**	**3,329**	**4,041**	**712**	**21%**	**1,447**	**2,136**	**689**	**48%**

Baseline Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Excise - Uniform Specific at 25.38

Simulation Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Excise - Uniform Specific at 39.5

Rum Taxation Simulation Summary for Grenada from 2014 to 2015 in XCD

	Price Elasticity of Demand	Distribution Margin (Baseline)	Distribution Margin (Simulation)	Trading-Down	Trading-Up	% Increase in CIF/Producer Price
Premium	-0.5	10%	10%	0%	0%	0%
Mid	-0.8	10%	10%	0%	0%	0%
Low	-1.1	10%	10%	0%	0%	0%

	Average Excise (Cases of 12)				Average Prices (Cases of 12)				Sales Volume			
	Baseline (XCD)	Simulation (XCD)	Change (XCD)	% Change % Change	Baseline (XCD)	Simulation (XCD)	Change (XCD)	% Change % Change	Baseline (Cases of 12)	Simulation (Cases of 12)	Change (Cases of 12)	% Change % Change
Premium	25.4	54.7	29.3	115%	414.7	452.1	37.4	9%	12,147	11,610	-537	-4%
Mid	25.4	54.7	29.3	115%	299.0	336.4	37.4	13%	34,221	30,839	-3,382	-10%
Low	25.4	54.7	29.3	115%	242.2	279.6	37.4	15%	10,645	8,853	-1,792	-17%
All/Average	**25.4**	**54.7**	**29.3**	**115%**	**313.0**	**352.8**	**39.7**	**13%**	**57,013**	**51,303**	**-5,710**	**-10%**

	Total Tax Share		Excise Share		Total Tax Revenue				Excise Revenue			
	Baseline (% of price)	Simulation (% of price)	Baseline (XCD 000s)	Simulation (XCD 000s)	Baseline (XCD 000s)	Simulation (XCD 000s)	Change (XCD 000s)	% Change % Change	Baseline (XCD 000s)	Simulation (XCD 000s)	Change (XCD 000s)	% Change % Change
Premium	15.1%	21.3%	6.1%	12.1%	762	1,119	357	47%	308	634	326	106%
Mid	17.6%	25.7%	8.5%	16.2%	1,804	2,663	860	48%	869	1,685	817	94%
Low	21.3%	30.5%	10.5%	19.5%	550	755	205	37%	270	484	214	79%
All/Average	**17.5%**	**25.1%**	**8.1%**	**15.5%**	**3,116**	**4,538**	**1,422**	**46%**	**1,447**	**2,804**	**1,357**	**94%**

Baseline Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Excise - Uniform Specific at 25.38

Simulation Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Excise - Uniform Specific at 54.65

Rum Taxation Simulation Summary for Grenada from 2014 to 2015 in XCD

	Price Elasticity of Demand	Distribution Margin (Baseline)	Distribution Margin (Simulation)	Trading-Down	Trading-Up	% Increase in CIF/Producer Price
Premium	-0.5	10%	10%	0%	0%	0%
Mid	-0.8	10%	10%	0%	0%	0%
Low	-1.1	10%	10%	0%	0%	0%

	Average Excise (Cases of 12)				Average Prices (Cases of 12)				Sales Volume			
	Baseline (XCD)	Simulation (XCD)	Change (XCD)	% Change % Change	Baseline (XCD)	Simulation (XCD)	Change (XCD)	% Change % Change	Baseline (Cases of 12)	Simulation (Cases of 12)	Change (Cases of 12)	% Change % Change
Premium	25.4	69.5	44.1	174%	414.7	471.1	56.4	14%	12,147	11,338	-809	-7%
Mid	25.4	69.5	44.1	174%	299.0	355.4	56.4	19%	34,221	29,124	-5,097	-15%
Low	25.4	69.5	44.1	174%	242.2	298.6	56.4	23%	10,645	7,944	-2,701	-25%
All/Average	**25.4**	**69.5**	**44.1**	**174%**	**313.0**	**373.2**	**60.1**	**19%**	**57,013**	**48,406**	**-8,607**	**-15%**

	Total Tax Share		Excise Share		Total Tax Revenue				Excise Revenue			
	Baseline (% of price)	Simulation (% of price)	Baseline (XCD 000s)	Simulation (XCD 000s)	Baseline (XCD 000s)	Simulation (XCD 000s)	Change (XCD 000s)	% Change % Change	Baseline (XCD 000s)	Simulation (XCD 000s)	Change (XCD 000s)	% Change % Change
Premium	15.1%	24.1%	6.1%	14.8%	762	1,287	524	69%	308	788	480	156%
Mid	17.6%	29.1%	8.5%	19.6%	1,804	3,013	1,209	67%	869	2,024	1,156	133%
Low	21.3%	34.3%	10.5%	23.3%	550	813	264	48%	270	552	282	104%
All/Average	**17.5%**	**28.3%**	**8.1%**	**18.6%**	**3,116**	**5,113**	**1,997**	**64%**	**1,447**	**3,364**	**1,917**	**132%**

Baseline Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Excise - Uniform Specific at 25.38

Simulation Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Excise - Uniform Specific at 69.50

Tobacco Taxation Simulation Summary for Grenada from 2014 to 2015 in XCD

	Price Elasticity of Demand	Distribution Margin (Baseline)	Distribution Margin (Simulation)	Trading-Down	Trading-Up	% Increase in CIF/Producer Price
Premium	-0.3	10%	10%	0%	0%	0%
Mid	-0.6	10%	10%	0%	0%	0%
Low	-0.9	10%	10%	0%	0%	0%

	Average Excise (Packs of 20)				Average Prices (Packs of 20)				Sales Volume			
	Baseline (XCD)	Simulation (XCD)	Change (XCD)	% Change % Change	Baseline (XCD)	Simulation (XCD)	Change (XCD)	% Change % Change	Baseline (Packs of 20)	Simulation (Packs of 20)	Change (Packs of 20)	% Change % Change
Premium	4.6	5.4	0.7	16%	12.1	13.0	1.0	8%	405,000	395,379	-9,621	-2%
Mid	2.6	3.0	0.4	16%	6.7	7.3	0.5	8%	150,000	142,873	-7,127	-5%
Low	2.4	2.8	0.4	16%	6.3	6.8	0.5	8%	540,000	501,515	-38,485	-7%
All/Average	**3.2**	**3.8**	**0.6**	**17%**	**8.5**	**9.2**	**0.7**	**9%**	**1,095,000**	**1,039,767**	**-55,233**	**-5%**

	Total Tax Share		Excise Share		Total Tax Revenue				Excise Revenue			
	Baseline (% of price)	Simulation (% of price)	Baseline (XCD 000s)	Simulation (XCD 000s)	Baseline (XCD 000s)	Simulation (XCD 000s)	Change (XCD 000s)	% Change % Change	Baseline (XCD 000s)	Simulation (XCD 000s)	Change (XCD 000s)	% Change % Change
Premium	52.0%	54.8%	38.3%	41.2%	2,537	2,817	279	11%	1,868	2,119	251	13%
Mid	52.0%	54.8%	38.3%	41.2%	526	569	44	8%	387	428	41	11%
Low	52.0%	54.8%	38.3%	41.2%	1,763	1,862	99	6%	1,298	1,401	103	8%
All/Average	**52.0%**	**54.8%**	**38.3%**	**41.2%**	**4,826**	**5,248**	**422**	**9%**	**3,552**	**3,947**	**395**	**11%**

Baseline Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Import Duty - Uniform Ad Valorem at 35% based on CIF/Producer price, Excise - Uniform Ad Valorem at 100.69439% based on 100% of CIF/Producer price, Other Tax - Ad Valorem at 6% based on CIF/Producer price
Simulation Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Import Duty - Uniform Ad Valorem at 35% based on CIF/Producer price, Excise - Uniform Ad Valorem at 117% based on 100% of CIF/Producer price, Other Tax - Ad Valorem at 6% based on CIF/Producer price

Tobacco Taxation Simulation Summary for Grenada from 2014 to 2015 in XCD

	Price Elasticity of Demand	Distribution Margin (Baseline)	Distribution Margin (Simulation)	Trading-Down	Trading-Up	% Increase in CIF/Producer Price
Premium	-0.3	10%	10%	0%	0%	0%
Mid	-0.6	10%	10%	0%	0%	0%
Low	-0.9	10%	10%	0%	0%	0%

	Average Excise (Packs of 20)				Average Prices (Packs of 20)				Sales Volume			
	Baseline (XCD)	Simulation (XCD)	Change (XCD)	% Change % Change	Baseline (XCD)	Simulation (XCD)	Change (XCD)	% Change % Change	Baseline (Packs of 20)	Simulation (Packs of 20)	Change (Packs of 20)	% Change % Change
Premium	4.6	6.1	1.5	33%	12.1	14.0	1.9	16%	405,000	385,643	-19,357	-5%
Mid	2.6	3.4	0.8	33%	6.7	7.8	1.1	16%	150,000	135,661	-14,339	-10%
Low	2.4	3.2	0.8	33%	6.3	7.3	1.0	16%	540,000	462,571	-77,429	-14%
All/Average	**3.2**	**4.4**	**1.1**	**35%**	**8.5**	**10.0**	**1.5**	**18%**	**1,095,000**	**983,875**	**-111,125**	**-10%**

	Total Tax Share		Excise Share		Total Tax Revenue				Excise Revenue			
	Baseline (% of price)	Simulation (% of price)	Baseline (XCD 000s)	Simulation (XCD 000s)	Baseline (XCD 000s)	Simulation (XCD 000s)	Change (XCD 000s)	% Change % Change	Baseline (XCD 000s)	Simulation (XCD 000s)	Change (XCD 000s)	% Change % Change
Premium	52.0%	57.2%	38.3%	43.8%	2,537	3,082	545	21%	1,868	2,358	490	26%
Mid	52.0%	57.2%	38.3%	43.8%	526	607	81	15%	387	464	77	20%
Low	52.0%	57.2%	38.3%	43.8%	1,763	1,927	164	9%	1,298	1,474	176	14%
All/Average	**52.0%**	**57.2%**	**38.3%**	**43.8%**	**4,826**	**5,616**	**790**	**16%**	**3,552**	**4,296**	**743**	**21%**

Baseline Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Import Duty - Uniform Ad Valorem at 35% based on CIF/Producer price, Excise - Uniform Ad Valorem at 100.69439% based on 100% of CIF/Producer price, Other Tax - Ad Valorem at 6% based on CIF/Producer price
Simulation Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Import Duty - Uniform Ad Valorem at 35% based on CIF/Producer price, Excise - Uniform Ad Valorem at 133.5% based on 100% of CIF/Producer price, Other Tax - Ad Valorem at 6% based on CIF/Producer price

Tobacco Taxation Simulation Summary for Grenada from 2014 to 2015 in XCD

	Price Elasticity of Demand	Distribution Margin (Baseline)	Distribution Margin (Simulation)	Trading-Down	Trading-Up	% Increase in CIF/Producer Price
Premium	-0.3	10%	10%	0%	0%	0%
Mid	-0.6	10%	10%	0%	0%	0%
Low	-0.9	10%	10%	0%	0%	0%

	Average Excise (Packs of 20)				Average Prices (Packs of 20)				Sales Volume			
	Baseline (XCD)	Simulation (XCD)	Change (XCD)	% Change % Change	Baseline (XCD)	Simulation (XCD)	Change (XCD)	% Change % Change	Baseline (Packs of 20)	Simulation (Packs of 20)	Change (Packs of 20)	% Change % Change
Premium	4.6	6.9	2.3	49%	12.1	14.9	2.9	24%	405,000	375,907	-29,093	-7%
Mid	2.6	3.8	1.3	49%	6.7	8.4	1.6	24%	150,000	128,449	-21,551	-14%
Low	2.4	3.6	1.2	49%	6.3	7.8	1.5	24%	540,000	423,627	-116,373	-22%
All/Average	**3.2**	**4.9**	**1.7**	**53%**	**8.5**	**10.8**	**2.3**	**27%**	**1,095,000**	**927,984**	**-167,016**	**-15%**

	Total Tax Share		Excise Share		Total Tax Revenue				Excise Revenue			
	Baseline (% of price)	Simulation (% of price)	Baseline (XCD 000s)	Simulation (XCD 000s)	Baseline (XCD 000s)	Simulation (XCD 000s)	Change (XCD 000s)	% Change % Change	Baseline (XCD 000s)	Simulation (XCD 000s)	Change (XCD 000s)	% Change % Change
Premium	52.0%	59.3%	38.3%	46.0%	2,537	3,331	794	31%	1,868	2,582	715	38%
Mid	52.0%	59.3%	38.3%	46.0%	526	637	111	21%	387	494	107	28%
Low	52.0%	59.3%	38.3%	46.0%	1,763	1,957	193	11%	1,298	1,517	219	17%
All/Average	**52.0%**	**59.3%**	**38.3%**	**46.0%**	**4,826**	**5,925**	**1,098**	**23%**	**3,552**	**4,593**	**1,040**	**29%**

Baseline Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Import Duty - Uniform Ad Valorem at 35% based on CIF/Producer price, Excise - Uniform Ad Valorem at 100.69439% based on 100% of CIF/Producer price, Other Tax - Ad Valorem at 6% based on CIF/Producer price
Simulation Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Import Duty - Uniform Ad Valorem at 35% based on CIF/Producer price, Excise - Uniform Ad Valorem at 150% based on 100% of CIF/Producer price, Other Tax - Ad Valorem at 6% based on CIF/Producer price

BeerTaxation Simulation Summary for Jamaica from 2014 to 2015 in JMD

	Price Elasticity of Demand	Distribution Margin (Baseline)	Distribution Margin (Simulation)	Trading-Down	Trading-Up	% Increase in CIF/Producer Price
Premium	-0.2	10%	10%	0%	0%	0%
Low	-0.5	10%	10%	0%	0%	0%

	Average Excise (Cases of 24)				Average Prices (Cases of 24)				Sales Volume			
	Baseline (JMD)	Simulation (JMD)	Change (JMD)	% Change % Change	Baseline (JMD)	Simulation (JMD)	Change (JMD)	% Change % Change	Baseline (Cases of 24)	Simulation (Cases of 24)	Change (Cases of 24)	% Change % Change
Premium	409.1	630.0	221.0	54%	3,917.6	4,215.9	298.3	8%	20,471	20,144	-327	-2%
Low	409.1	630.0	221.0	54%	2,875.0	3,173.3	298.3	10%	2,006,138	1,902,069	-104,069	-5%
All/Average	**409.1**	**630.0**	**221.0**	**54%**	**2,885.5**	**3,184.2**	**298.7**	**10%**	**2,026,609**	**1,922,213**	**-104,396**	**-5%**

	Total Tax Share		Excise Share		Total Tax Revenue				Excise Revenue			
	Baseline (% of price)	Simulation (% of price)	Baseline (JMD 000s)	Simulation (JMD 000s)	Baseline (JMD 000s)	Simulation (JMD 000s)	Change (JMD 000s)	% Change % Change	Baseline (JMD 000s)	Simulation (JMD 000s)	Change (JMD 000s)	% Change % Change
Premium	30.7%	34.9%	10.4%	14.9%	24,647	29,661	5,014	20%	8,374	12,691	4,317	52%
Low	41.5%	46.0%	14.2%	19.9%	2,392,813	2,779,303	386,491	16%	820,611	1,198,304	377,693	46%
All/Average	**41.3%**	**45.9%**	**14.2%**	**19.8%**	**2,417,460**	**2,808,964**	**391,504**	**16%**	**828,984**	**1,210,994**	**382,010**	**46%**

Baseline Tax Structure: VAT/Sales Tax at 21.5% based on CIF/Producer price plus Import Duty and Total Excise, Import Duty - Uniform Ad Valorem at 40% based on CIF/Producer price, Excise - Uniform Specific at 409.05, Other Tax - Specific 2 at 504.50, Other Tax - Ad Valorem at 1% based on CIF/Producer price
Simulation Tax Structure: VAT/Sales Tax at 21.5% based on CIF/Producer price plus Import Duty and Total Excise, Import Duty - Uniform Ad Valorem at 40% based on CIF/Producer price, Excise - Uniform Specific at 630, Other Tax - Specific 2 at 504.50, Other Tax - Ad Valorem at 1% based on CIF/Producer price

BeerTaxation Simulation Summary for Jamaica from 2014 to 2015 in JMD

	Price Elasticity of Demand	Distribution Margin (Baseline)	Distribution Margin (Simulation)	Trading-Down	Trading-Up	% Increase in CIF/Producer Price
Premium	-0.2	10%	10%	0%	0%	0%
Low	-0.5	10%	10%	0%	0%	0%

	Average Excise (Cases of 24)				Average Prices (Cases of 24)				Sales Volume			
	Baseline (JMD)	Simulation (JMD)	Change (JMD)	% Change % Change	Baseline (JMD)	Simulation (JMD)	Change (JMD)	% Change % Change	Baseline (Cases of 24)	Simulation (Cases of 24)	Change (Cases of 24)	% Change % Change
Premium	409.1	845.0	436.0	107%	3,917.6	4,506.2	588.5	15%	20,471	19,825	-646	-3%
Low	409.1	845.0	436.0	107%	2,875.0	3,463.5	588.5	20%	2,006,138	1,800,803	-205,335	-10%
All/Average	**409.1**	**845.0**	**436.0**	**107%**	**2,885.5**	**3,474.9**	**589.4**	**20%**	**2,026,609**	**1,820,628**	**-205,981**	**-10%**

	Total Tax Share		Excise Share		Total Tax Revenue				Excise Revenue			
	Baseline (% of price)	Simulation (% of price)	Baseline (JMD 000s)	Simulation (JMD 000s)	Baseline (JMD 000s)	Simulation (JMD 000s)	Change (JMD 000s)	% Change % Change	Baseline (JMD 000s)	Simulation (JMD 000s)	Change (JMD 000s)	% Change % Change
Premium	30.7%	38.5%	10.4%	18.8%	24,647	34,370	9,723	39%	8,374	16,752	8,379	100%
Low	41.5%	49.7%	14.2%	24.4%	2,392,813	3,101,748	708,935	30%	820,611	1,521,678	701,068	85%
All/Average	**41.3%**	**49.6%**	**14.2%**	**24.3%**	**2,417,460**	**3,136,118**	**718,659**	**30%**	**828,984**	**1,538,431**	**709,446**	**86%**

Baseline Tax Structure: VAT/Sales Tax at 21.5% based on CIF/Producer price plus Import Duty and Total Excise, Import Duty - Uniform Ad Valorem at 40% based on CIF/Producer price, Excise - Uniform Specific at 409.05, Other Tax - Specific 2 at 504.50, Other Tax - Ad Valorem at 1% based on CIF/Producer price
Simulation Tax Structure: VAT/Sales Tax at 21.5% based on CIF/Producer price plus Import Duty and Total Excise, Import Duty - Uniform Ad Valorem at 40% based on CIF/Producer price, Excise - Uniform Specific at 845, Other Tax - Specific 2 at 504.50, Other Tax - Ad Valorem at 1% based on CIF/Producer price

Beer Taxation Simulation Summary for Jamaica from 2014 to 2015 in JMD

	Price Elasticity of Demand	Distribution Margin (Baseline)	Distribution Margin (Simulation)	Trading-Down	Trading-Up	% Increase in CIF/Producer Price
Premium	-0.2	10%	10%	0%	0%	0%
Low	-0.5	10%	10%	0%	0%	0%

	Average Excise (Cases of 24)				Average Prices (Cases of 24)				Sales Volume			
	Baseline (JMD)	Simulation (JMD)	Change (JMD)	% Change % Change	Baseline (JMD)	Simulation (JMD)	Change (JMD)	% Change % Change	Baseline (Cases of 24)	Simulation (Cases of 24)	Change (Cases of 24)	% Change % Change
Premium	409.1	1,050.0	641.0	157%	3,917.6	4,782.9	865.3	22%	20,471	19,522	-949	-5%
Low	409.1	1,050.0	641.0	157%	2,875.0	3,740.3	865.3	30%	2,006,138	1,704,247	-301,891	-15%
All/Average	**409.1**	**1,050.0**	**641.0**	**157%**	**2,885.5**	**3,752.1**	**866.6**	**30%**	**2,026,609**	**1,723,768**	**-302,841**	**-15%**

	Total Tax Share		Excise Share		Total Tax Revenue				Excise Revenue			
	Baseline (% of price)	Simulation (% of price)	Baseline (JMD 000s)	Simulation (JMD 000s)	Baseline (JMD 000s)	Simulation (JMD 000s)	Change (JMD 000s)	% Change % Change	Baseline (JMD 000s)	Simulation (JMD 000s)	Change (JMD 000s)	% Change % Change
Premium	30.7%	41.5%	10.4%	22.0%	24,647	38,706	14,059	57%	8,374	20,498	12,124	145%
Low	41.5%	52.7%	14.2%	28.1%	2,392,813	3,359,922	967,109	40%	820,611	1,789,459	968,848	118%
All/Average	**41.3%**	**52.5%**	**14.2%**	**28.0%**	**2,417,460**	**3,398,628**	**981,169**	**41%**	**828,984**	**1,809,956**	**980,972**	**118%**

Baseline Tax Structure: VAT/Sales Tax at 21.5% based on CIF/Producer price plus Import Duty and Total Excise, Import Duty - Uniform Ad Valorem at 40% based on CIF/Producer price, Excise - Uniform Specific at 409.05, Other Tax - Specific 2 at 504.50, Other Tax - Ad Valorem at 1% based on CIF/Producer price
Simulation Tax Structure: VAT/Sales Tax at 21.5% based on CIF/Producer price plus Import Duty and Total Excise, Import Duty - Uniform Ad Valorem at 40% based on CIF/Producer price, Excise - Uniform Specific at 1050, Other Tax - Specific 2 at 504.50, Other Tax - Ad Valorem at 1% based on CIF/Producer price

Rum Taxation Simulation Summary for Jamaica from 2014 to 2015 in JMD

	Price Elasticity of Demand	Distribution Margin (Baseline)	Distribution Margin (Simulation)	Trading-Down	Trading-Up	% Increase in CIF/Producer Price
Premium	-0.5	10%	10%	0%	0%	0%
Mid	-0.8	10%	10%	0%	0%	0%
Low	-1.1	10%	10%	0%	0%	0%

	Average Excise (Cases of 12)				Average Prices (Cases of 12)				Sales Volume			
	Baseline (JMD)	Simulation (JMD)	Change (JMD)	% Change % Change	Baseline (JMD)	Simulation (JMD)	Change (JMD)	% Change % Change	Baseline (Cases of 12)	Simulation (Cases of 12)	Change (Cases of 12)	% Change % Change
Premium	5,006.4	5,850.0	843.6	17%	23,275.0	24,741.9	1,466.9	6%	178,350	172,842	-5,508	-3%
Mid	5,006.4	5,850.0	843.6	17%	22,144.6	23,611.5	1,466.9	7%	89,175	84,508	-4,667	-5%
Low	5,006.4	5,850.0	843.6	17%	20,597.7	22,064.6	1,466.9	7%	133,763	123,379	-10,384	-8%
All/Average	**5,006.4**	**5,850.0**	**843.6**	**17%**	**22,131.4**	**23,623.4**	**1,492.0**	**7%**	**401,288**	**380,730**	**-20,558**	**-5%**

	Total Tax Share		Excise Share		Total Tax Revenue				Excise Revenue			
	Baseline (% of price)	Simulation (% of price)	Baseline (JMD 000s)	Simulation (JMD 000s)	Baseline (JMD 000s)	Simulation (JMD 000s)	Change (JMD 000s)	% Change % Change	Baseline (JMD 000s)	Simulation (JMD 000s)	Change (JMD 000s)	% Change % Change
Premium	55.6%	57.6%	21.5%	23.6%	2,307,992	2,464,907	156,915	7%	892,891	1,011,126	118,235	13%
Mid	57.3%	59.3%	22.6%	24.8%	1,131,885	1,184,221	52,337	5%	446,446	494,374	47,928	11%
Low	60.0%	62.0%	24.3%	26.5%	1,652,772	1,687,361	34,589	2%	669,671	721,769	52,098	8%
All/Average	**57.3%**	**59.3%**	**22.6%**	**24.8%**	**5,092,649**	**5,336,489**	**243,841**	**5%**	**2,009,008**	**2,227,269**	**218,260**	**11%**

Baseline Tax Structure: VAT/Sales Tax at 21.5% based on CIF/Producer price plus Import Duty and Total Excise, Import Duty - Uniform Ad Valorem at 40% based on CIF/Producer price, Excise - Uniform Specific at 5006.40, Other Tax - Ad Valorem at 1% based on CIF/Producer price, Other Tax - Ad Valorem 2 at 35% based on CIF/Producer price plus Import Duty and Specific Excise
Simulation Tax Structure: VAT/Sales Tax at 21.5% based on CIF/Producer price plus Import Duty and Total Excise, Import Duty - Uniform Ad Valorem at 40% based on CIF/Producer price, Excise - Uniform Specific at 5850, Other Tax - Ad Valorem at 1% based on CIF/Producer price, Other Tax - Ad Valorem 2 at 35% based on CIF/Producer price plus Import Duty and Specific Excise

Rum Taxation Simulation Summary for Jamaica from 2014 to 2015 in JMD

	Price Elasticity of Demand	Distribution Margin (Baseline)	Distribution Margin (Simulation)	Trading-Down	Trading-Up	% Increase in CIF/Producer Price
Premium	-0.5	10%	10%	0%	0%	0%
Mid	-0.8	10%	10%	0%	0%	0%
Low	-1.1	10%	10%	0%	0%	0%

	Average Excise (Cases of 12)				Average Prices (Cases of 12)				Sales Volume			
	Baseline (JMD)	Simulation (JMD)	Change (JMD)	% Change % Change	Baseline (JMD)	Simulation (JMD)	Change (JMD)	% Change % Change	Baseline (Cases of 12)	Simulation (Cases of 12)	Change (Cases of 12)	% Change % Change
Premium	5,006.4	6,660.0	1,653.6	33%	23,275.0	26,150.4	2,875.4	12%	178,350	167,554	-10,796	-6%
Mid	5,006.4	6,660.0	1,653.6	33%	22,144.6	25,020.0	2,875.4	13%	89,175	80,027	-9,148	-10%
Low	5,006.4	6,660.0	1,653.6	33%	20,597.7	23,473.1	2,875.4	14%	133,763	113,409	-20,354	-15%
All/Average	**5,006.4**	**6,660.0**	**1,653.6**	**33%**	**22,131.4**	**25,058.7**	**2,927.4**	**13%**	**401,288**	**360,990**	**-40,298**	**-10%**

	Total Tax Share		Excise Share		Total Tax Revenue				Excise Revenue			
	Baseline (% of price)	Simulation (% of price)	Baseline (JMD 000s)	Simulation (JMD 000s)	Baseline (JMD 000s)	Simulation (JMD 000s)	Change (JMD 000s)	% Change % Change	Baseline (JMD 000s)	Simulation (JMD 000s)	Change (JMD 000s)	% Change % Change
Premium	55.6%	59.4%	21.5%	25.5%	2,307,992	2,601,886	293,894	13%	892,891	1,115,906	223,015	25%
Mid	57.3%	61.1%	22.6%	26.6%	1,131,885	1,222,878	90,993	8%	446,446	532,983	86,537	19%
Low	60.0%	63.7%	24.3%	28.4%	1,652,772	1,694,770	41,999	3%	669,671	755,305	85,634	13%
All/Average	**57.3%**	**61.0%**	**22.6%**	**26.6%**	**5,092,649**	**5,519,534**	**426,886**	**8%**	**2,009,008**	**2,404,194**	**395,186**	**20%**

Baseline Tax Structure: VAT/Sales Tax at 21.5% based on CIF/Producer price plus Import Duty and Total Excise, Import Duty - Uniform Ad Valorem at 40% based on CIF/Producer price, Excise - Uniform Specific at 5006.40, Other Tax - Ad Valorem at 1% based on CIF/Producer price, Other Tax - Ad Valorem 2 at 35% based on CIF/Producer price plus Import Duty and Specific Excise
Simulation Tax Structure: VAT/Sales Tax at 21.5% based on CIF/Producer price plus Import Duty and Total Excise, Import Duty - Uniform Ad Valorem at 40% based on CIF/Producer price, Excise - Uniform Specific at 6660, Other Tax - Ad Valorem at 1% based on CIF/Producer price, Other Tax - Ad Valorem 2 at 35% based on CIF/Producer price plus Import Duty and Specific Excise

Rum Taxation Simulation Summary for Jamaica from 2014 to 2015 in JMD

	Price Elasticity of Demand	Distribution Margin (Baseline)	Distribution Margin (Simulation)	Trading-Down	Trading-Up	% Increase in CIF/Producer Price
Premium	-0.5	10%	10%	0%	0%	0%
Mid	-0.8	10%	10%	0%	0%	0%
Low	-1.1	10%	10%	0%	0%	0%

	Average Excise (Cases of 12)				Average Prices (Cases of 12)				Sales Volume			
	Baseline (JMD)	Simulation (JMD)	Change (JMD)	% Change % Change	Baseline (JMD)	Simulation (JMD)	Change (JMD)	% Change % Change	Baseline (Cases of 12)	Simulation (Cases of 12)	Change (Cases of 12)	% Change % Change
Premium	5,006.4	7,500.0	2,493.6	50%	23,275.0	27,611.1	4,336.1	19%	178,350	162,069	-16,281	-9%
Mid	5,006.4	7,500.0	2,493.6	50%	22,144.6	26,480.7	4,336.1	20%	89,175	75,381	-13,794	-15%
Low	5,006.4	7,500.0	2,493.6	50%	20,597.7	24,933.8	4,336.1	21%	133,763	103,070	-30,693	-23%
All/Average	**5,006.4**	**7,500.0**	**2,493.6**	**50%**	**22,131.4**	**26,550.5**	**4,419.1**	**20%**	**401,288**	**340,520**	**-60,768**	**-15%**

	Total Tax Share		Excise Share		Total Tax Revenue				Excise Revenue			
	Baseline (% of price)	Simulation (% of price)	Baseline (JMD 000s)	Simulation (JMD 000s)	Baseline (JMD 000s)	Simulation (JMD 000s)	Change (JMD 000s)	% Change % Change	Baseline (JMD 000s)	Simulation (JMD 000s)	Change (JMD 000s)	% Change % Change
Premium	55.6%	61.0%	21.5%	27.2%	2,307,992	2,729,776	421,784	18%	892,891	1,215,518	322,627	36%
Mid	57.3%	62.7%	22.6%	28.3%	1,131,885	1,250,967	119,083	11%	446,446	565,355	118,909	27%
Low	60.0%	65.2%	24.3%	30.1%	1,652,772	1,675,756	22,984	1%	669,671	773,023	103,352	15%
All/Average	**57.3%**	**62.6%**	**22.6%**	**28.2%**	**5,092,649**	**5,656,499**	**563,850**	**11%**	**2,009,008**	**2,553,897**	**544,888**	**27%**

Baseline Tax Structure: VAT/Sales Tax at 21.5% based on CIF/Producer price plus Import Duty and Total Excise, Import Duty - Uniform Ad Valorem at 40% based on CIF/Producer price, Excise - Uniform Specific at 5006.40, Other Tax - Ad Valorem at 1% based on CIF/Producer price, Other Tax - Ad Valorem 2 at 35% based on CIF/Producer price plus Import Duty and Specific Excise
Simulation Tax Structure: VAT/Sales Tax at 21.5% based on CIF/Producer price plus Import Duty and Total Excise, Import Duty - Uniform Ad Valorem at 40% based on CIF/Producer price, Excise - Uniform Specific at 7500, Other Tax - Ad Valorem at 1% based on CIF/Producer price, Other Tax - Ad Valorem 2 at 35% based on CIF/Producer price plus Import Duty and Specific Excise

Tobacco Taxation Simulation Summary for Jamaica from 2014 to 2015 in JMD

	Price Elasticity of Demand	Distribution Margin (Baseline)	Distribution Margin (Simulation)	Trading-Down	Trading-Up	% Increase in CIF/Producer Price
Premium	-0.2	10%	10%	0%	0%	0%
Mid	-0.5	10%	10%	0%	0%	0%
Low	-0.9	10%	10%	0%	0%	0%

	Average Excise (Packs of 20)				Average Prices (Packs of 20)				Sales Volume			
	Baseline (JMD)	Simulation (JMD)	Change (JMD)	% Change % Change	Baseline (JMD)	Simulation (JMD)	Change (JMD)	% Change % Change	Baseline (Packs of 20)	Simulation (Packs of 20)	Change (Packs of 20)	% Change % Change
Premium	210.0	255.0	45.0	21%	677.2	741.4	64.3	9%	324,930	318,764	-6,166	-2%
Mid	210.0	255.0	45.0	21%	629.6	693.9	64.3	10%	21,228,774	20,145,127	-1,083,646	-5%
Low	210.0	255.0	45.0	21%	445.3	509.5	64.3	14%	108,310	94,244	-14,066	-13%
All/Average	**210.0**	**255.0**	**45.0**	**21%**	**629.4**	**693.8**	**64.4**	**10%**	**21,662,014**	**20,558,135**	**-1,103,879**	**-5%**

	Total Tax Share		Excise Share		Total Tax Revenue				Excise Revenue			
	Baseline (% of price)	Simulation (% of price)	Baseline (JMD 000s)	Simulation (JMD 000s)	Baseline (JMD 000s)	Simulation (JMD 000s)	Change (JMD 000s)	% Change % Change	Baseline (JMD 000s)	Simulation (JMD 000s)	Change (JMD 000s)	% Change % Change
Premium	45.2%	48.0%	31.0%	34.4%	99,373	113,370	13,997	14%	68,235	81,285	13,050	19%
Mid	48.3%	51.1%	33.4%	36.7%	6,455,790	7,147,379	691,590	11%	4,458,042	5,137,007	678,965	15%
Low	67.3%	69.2%	47.2%	50.0%	32,432	33,217	785	2%	22,745	24,032	1,287	6%
All/Average	**48.3%**	**51.1%**	**33.4%**	**36.8%**	**6,587,595**	**7,293,967**	**706,372**	**11%**	**4,549,023**	**5,242,324**	**693,302**	**15%**

Baseline Tax Structure: VAT/Sales Tax at 21.5% based on CIF/Producer price plus Import Duty and Total Excise, Import Duty - Uniform Ad Valorem at 40% based on CIF/Producer price, Excise - Uniform Specific at 10.50, Other Tax - Specific at 1, Other Tax - Ad Valorem at 6% based on CIF/Producer price plus Import Duty and Specific Excise, Other Tax - Ad Valorem 2 at 1% based on CIF/Producer price plus Import Duty and Specific
Simulation Tax Structure: VAT/Sales Tax at 21.5% based on CIF/Producer price plus Import Duty and Total Excise, Import Duty - Uniform Ad Valorem at 40% based on CIF/Producer price, Excise - Uniform Specific at 12.75, Other Tax - Specific at 1, Other Tax - Ad Valorem at 6% based on CIF/Producer price plus Import Duty and Specific Excise, Other Tax - Ad Valorem 2 at 1% based on CIF/Producer price plus Import Duty and

Tobacco Taxation Simulation Summary for Jamaica from 2014 to 2015 in JMD

	Price Elasticity of Demand	Distribution Margin (Baseline)	Distribution Margin (Simulation)	Trading-Down	Trading-Up	% Increase in CIF/Producer Price
Premium	-0.2	10%	10%	0%	0%	0%
Mid	-0.5	10%	10%	0%	0%	0%
Low	-0.9	10%	10%	0%	0%	0%

	Average Excise (Packs of 20)				Average Prices (Packs of 20)				Sales Volume			
	Baseline (JMD)	Simulation (JMD)	Change (JMD)	% Change % Change	Baseline (JMD)	Simulation (JMD)	Change (JMD)	% Change % Change	Baseline (Packs of 20)	Simulation (Packs of 20)	Change (Packs of 20)	% Change % Change
Premium	210.0	300.0	90.0	43%	677.2	805.7	128.5	19%	324,930	312,598	-12,332	-4%
Mid	210.0	300.0	90.0	43%	629.6	758.2	128.5	20%	21,228,774	19,061,481	-2,167,293	-10%
Low	210.0	300.0	90.0	43%	445.3	573.8	128.5	29%	108,310	80,177	-28,133	-26%
All/Average	**210.0**	**300.0**	**90.0**	**43%**	**629.4**	**758.2**	**128.7**	**20%**	**21,662,014**	**19,454,256**	**-2,207,758**	**-10%**

	Total Tax Share		Excise Share		Total Tax Revenue				Excise Revenue			
	Baseline (% of price)	Simulation (% of price)	Baseline (JMD 000s)	Simulation (JMD 000s)	Baseline (JMD 000s)	Simulation (JMD 000s)	Change (JMD 000s)	% Change % Change	Baseline (JMD 000s)	Simulation (JMD 000s)	Change (JMD 000s)	% Change % Change
Premium	45.2%	51.3%	31.0%	37.2%	99,373	129,253	29,880	30%	68,235	93,779	25,544	37%
Mid	48.3%	54.4%	33.4%	39.6%	6,455,790	7,865,150	1,409,360	22%	4,458,042	5,718,444	1,260,402	28%
Low	67.3%	71.5%	47.2%	52.3%	32,432	32,896	464	1%	22,745	24,053	1,308	6%
All/Average	**48.3%**	**54.4%**	**33.4%**	**39.6%**	**6,587,595**	**8,027,298**	**1,439,703**	**22%**	**4,549,023**	**5,836,277**	**1,287,254**	**28%**

Baseline Tax Structure: VAT/Sales Tax at 21.5% based on CIF/Producer price plus Import Duty and Total Excise, Import Duty - Uniform Ad Valorem at 40% based on CIF/Producer price, Excise - Uniform Specific at 10.50, Other Tax - Specific at 1, Other Tax - Ad Valorem at 6% based on CIF/Producer price plus Import Duty and Specific Excise, Other Tax - Ad Valorem 2 at 1% based on CIF/Producer price plus Import Duty and Specific
Simulation Tax Structure: VAT/Sales Tax at 21.5% based on CIF/Producer price plus Import Duty and Total Excise, Import Duty - Uniform Ad Valorem at 40% based on CIF/Producer price, Excise - Uniform Specific at 15, Other Tax - Specific at 1, Other Tax - Ad Valorem at 6% based on CIF/Producer price plus Import Duty and Specific Excise, Other Tax - Ad Valorem 2 at 1% based on CIF/Producer price plus Import Duty and Specific

Tobacco Taxation Simulation Summary for Jamaica from 2014 to 2015 in JMD

	Price Elasticity of Demand	Distribution Margin (Baseline)	Distribution Margin (Simulation)	Trading-Down	Trading-Up	% Increase in CIF/Producer Price
Premium	-0.2	10%	10%	0%	0%	0%
Mid	-0.5	10%	10%	0%	0%	0%
Low	-0.9	10%	10%	0%	0%	0%

	Average Excise (Packs of 20)				Average Prices (Packs of 20)				Sales Volume			
	Baseline (JMD)	Simulation (JMD)	Change (JMD)	% Change % Change	Baseline (JMD)	Simulation (JMD)	Change (JMD)	% Change % Change	Baseline (Packs of 20)	Simulation (Packs of 20)	Change (Packs of 20)	% Change % Change
Premium	210.0	344.0	134.0	64%	677.2	868.5	191.3	28%	324,930	306,569	-18,361	-6%
Mid	210.0	344.0	134.0	64%	629.6	821.0	191.4	30%	21,228,774	18,001,915	-3,226,858	-15%
Low	210.0	344.0	134.0	64%	445.3	636.6	191.3	43%	108,310	66,424	-41,886	-39%
All/Average	**210.0**	**344.0**	**134.0**	**64%**	**629.4**	**821.1**	**191.7**	**30%**	**21,662,014**	**18,374,908**	**-3,287,106**	**-15%**

	Total Tax Share		Excise Share		Total Tax Revenue				Excise Revenue			
	Baseline (% of price)	Simulation (% of price)	Baseline (JMD 000s)	Simulation (JMD 000s)	Baseline (JMD 000s)	Simulation (JMD 000s)	Change (JMD 000s)	% Change % Change	Baseline (JMD 000s)	Simulation (JMD 000s)	Change (JMD 000s)	% Change % Change
Premium	45.2%	54.1%	31.0%	39.6%	99,373	144,094	44,720	45%	68,235	105,460	37,224	55%
Mid	48.3%	57.1%	33.4%	41.9%	6,455,790	8,445,792	1,990,002	31%	4,458,042	6,192,659	1,734,616	39%
Low	67.3%	73.3%	47.2%	54.0%	32,432	31,008	-1,424	-4%	22,745	22,850	105	0%
All/Average	**48.3%**	**57.1%**	**33.4%**	**41.9%**	**6,587,595**	**8,620,894**	**2,033,299**	**31%**	**4,549,023**	**6,320,968**	**1,771,945**	**39%**

Baseline Tax Structure: VAT/Sales Tax at 21.5% based on CIF/Producer price plus Import Duty and Total Excise, Import Duty - Uniform Ad Valorem at 40% based on CIF/Producer price, Excise - Uniform Specific at 10.50, Other Tax - Specific at 1, Other Tax - Ad Valorem at 6% based on CIF/Producer price plus Import Duty and Specific Excise, Other Tax - Ad Valorem 2 at 1% based on CIF/Producer price plus Import Duty and Specific
Simulation Tax Structure: VAT/Sales Tax at 21.5% based on CIF/Producer price plus Import Duty and Total Excise, Import Duty - Uniform Ad Valorem at 40% based on CIF/Producer price, Excise - Uniform Specific at 17.20, Other Tax - Specific at 1, Other Tax - Ad Valorem at 6% based on CIF/Producer price plus Import Duty and Specific Excise, Other Tax - Ad Valorem 2 at 1% based on CIF/Producer price plus Import Duty and Specific Excise

Beer Taxation Simulation Summary for Trinidad and Tobago from 2014 to 2015 in TTD

	Price Elasticity of Demand	Distribution Margin (Baseline)	Distribution Margin (Simulation)	Trading-Down	Trading-Up	% Increase in CIF/Producer Price
Premium	-0.2	10%	10%	0%	0%	0%
Mid	-0.5	10%	10%	0%	0%	0%
Low	-0.8	10%	10%	0%	0%	0%

	Average Excise (Cases of 24)				Average Prices (Cases of 24)				Sales Volume			
	Baseline (TTD)	Simulation (TTD)	Change (TTD)	% Change % Change	Baseline (TTD)	Simulation (TTD)	Change (TTD)	% Change % Change	Baseline (Cases of 24)	Simulation (Cases of 24)	Change (Cases of 24)	% Change % Change
Premium	28.1	37.8	9.7	35%	242.1	254.5	12.4	5%	53,000	52,430	-570	-1%
Mid	28.1	37.8	9.7	35%	222.1	234.5	12.4	6%	7,000	6,805	-195	-3%
Low	28.1	37.8	9.7	35%	165.7	178.1	12.4	7%	325,000	306,033	-18,967	-6%
All/Average	**28.1**	**37.8**	**9.7**	**35%**	**177.2**	**190.1**	**12.9**	**7%**	**385,000**	**365,268**	**-19,732**	**-5%**

	Total Tax Share		Excise Share		Total Tax Revenue				Excise Revenue			
	Baseline (% of price)	Simulation (% of price)	Baseline (TTD 000s)	Simulation (TTD 000s)	Baseline (TTD 000s)	Simulation (TTD 000s)	Change (TTD 000s)	% Change % Change	Baseline (TTD 000s)	Simulation (TTD 000s)	Change (TTD 000s)	% Change % Change
Premium	24.4%	27.6%	11.6%	14.8%	3,135	3,686	551	18%	1,487	1,979	493	33%
Mid	25.2%	28.6%	12.6%	16.1%	391	456	65	17%	196	257	61	31%
Low	30.9%	35.0%	16.9%	21.2%	16,613	19,057	2,444	15%	9,116	11,553	2,437	27%
All/Average	**29.5%**	**33.4%**	**15.8%**	**19.9%**	**20,138**	**23,199**	**3,060**	**15%**	**10,799**	**13,789**	**2,990**	**28%**

Baseline Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Excise - Uniform Specific at 28.05

Simulation Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Excise - Uniform Specific at 37.75

Beer Taxation Simulation Summary for Trinidad and Tobago from 2014 to 2015 in TTD

	Price Elasticity of Demand	Distribution Margin (Baseline)	Distribution Margin (Simulation)	Trading-Down	Trading-Up	% Increase in CIF/Producer Price
Premium	-0.2	10%	10%	0%	0%	0%
Mid	-0.5	10%	10%	0%	0%	0%
Low	-0.8	10%	10%	0%	0%	0%

	Average Excise (Cases of 24)				Average Prices (Cases of 24)				Sales Volume			
	Baseline (TTD)	Simulation (TTD)	Change (TTD)	% Change % Change	Baseline (TTD)	Simulation (TTD)	Change (TTD)	% Change % Change	Baseline (Cases of 24)	Simulation (Cases of 24)	Change (Cases of 24)	% Change % Change
Premium	28.1	47.1	19.1	68%	242.1	266.4	24.3	10%	53,000	51,881	-1,119	-2%
Mid	28.1	47.1	19.1	68%	222.1	246.5	24.3	11%	7,000	6,616	-384	-5%
Low	28.1	47.1	19.1	68%	165.7	190.0	24.3	15%	325,000	287,751	-37,249	-11%
All/Average	**28.1**	**47.1**	**19.1**	**68%**	**177.2**	**202.5**	**25.3**	**14%**	**385,000**	**346,249**	**-38,751**	**-10%**

	Total Tax Share		Excise Share		Total Tax Revenue				Excise Revenue			
	Baseline (% of price)	Simulation (% of price)	Baseline (TTD 000s)	Simulation (TTD 000s)	Baseline (TTD 000s)	Simulation (TTD 000s)	Change (TTD 000s)	% Change % Change	Baseline (TTD 000s)	Simulation (TTD 000s)	Change (TTD 000s)	% Change % Change
Premium	24.4%	30.4%	11.6%	17.7%	3,135	4,205	1,070	34%	1,487	2,444	957	64%
Mid	25.2%	31.6%	12.6%	19.1%	391	515	124	32%	196	312	115	59%
Low	30.9%	38.4%	16.9%	24.8%	16,613	21,012	4,400	26%	9,116	13,553	4,437	49%
All/Average	**29.5%**	**36.7%**	**15.8%**	**23.3%**	**20,138**	**25,732**	**5,594**	**28%**	**10,799**	**16,308**	**5,509**	**51%**

Baseline Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Excise - Uniform Specific at 28.05

Simulation Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Excise - Uniform Specific at 47.10

Beer Taxation Simulation Summary for Trinidad and Tobago from 2014 to 2015 in TTD

	Price Elasticity of Demand	Distribution Margin (Baseline)	Distribution Margin (Simulation)	Trading-Down	Trading-Up	% Increase in CIF/Producer Price
Premium	-0.2	10%	10%	0%	0%	0%
Mid	-0.5	10%	10%	0%	0%	0%
Low	-0.8	10%	10%	0%	0%	0%

	Average Excise (Cases of 24)				Average Prices (Cases of 24)				Sales Volume			
	Baseline (TTD)	Simulation (TTD)	Change (TTD)	% Change % Change	Baseline (TTD)	Simulation (TTD)	Change (TTD)	% Change % Change	Baseline (Cases of 24)	Simulation (Cases of 24)	Change (Cases of 24)	% Change % Change
Premium	28.1	56.5	28.5	101%	242.1	278.4	36.4	15%	53,000	51,328	-1,672	-3%
Mid	28.1	56.5	28.5	101%	222.1	258.5	36.4	16%	7,000	6,427	-573	-8%
Low	28.1	56.5	28.5	101%	165.7	202.0	36.4	22%	325,000	269,371	-55,629	-17%
All/Average	**28.1**	**56.5**	**28.5**	**101%**	**177.2**	**215.1**	**37.9**	**21%**	**385,000**	**327,127**	**-57,873**	**-15%**

	Total Tax Share		Excise Share		Total Tax Revenue				Excise Revenue			
	Baseline (% of price)	Simulation (% of price)	Baseline (TTD 000s)	Simulation (TTD 000s)	Baseline (TTD 000s)	Simulation (TTD 000s)	Change (TTD 000s)	% Change % Change	Baseline (TTD 000s)	Simulation (TTD 000s)	Change (TTD 000s)	% Change % Change
Premium	24.4%	33.0%	11.6%	20.3%	3,135	4,715	1,580	50%	1,487	2,900	1,413	95%
Mid	25.2%	34.3%	12.6%	21.9%	391	569	178	46%	196	363	167	85%
Low	30.9%	41.5%	16.9%	28.0%	16,613	22,582	5,970	36%	9,116	15,219	6,103	67%
All/Average	**29.5%**	**39.6%**	**15.8%**	**26.3%**	**20,138**	**27,867**	**7,728**	**38%**	**10,799**	**18,483**	**7,683**	**71%**

Baseline Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Excise - Uniform Specific at 28.05

Simulation Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Excise - Uniform Specific at 56.50

Rum Taxation Simulation Summary for Trinidad and Tobago from 2014 to 2015 in TTD

	Price Elasticity of Demand	Distribution Margin (Baseline)	Distribution Margin (Simulation)	Trading-Down	Trading-Up	% Increase in CIF/Producer Price
Premium	-0.5	10%	10%	0%	0%	0%
Mid	-0.8	10%	10%	0%	0%	0%
Low	-1.1	10%	10%	0%	0%	0%

	Average Excise (Cases of 12)				Average Prices (Cases of 12)				Sales Volume			
	Baseline (TTD)	Simulation (TTD)	Change (TTD)	% Change % Change	Baseline (TTD)	Simulation (TTD)	Change (TTD)	% Change % Change	Baseline (Cases of 12)	Simulation (Cases of 12)	Change (Cases of 12)	% Change % Change
Premium												
Mid	341.0	382.0	41.0	12%	1,294.8	1,347.2	52.4	4%	172,000	166,502	-5,498	-3%
Low	341.0	382.0	41.0	12%	921.0	973.4	52.4	6%	277,000	259,825	-17,175	-6%
All/Average	**341.0**	**382.0**	**41.0**	**12%**	**1,064.2**	**1,119.4**	**55.2**	**5%**	**449,000**	**426,328**	**-22,672**	**-5%**

	Total Tax Share		Excise Share		Total Tax Revenue				Excise Revenue			
	Baseline (% of price)	Simulation (% of price)	Baseline (TTD 000s)	Simulation (TTD 000s)	Baseline (TTD 000s)	Simulation (TTD 000s)	Change (TTD 000s)	% Change % Change	Baseline (TTD 000s)	Simulation (TTD 000s)	Change (TTD 000s)	% Change % Change
Premium												
Mid	33.9%	36.1%	26.3%	28.4%	75,592	81,027	5,434	7%	58,652	63,604	4,952	8%
Low	47.6%	49.9%	37.0%	39.2%	121,444	126,165	4,721	4%	94,457	99,253	4,796	5%
All/Average	**41.2%**	**43.4%**	**32.0%**	**34.1%**	**197,036**	**207,191**	**10,155**	**5%**	**153,109**	**162,857**	**9,748**	**6%**

Baseline Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Excise - Uniform Specific at 341

Simulation Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Excise - Uniform Specific at 382

Rum Taxation Simulation Summary for Trinidad and Tobago from 2014 to 2015 in TTD

	Price Elasticity of Demand	Distribution Margin (Baseline)	Distribution Margin (Simulation)	Trading-Down	Trading-Up	% Increase in CIF/Producer Price
Premium	-0.5	10%	10%	0%	0%	0%
Mid	-0.8	10%	10%	0%	0%	0%
Low	-1.1	10%	10%	0%	0%	0%

	Average Excise (Cases of 12)				Average Prices (Cases of 12)				Sales Volume			
	Baseline (TTD)	Simulation (TTD)	Change (TTD)	% Change % Change	Baseline (TTD)	Simulation (TTD)	Change (TTD)	% Change % Change	Baseline (Cases of 12)	Simulation (Cases of 12)	Change (Cases of 12)	% Change % Change
Premium												
Mid	341.0	422.8	81.8	24%	1,294.8	1,399.3	104.5	8%	172,000	161,038	-10,962	-6%
Low	341.0	422.8	81.7	24%	921.0	1,025.4	104.5	11%	277,000	242,755	-34,245	-12%
All/Average	**341.0**	**422.8**	**81.7**	**24%**	**1,064.2**	**1,174.5**	**110.3**	**10%**	**449,000**	**403,793**	**-45,207**	**-10%**

	Total Tax Share		Excise Share		Total Tax Revenue				Excise Revenue			
	Baseline (% of price)	Simulation (% of price)	Baseline (TTD 000s)	Simulation (TTD 000s)	Baseline (TTD 000s)	Simulation (TTD 000s)	Change (TTD 000s)	% Change % Change	Baseline (TTD 000s)	Simulation (TTD 000s)	Change (TTD 000s)	% Change % Change
Premium												
Mid	33.9%	38.1%	26.3%	30.2%	75,592	85,914	10,322	14%	58,652	68,079	9,427	16%
Low	47.6%	51.9%	37.0%	41.2%	121,444	129,252	7,808	6%	94,457	102,625	8,168	9%
All/Average	**41.2%**	**45.4%**	**32.0%**	**36.0%**	**197,036**	**215,166**	**18,130**	**9%**	**153,109**	**170,704**	**17,595**	**11%**

Baseline Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Excise - Uniform Specific at 341

Simulation Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Excise - Uniform Specific at 422.75

Rum Taxation Simulation Summary for Trinidad and Tobago from 2014 to 2015 in TTD

	Price Elasticity of Demand	Distribution Margin (Baseline)	Distribution Margin (Simulation)	Trading-Down	Trading-Up	% Increase in CIF/Producer Price
Premium	-0.5	10%	10%	0%	0%	0%
Mid	-0.8	10%	10%	0%	0%	0%
Low	-1.1	10%	10%	0%	0%	0%

	Average Excise (Cases of 12)				Average Prices (Cases of 12)				Sales Volume			
	Baseline (TTD)	Simulation (TTD)	Change (TTD)	% Change % Change	Baseline (TTD)	Simulation (TTD)	Change (TTD)	% Change % Change	Baseline (Cases of 12)	Simulation (Cases of 12)	Change (Cases of 12)	% Change % Change
Premium												
Mid	341.0	463.0	122.0	36%	1,294.8	1,450.7	155.9	12%	172,000	155,641	-16,359	-10%
Low	341.0	463.0	122.0	36%	921.0	1,076.9	155.9	17%	277,000	225,895	-51,105	-18%
All/Average	**341.0**	**463.0**	**122.0**	**36%**	**1,064.2**	**1,229.4**	**165.2**	**16%**	**449,000**	**381,536**	**-67,464**	**-15%**

	Total Tax Share		Excise Share		Total Tax Revenue				Excise Revenue			
	Baseline (% of price)	Simulation (% of price)	Baseline (TTD 000s)	Simulation (TTD 000s)	Baseline (TTD 000s)	Simulation (TTD 000s)	Change (TTD 000s)	% Change % Change	Baseline (TTD 000s)	Simulation (TTD 000s)	Change (TTD 000s)	% Change % Change
Premium												
Mid	33.9%	40.0%	26.3%	31.9%	75,592	90,239	14,647	19%	58,652	72,062	13,410	23%
Low	47.6%	53.7%	37.0%	43.0%	121,444	130,731	9,287	8%	94,457	104,589	10,132	11%
All/Average	**41.2%**	**47.1%**	**32.0%**	**37.7%**	**197,036**	**220,970**	**23,934**	**12%**	**153,109**	**176,651**	**23,542**	**15%**

Baseline Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Excise - Uniform Specific at 341

Simulation Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Excise - Uniform Specific at 463

Tobacco Taxation Simulation Summary for Trinidad and Tobago from 2014 to 2015 in TTD

	Price Elasticity of Demand	Distribution Margin (Baseline)	Distribution Margin (Simulation)	Trading-Down	Trading-Up	% Increase in CIF/Producer Price
Premium	-0.3	10%	10%	0%	0%	0%
Mid	-0.5	10%	10%	0%	0%	0%
Low	-0.8	10%	10%	0%	0%	0%

	Average Excise (Packs of 20)				Average Prices (Packs of 20)				Sales Volume			
	Baseline (TTD)	Simulation (TTD)	Change (TTD)	% Change % Change	Baseline (TTD)	Simulation (TTD)	Change (TTD)	% Change % Change	Baseline (Packs of 20)	Simulation (Packs of 20)	Change (Packs of 20)	% Change % Change
Premium	3.8	5.1	1.2	33%	32.0	33.6	1.6	5%	6,603,638	6,505,546	-98,092	-1%
Mid	3.8	5.1	1.2	33%	22.0	23.6	1.6	7%	6,603,638	6,365,840	-237,798	-4%
Low	3.8	5.1	1.2	33%	20.0	21.6	1.6	8%	27,566,580	25,819,471	-1,747,109	-6%
All/Average	**3.8**	**5.1**	**1.2**	**33%**	**22.3**	**23.9**	**1.7**	**7%**	**40,773,856**	**38,690,858**	**-2,082,998**	**-5%**

	Total Tax Share		Excise Share		Total Tax Revenue				Excise Revenue			
	Baseline (% of price)	Simulation (% of price)	Baseline (TTD 000s)	Simulation (TTD 000s)	Baseline (TTD 000s)	Simulation (TTD 000s)	Change (TTD 000s)	% Change % Change	Baseline (TTD 000s)	Simulation (TTD 000s)	Change (TTD 000s)	% Change % Change
Premium	24.9%	28.0%	11.9%	15.0%	52,707	61,201	8,494	16%	25,160	32,853	7,693	31%
Mid	31.2%	35.1%	17.3%	21.4%	45,278	52,725	7,447	16%	25,160	32,147	6,988	28%
Low	33.2%	37.3%	19.1%	23.4%	182,808	208,040	25,233	14%	105,029	130,388	25,360	24%
All/Average	**30.9%**	**34.8%**	**17.1%**	**21.1%**	**280,793**	**321,966**	**41,174**	**15%**	**155,348**	**195,389**	**40,040**	**26%**

Baseline Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Import Duty - Uniform Ad Valorem at 50.07% based on CIF/Producer price, Excise - Uniform Specific at 3.81

Simulation Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Import Duty - Uniform Ad Valorem at 50.07% based on CIF/Producer price, Excise - Uniform Specific at 5.05

Tobacco Taxation Simulation Summary for Trinidad and Tobago from 2014 to 2015 in TTD

	Price Elasticity of Demand	Distribution Margin (Baseline)	Distribution Margin (Simulation)	Trading-Down	Trading-Up	% Increase in CIF/Producer Price
Premium	-0.3	10%	10%	0%	0%	0%
Mid	-0.5	10%	10%	0%	0%	0%
Low	-0.8	10%	10%	0%	0%	0%

	Average Excise (Packs of 20)				Average Prices (Packs of 20)				Sales Volume			
	Baseline (TTD)	Simulation (TTD)	Change (TTD)	% Change % Change	Baseline (TTD)	Simulation (TTD)	Change (TTD)	% Change % Change	Baseline (Packs of 20)	Simulation (Packs of 20)	Change (Packs of 20)	% Change % Change
Premium	3.8	6.3	2.4	64%	32.0	35.1	3.1	10%	6,603,638	6,410,619	-193,019	-3%
Mid	3.8	6.3	2.4	64%	22.0	25.1	3.1	14%	6,603,638	6,135,714	-467,924	-7%
Low	3.8	6.3	2.4	64%	20.0	23.1	3.1	16%	27,566,580	24,128,721	-3,437,859	-12%
All/Average	**3.8**	**6.3**	**2.4**	**64%**	**22.3**	**25.5**	**3.3**	**15%**	**40,773,856**	**36,675,054**	**-4,098,802**	**-10%**

	Total Tax Share		Excise Share		Total Tax Revenue				Excise Revenue			
	Baseline (% of price)	Simulation (% of price)	Baseline (TTD 000s)	Simulation (TTD 000s)	Baseline (TTD 000s)	Simulation (TTD 000s)	Change (TTD 000s)	% Change % Change	Baseline (TTD 000s)	Simulation (TTD 000s)	Change (TTD 000s)	% Change % Change
Premium	24.9%	30.7%	11.9%	17.8%	52,707	69,155	16,448	31%	25,160	40,066	14,907	59%
Mid	31.2%	38.5%	17.3%	24.9%	45,278	59,286	14,008	31%	25,160	38,348	13,188	52%
Low	33.2%	40.8%	19.1%	27.0%	182,808	227,715	44,907	25%	105,029	150,805	45,776	44%
All/Average	**30.9%**	**38.0%**	**17.1%**	**24.5%**	**280,793**	**356,156**	**75,363**	**27%**	**155,348**	**229,219**	**73,871**	**48%**

Baseline Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Import Duty - Uniform Ad Valorem at 50.07% based on CIF/Producer price, Excise - Uniform Specific at 3.81

Simulation Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Import Duty - Uniform Ad Valorem at 50.07% based on CIF/Producer price, Excise - Uniform Specific at 6.25

Tobacco Taxation Simulation Summary for Trinidad and Tobago from 2014 to 2015 in TTD

	Price Elasticity of Demand	Distribution Margin (Baseline)	Distribution Margin (Simulation)	Trading-Down	Trading-Up	% Increase in CIF/Producer Price
Premium	-0.3	10%	10%	0%	0%	0%
Mid	-0.5	10%	10%	0%	0%	0%
Low	-0.8	10%	10%	0%	0%	0%

	Average Excise (Packs of 20)				Average Prices (Packs of 20)				Sales Volume			
	Baseline (TTD)	Simulation (TTD)	Change (TTD)	% Change % Change	Baseline (TTD)	Simulation (TTD)	Change (TTD)	% Change % Change	Baseline (Packs of 20)	Simulation (Packs of 20)	Change (Packs of 20)	% Change % Change
Premium	3.8	7.5	3.6	96%	32.0	36.7	4.7	15%	6,603,638	6,315,692	-287,946	-4%
Mid	3.8	7.5	3.6	96%	22.0	26.7	4.7	21%	6,603,638	5,905,587	-698,051	-11%
Low	3.8	7.5	3.6	96%	20.0	24.7	4.7	23%	27,566,580	22,437,971	-5,128,609	-19%
All/Average	**3.8**	**7.5**	**3.6**	**96%**	**22.3**	**27.2**	**4.9**	**22%**	**40,773,856**	**34,659,250**	**-6,114,606**	**-15%**

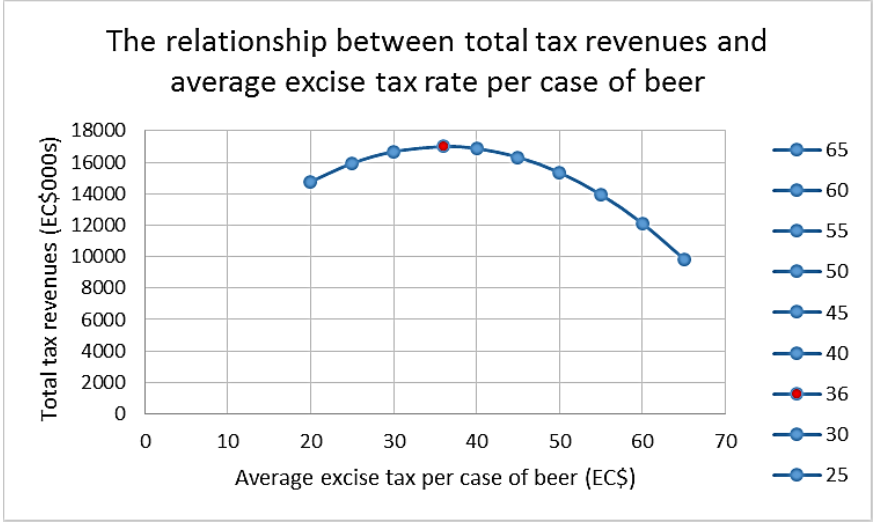
	Total Tax Share		Excise Share		Total Tax Revenue				Excise Revenue			
	Baseline (% of price)	Simulation (% of price)	Baseline (TTD 000s)	Simulation (TTD 000s)	Baseline (TTD 000s)	Simulation (TTD 000s)	Change (TTD 000s)	% Change % Change	Baseline (TTD 000s)	Simulation (TTD 000s)	Change (TTD 000s)	% Change % Change
Premium	24.9%	33.2%	11.9%	20.3%	52,707	76,846	24,139	46%	25,160	47,052	21,892	87%
Mid	31.2%	41.4%	17.3%	28.0%	45,278	65,212	19,935	44%	25,160	43,997	18,837	75%
Low	33.2%	43.9%	19.1%	30.2%	182,808	242,723	59,915	33%	105,029	167,163	62,134	59%
All/Average	**30.9%**	**40.8%**	**17.1%**	**27.4%**	**280,793**	**384,781**	**103,989**	**37%**	**155,348**	**258,211**	**102,863**	**66%**

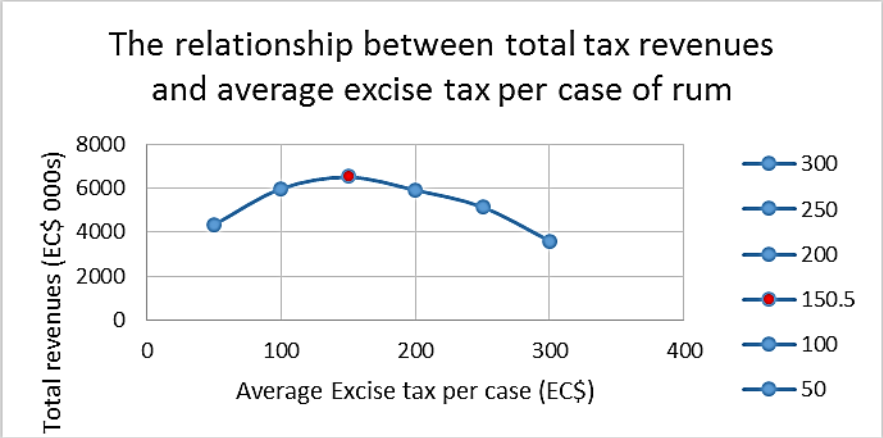
Baseline Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Import Duty - Uniform Ad Valorem at 50.07% based on CIF/Producer price, Excise - Uniform Specific at 3.81

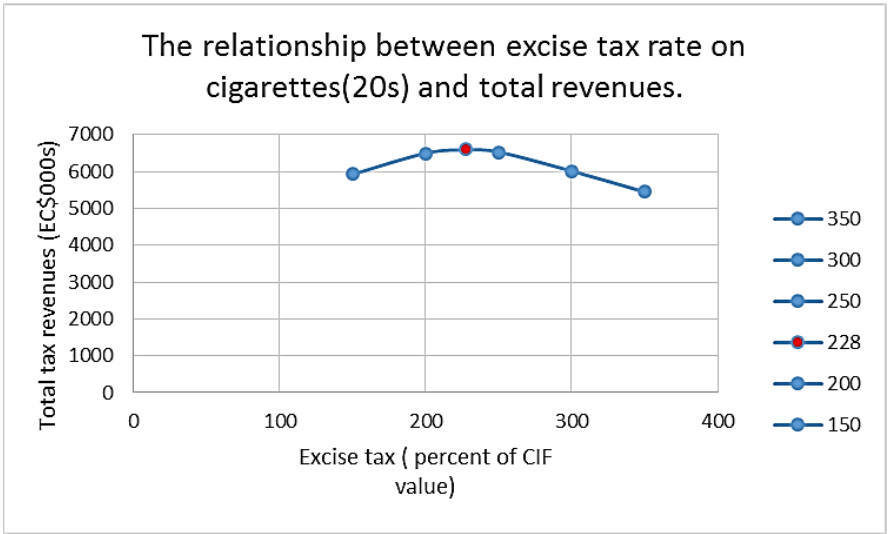
Simulation Tax Structure: VAT/Sales Tax at 15% based on CIF/Producer price plus Import Duty and Total Excise, Import Duty - Uniform Ad Valorem at 50.07% based on CIF/Producer price, Excise - Uniform Specific at 7.45

Appendix A8.C Tax Maximising Graphs

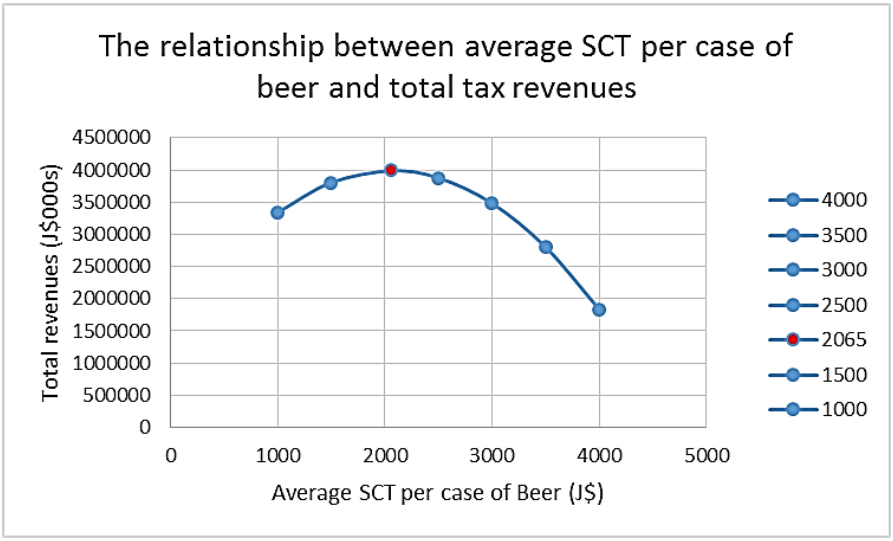
Grenada

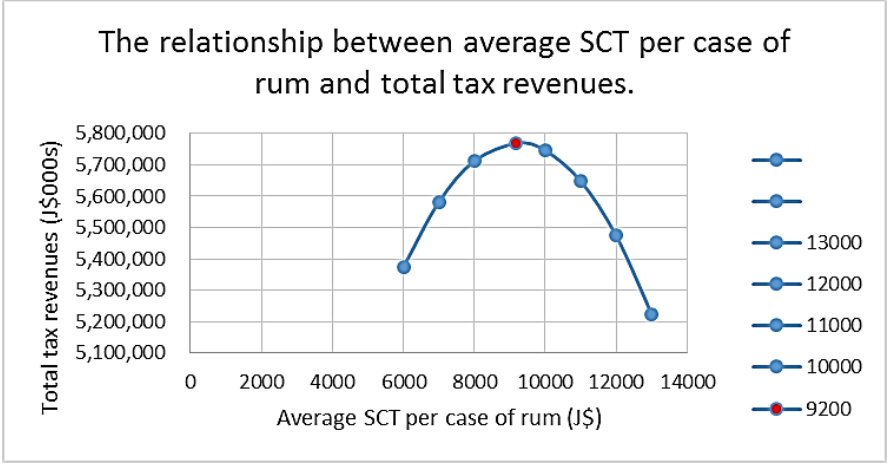


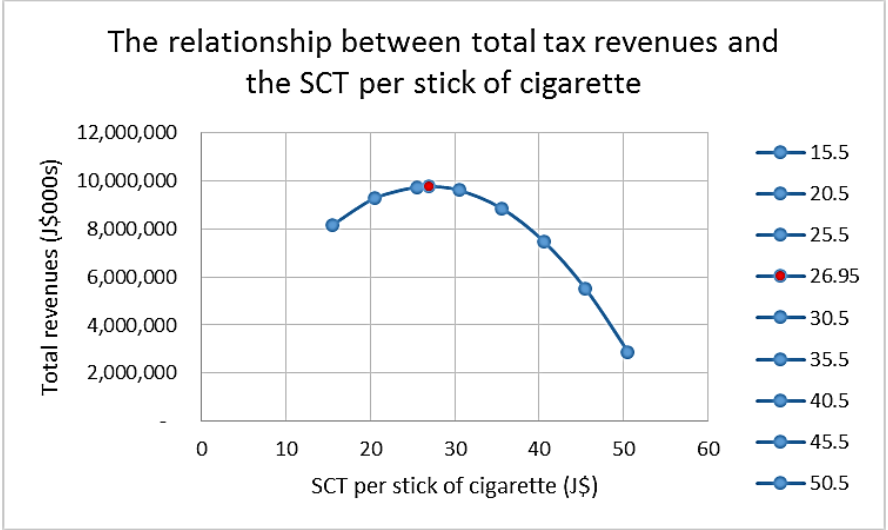




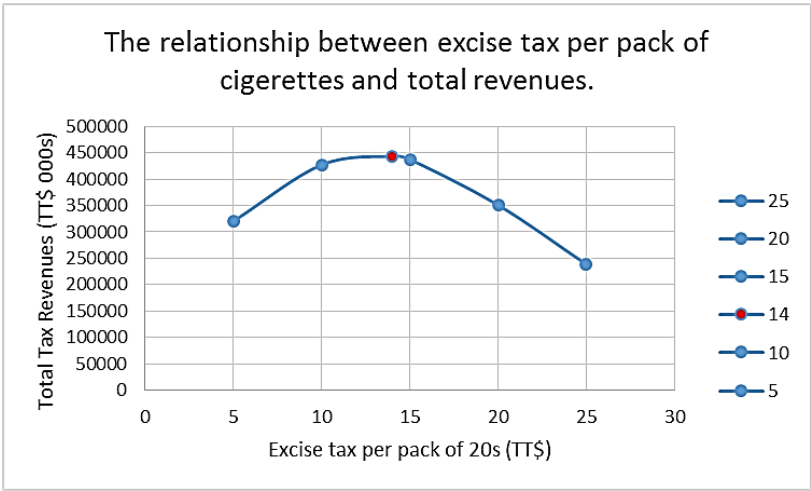
Jamaica

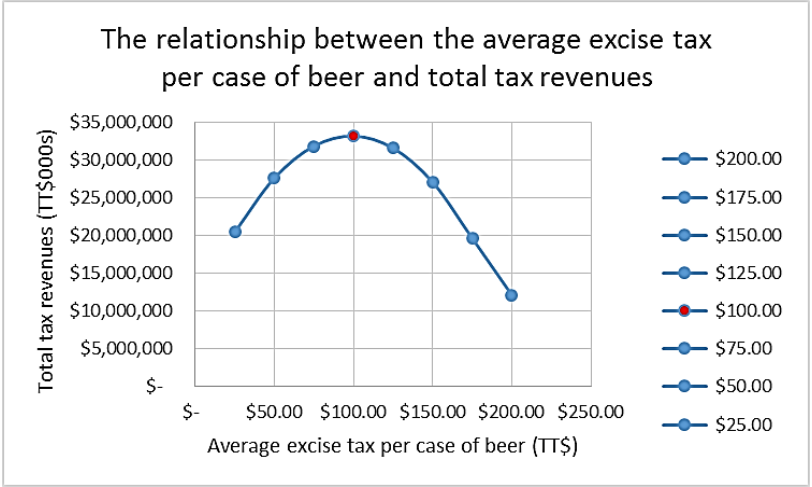

The relationship between average SCT per case of beer and total tax revenues
Total revenues (J$000s)
4500000
4000000
3500000
3000000
2500000
2000000
1500000
1000000
500000
0
0
1000
2000
3000
4000
5000
Average SCT per case of Beer (J$)
4000
3500
3000
2500
2065
1500
1000

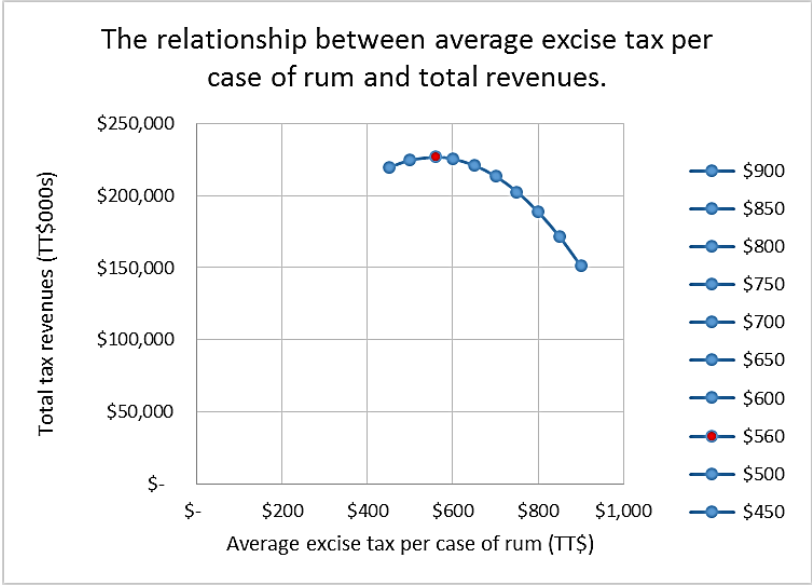

The relationship between average SCT per case of rum and total tax revenues.
Total tax revenues (J$000s)
5,800,000
5,700,000
5,600,000
5,500,000
5,400,000
5,300,000
5,200,000
5,100,000
0
2000
4000
6000
8000
10000
12000
14000
Average SCT per case of rum (J$)
13000
12000
11000
10000
9200


The relationship between total tax revenues and the SCT per stick of cigarette
Total revenues (J$000s)
12,000,000
10,000,000
8,000,000
6,000,000
4,000,000
2,000,000
-
0
10
20
30
40
50
60
SCT per stick of cigarette (J$)
15.5
20.5
25.5
26.95
30.5
35.5
40.5
45.5
50.5

Trinidad and Tobago







Appendix A8.D: Alternate Methodology

RESEARCH METHODOLOGY PROTOCOL OBJECTIVE 4B, IDRC PROJECT

I. METHODOLOGY

Firstly, the study will seek to examine individual country circumstances to gather information on the prevalence and intensity of tobacco and alcohol consumption, the demographic characteristics of the "using" population and the nature of the industries, where appropriate. Information will also be gathered on the current situation with respect to tobacco and alcohol tax structures, rates and the degree to which tobacco and alcohol tax revenues are collected. Econometric models, where applicable, together with other relevant approaches will be used to estimate the quantities of interest, for example, the price and income elasticities of demand for cigarettes and alcoholic beverages, the current and potential degree of smuggling within the Caribbean region, the potential to raise revenues from tobacco and alcohol taxes and the degree to which consumption of these substances will be affected by an applied tax.

(A) TOBACCO

Research Question (i): What is the potential for revenue generation from the imposition of specific taxes on tobacco products in CARICOM Member States?

Many attempts have been made at tobacco control and revenue generation through taxation. Naturally, the effectiveness of a tax on tobacco in achieving these aims depends on a number of factors including the nature of the tax[92], the potential for smuggling and the response of smokers and potential smokers to the resulting price increase i.e. price elasticity of demand (Van Walbeek 2005, Bartlett 1998). What is known is that the larger the absolute value of the price elasticity, the greater the impact on consumption and on government revenues, ceteris paribus (Van Walbeek 2005). A number of studies have attempted to quantify the price elasticity of demand for tobacco. Lee et al. (2005) showed that the price elasticity for cigarettes usually ranges between -0.644 and -0.822.

Assessing the potential for revenue generation from tobacco taxation will employ an approach used by Van Walbeek (2000). In this South African study, actual revenues collected were compared with predicted revenues for a particular period of time. According to Van Walbeek (2000), such studies are normally conducted with serious consideration for the price elasticity of demand. The study showed that in the context of the demand function for tobacco, the point of revenue maximization is located where the quantity demanded is halved. Against this theoretical background, Van Walbeek (2000) specified two (2) demand equations; one (1) in per capita terms and the other in aggregate terms. For this study, the aggregate equation is the equation of interest and is expressed as:

[92] Given the overall intent of the tax and current strength of tax administration in the Caribbean region, an excise tax may produce the best results.

CONS = f (RETAIL, PDI, ASC)

With variables defined as follows:

CONS	*Cigarette consumption (millions of packs per annum)*[93]
RETAIL	*Real price of cigarettes (cents per pack of 20, deflated by the Consumer Price Index)*
PDI	*Real personal disposable income*
ASC	*Dummy variable indicating the presence of anti-smoking campaign*

Van Walbeek (2000)

This equation is estimated in linear form on the assumption of finite and measurable consumer surplus and constant price elasticity of demand (Van Walbeek 2000). The above equation will be estimated using the Engel and Granger (1987) two-step procedure. While acknowledging the theoretical superiority of the Johansen procedure, Van Walbeek (2000) outlined a number of reasons for arriving at "*an empirical compromise*" in the Engle and Granger procedure. Given that the Johansen procedure is very data intensive, the use of small data sets will possibly result in small sample bias, among other hardships. This study is likely to encounter similar complications given the historical difficulties experienced with the availability of data in the Caribbean region. As the demand equation is assumed to be linear in form, price elasticity will be calculated (at the mean values of the variables) using the formula, $b^* \frac{P}{Q}$, where b is the price coefficient and P and Q are price and quantity respectively.

ASSESSING THE REVENUE POTENTIAL OF A TAX ON TOBACCO

Assessing the impact of tobacco tax increases on the government's future revenue potential will be done using the results of the regression and the appropriate theoretical foundation. Revenue estimates will be adjusted to reflect the estimates of smuggling derived through the procedure explained below. Further details of the process can be found in the Appendix I.

Research Question (ii): (a) Will specific tobacco taxes impact on the consumption of the product? (b) Will these taxes be successful in raising revenue, as well as in controlling the use of tobacco?

Research Question (iii): How will aggregate revenue levels change with the introduction of specific tobacco taxes?

The above questions will be addressed using econometric modelling. Once the level of smuggling has been determined, this study will proceed to estimate the demand for tobacco using the framework methodology employed by Van Walbeek (2005). While the original approach will undergo some modifications for this study, selection of this model was mainly based on the fact that the data requirements will likely be met and given the fact that the original study was conducted in Jamaica, a country with similar characteristics as most of the other CARICOM countries. Its appropriateness for use in the Caribbean is also likely to be less problematic. Van Walbeek (2005) concedes that while there are more advanced methods of estimating the demand

[93] Measured as total packs sold per annum.

for tobacco, the scarcity of data and the low quality of that which exist may result in significant challenges if used in the more sophisticated models. Consequently, a linear model and a double log model were specified and estimated by Ordinary Least Squares (OLS). The models employed the following variables:

AGCIGCON	Aggregate cigarette consumption, expressed in thousands of units (*Dependant Variable*). It is assumed that sales equal consumption after adjustment for estimates of smuggling.
GDP	Gross domestic product, expressed in millions of constant dollars.
PC_GDP	Per capita GDP, where the population is defined as all people aged above 15 years, expressed in constant dollars (as a possible alternative to GDP).
CIGP	Price of a pack of 20 cigarettes, deflated by the Consumer Price Index.
D_Y	An intercept dummy variable for the introduction of an anti-smoking campaign in the year Y, where D = 0 in the years prior to the Y and 1 from the year Y onwards (and back to D = 0 for the year of the discontinuation of the campaign).

Similar to the approach taken by Van Walbeek (2005), many different specifications of the demand equation will be employed, rotating between the two (2) functional forms (linear and double log). Calculations of the short-run and long-run price and income elasticities will vary depending on the functional form of the model used. The calculated elasticities for the linear model will be interpreted as variable elasticities, while for the double log model, the respective beta coefficients will be interpreted as constant elasticities. (Refer to Appendix II for further details).

SIMULATING THE EFFECTS OF THE TAX ON REVENUES

To conduct the simulations, a baseline will be established and key assumptions will be made on the current situation in each study country to allow for the evaluation of the potential impact of the imposition of the special tax. Simulations, using the regression results, will look at both the short-run and long-run impact of the tax increase and will evaluate the impact of different tax rates on government's revenues.

Simulations will be based on the following assumptions:

a. When all taxes on cigarettes are removed, what remains is the industry price; and
b. The price of cigarettes will increase by the amount of the increase in the tax, hence the entire tax is passed to the consumer[94].

[94] (Baltagi & Levin, 1992) indicated the "*it is quite plausible that an increase in a state tax increases cigarette prices by the same magnitude. This may be due to the fact that cigarette companies are reluctant to change their price strategy in response to a change one market out of so many*" p 332-333 . However this assumption is unlikely to hold in this current context given. This so because most of the regional countries purchase cigarette from the same company based in Trinidad, so in effect a change in cigarette prices at the regional level cannot be interpreted as a "one market" change , rather a simultaneous change in several markets and thus an tobacco industry response is more likely.

The baseline will be established using the following information:

a. The current level of cigarette consumption (sales);
b. The current level of government's revenues from taxes on cigarettes; and
c. The current price of cigarettes.

To evaluate how the applied tax will affect government's revenues, an initial tax increase of 10 percent for example, will be assumed. From this, the new price and the percentage change in price will be calculated. Calculating the product of the price elasticity (from the regression) and percentage change in price yields the percentage change in cigarette consumption. This new level of consumption will then be multiplied by the tax level to get the new level of government revenues from taxes on cigarettes. Different assumptions about the percentage change in tax and the range of price elasticities (short-run and long-run elasticities) will be employed in order to evaluate how revenues will change. The specific tax per pack of cigarette can be identified to allow for the calculation of revenues to government from the specific tax imposition under different scenarios. The above analysis inherently allows for the examination of the impact of the new tax on consumption and on government's revenues.

Research Question (iv): What will be the tax level required to raise revenue while avoiding smuggling of tobacco products?

Alamar et al. (2003) examined the issue of cigarette smuggling in California between 1970 and 2002. The study showed that the incentive for all forms of smuggling—regional and international bootlegging and regional and international commercial smuggling—can be measured by the ratio of total tax to retail price of cigarettes. According to the study, when this ratio increases the potential economic returns from smuggling also increases since the ultimate aim of the smuggler is to avoid or at least minimize payments of government taxes. The study therefore contended that the use of this ratio (i.e. total tax / retail price of cigarette) as a "*predictor of smuggling will provide a reasonable estimate of the level of smuggling*" (Alamar et al. 2003, 14). The model used to estimate smuggling was specified as follows.

$$ln\ Sales = \alpha_{price} ln(price) + \alpha_{\frac{tax}{price}} ln(total\ tax/reatil\ price) + \beta_{program} anti + smoking\ program + \beta_{year} ln(year)$$

where,
Sales = Cigarette sales ($)
Price = Price of cigarette
Tax = Tax on cigarette ($)

To account for the effects of time and anti-smoking initiatives, the variables year and tobacco control program were included in the model. The tobacco control program variable was assigned the value zero for the years prior to the implementation of the program and the value 1 was assigned for the year the program started, with this value increasing by one (1) for each year thereafter. This variable took into account the cumulative effect of the program. The year (time) variable was included in the model to "*control for other factors and the long-term decline in smoking that predated the program*" (Alamar et al. 2003, 14). The model will be employed and estimated using OLS.

The process of evaluating the effects of changes in the tax rate on the level of smuggling will be by use of the coefficient of the total tax/retail price ratio. For example, with an estimated coefficient of say -0.23 and a given annual percentage change in tax to retail price ratio of say 20 percent, the annual change in sales can be calculated to be 4.6 percent (i.e. -0.23 x 20). This percentage change in sales can now be multiplied by the tax paid sales of the previous year. The result gives the change in tax paid sales that are due to a change in the total tax to retail price ratio and can be interpreted as the change in the level of smuggling in any given year (Alamar et al. 2003). Examining different levels of tax rates will provide an indication of the level of smuggling that may occur at a given rate of taxation. A 95 percent confidence interval of the estimated level of smuggling will also be constructed.

(B) ALCOHOL

Research Question (i): What is the potential for revenue generation from the imposition of specific taxes on alcohol products in CARICOM Member States?

Salisu and Balasubramanyam (1997)[95] investigated the revenue potential that resides in taxing alcoholic beverages in England in the 1990s. Their work made use of cointegration and the error correction mechanism (ECM) techniques to estimate consumer's income and price response to changes in the price of alcohol that will result from a tax increase. The model's dependant variable is per capita demand for each of the beverages in the study (wine, beer and spirits) and demand is measured by real consumer expenditure of the adult (15 years and older) population. The model has two (2) main explanatory variables; real price of each of the beverages and per capita real disposable income. For the study to be undertaken, the rate of employment, the number of Fridays in the month and number of other week days will be included as they are believed to have an important impact on alcohol demand.

Salisu and Balasubramanyam (1997) used the techniques of cointegration and ECM that were developed by Johansen in 1988. However given the extensive data demands of this approach, it will likely be difficult to adopt, in entirety, these techniques in the current study. As a result, a modified approach will be employed where three (3) equations, one (1) for each of the three (3) beverages under consideration (wine, beer and spirits), will be estimated. They will take the following form[96]:

$$LnQ_{wine} = \beta_1 LnRP_{wine} + \beta_2 LnPDI + \beta_3 LnEmp + \beta_4 LnNWD + \beta_5 LnNF \quad (1)$$
$$LnQ_{beer} = \beta_1 LnRP_{beer} + \beta_2 LnPDI + \beta_3 LnEmp + \beta_4 LnNWD + \beta_5 LnNF \quad (2)$$
$$LnQ_{spirits} = \beta_1 LnRP_{spirits} + \beta_2 LnPDI + \beta_3 LnEmp + \beta_4 LnNWD + \beta_5 LnNF \quad (3)$$

where,
Q = Real consumer expenditure on the ith beverage, i = 1, 2, 3 (wine, beer and spirits)
RP = Real price of the ith product
PDI = Per capita disposable income

[95] Study entitled, "Income and price elasticities of demand for alcoholic drinks".
[96] Professor Nugent suggested the inclusion of a measure of tourism as percentage of GDP, therefore values for this variable will also be sought.

EMP = Employment rate
NWD = Number of other week days in the month
NF = Number of Fridays in the month

There is reason to believe that the error terms of each of the equations may be correlated and, as a result, this study will be specified as a Seemingly Unrelated Regression (SUR). According to Gruenewald et al. (2006), by accounting for this correlation among the error terms of the three (3) equations, "*SUR models can achieve greater efficiency than separate ordinary least squares regression[OLS]*". Hence, estimation will be via the Feasible Generalized Least Squares (FGLS). Each of the relevant research questions will be answered in a similar fashion as described above, using the regression results of each of the stated equations.

ASSESSING THE REVENUE POTENTIAL OF A TAX ON ALCOHOL

Assessing the impact of alcohol tax increases on the government's future revenue potential and the public's consumption of alcohol will proceed, in similar fashion to the tobacco study, by making use of the results of each the regressions.

Research Questions (ii): (a) Will specific alcohol taxes impact on the consumption of the product? (b) Will these taxes be successful in raising revenue, as well as in controlling the use of alcohol?

Research Question (iii): How will aggregate revenue levels change with the introduction of specific alcohol taxes?

These questions will also be addressed using the estimated parameters of the equations above.

SIMULATING THE EFFECTS OF THE TAX ON REVENUES

To conduct the simulations, a baseline will be established and key assumptions will be made on the current situation in each study country to allow for the evaluation of the potential impact of the imposition of the special tax. Simulations, using the regression results, will look at the impact of the tax increase on each of the three (3) beverages and will evaluate the impact of different tax rates on government's revenues and on consumption. Simulations will follow a similar path as the tobacco component above.

Research Question (iv): What will be the tax level required to raise revenue while avoiding smuggling of alcohol products?

The approach used to address this question for the tobacco component will be utilized for the alcohol component, except in this case there will be three (3) separately estimated equations and the variables in each of three (3) equations will relate to the three (3) beverages under consideration, minus the "program" variable. Therefore, the equation will now take the following form:

$$ln\ Sales_i = \alpha_{price} ln(price_i) + \alpha_{\frac{tax}{price}} ln(total\ tax/reatil\ price_i) + \beta_{year} ln(year)$$

where,
i = 1, 2, 3 for the three (3) alcoholic beverages (wine, beer and spirits) being analysed

The estimation of the tax level on alcohol that will produce results on the level of smuggling will also be carried out in a similar manner as was done for the tobacco component.

ASSESSING THE REVENUES POTENTIAL OF CIGARETTE TAX

Van Walbeek (2000) assessed the impact of South Africa's tobacco tax increases on the government's future revenue potential and used the results of the regression, with the appropriate theoretical foundation, to assess the revenue potential of excise duties on cigarettes in South Africa. An extract of the methodology used is as follows:

1. *"The pre-tax price was calculated for each year by subtracting the appropriate Excise and GST/VAT rate. This pre-tax rate corresponds to the producer price.*

2. *The pre-tax quantity is calculated for each year, using the long-run equation [in aggregate terms], but replacing the actual price with the calculated pre-tax price.*

3. *[Based on economic theory], the tax-maximising quantity is calculated as half that of the pre-tax quantity.*

4. *The tax-maximising price is calculated as the price that will satisfy the long-run equation in aggregate terms, given the tax-maximising quantity, calculated above.*

5. *The difference in the pre-tax price and the tax-maximising price will then be the tax per pack. The assumption is that the producers will neither decrease nor increase the producer price in consequence of the tax.*

6. *Tax maximising revenues are calculated as the product of the tax-maximising quantity and the tax-maximising tax rate."* (Van Walbeek 2000:18)

Further analysis can be conducted by plotting the various tax rates against their associated expected revenues. The curve that results conveys the same meaning and interpretation of the laffer curve. This curve can then provide a simple means by which one may determine the revenue maximizing tax rate and amount of scope the authorities have to raise the tobacco tax rate (Van Walbeek 2000). This approach for assessing the revenue potential from tobacco tax is under consideration for this study.

CALCULATING ELASTICITIES

The elasticities for the double log model, for instance, are calculated as follows:

Assume a double log demand equation of:

$$\ln Q_t = \alpha + \beta_1 \ln Q_{t-1} + \beta_2 \ln P_t + \beta_3 \ln Y_t,$$

where,

Q = Cigarette consumption
P = Real cigarette price
Y = Real income

The short-run price elasticity of demand is simply β_2 and the long-run price elasticity of demand is $\beta_2 / (1 - \beta_1)$, where $0 < \beta_1 < 1$. The short-run income elasticity of demand is β_3, while the long-run income elasticity of demand is $\beta_3 / (1 - \beta_1)$ (Van Walbeek 2005).

Appendix A8.E: Data Sheet for Utilized Approach and Alternate Approach (see below)

Variables	Frequency	Data variable	Status
Tobacco consumption	Monthly, Quarterly or Annually (n ≥30, 2014 (backward)	Thousands of units	Consumption data were available for cigarettes were available Jamaica only
Total tobacco tax revenues	Monthly, Quarterly or Annually (n ≥30, 2014 (backward)	Thousands of dollars	Tax revenue data were collected for Grenada for 2012-2104 and Jamaica for (1990-2014)
Retail Price of cigarettes by brand	Monthly, Quarterly or Annually (n ≥30, 2014 (backward)	$ per pack of 20	Available/provided only in Grenada for (2008 -2014). Suppliers in Jamaica and Trinidad were only willing to supply current prices.
Tax rate on cigarette by tax type (excise, vat etc.)	Monthly, Quarterly or Annually (n ≥30, 2014 (backward)		Available in Grenada for 2012-2104, Jamaica for 1990-2014, supplied in Trinidad for limited periods.
Total tax on cigarette as percentage of retail price	Monthly, Quarterly or Annually (n ≥30, 2014 (backward)	Percentage	Not available
Gross domestic product	Monthly, Quarterly or Annually (n ≥30, 2014 (backward)	Constant local currency dollars	Collected from all countries.

Per capita GDP	Monthly, Quarterly or Annually (n ≥30, 2014 (backward)	Constant local currency	Collected from all countries.
Real Personal disposable income per adult	Monthly, Quarterly or Annually (n ≥30, 2014 (backward)	$ per person age ≥ 15	Available(derivable) in Jamaica and Trinidad and Tobago, available for limited periods in Grenada
Sales volumes of cigarettes by brand	Monthly, Quarterly or Annually (n ≥30, 2014 (backward)	Thousands of units	Available/provided only in Grenada for (2008 -2014). Suppliers in Jamaica and Trinidad not willing to supply.
Consumer price index for the products (alcohol and tobacco)	Monthly, Quarterly or Annually (n ≥30, 2014 (backward)		Available in Jamaica and Trinidad and Tobago, available for limited periods in Grenada
Real consumer expenditure on alcoholic beverage (wine, beer and spirits)	Monthly, Quarterly or Annually (n ≥30, 2014 (backward)	Thousands of dollars	Available(derivable) in Jamaica and Grenada and Tobago, available for limited periods in Trinidad and Tobago
Price of each alcoholic beverage (wine, beer and spirits)	Monthly, Quarterly or Annually (n ≥30, 2014 (backward)	Dollars	Available/provided only in Grenada for (2008 -2014). Suppliers in Jamaica and Trinidad were only willing to supply current prices.

Per capita disposable income	Monthly, Quarterly or Annually (n ≥30, 2014 (backward)	Thousands of dollars	Available(derivable) in Jamaica and Grenada and Tobago, available for limited periods in Trinidad and Tobago
Employment rate	Monthly, Quarterly or Annually (n ≥30, 2014 (backward)	Percentage	Available in Jamaica, not available in Grenada , not provided in Trinidad and Tobago
Sales of alcoholic beverages (beer, wine and spirits) by brand	Monthly, Quarterly or Annually (n ≥30, 2014 (backward)	Thousands of units	Collected in Trinidad for 2014, some 2014 data provided by the IWSR for all three countries.
Consumption of alcoholic beverages (beer, wine and spirits) by brand	Monthly, Quarterly or Annually (n ≥30, 2014 (backward)	Thousands of units	Not available
Tax rate on alcoholic beverages by type (beer, wine, spirits) (excise, vat etc.)	Monthly, Quarterly or Annually (n ≥30, 2014 (backward)		Available in Grenada for 2012-2104, Jamaica for 1990-2014, supplied in Trinidad for limited periods.
Total tax on alcoholic beverages (beer, wine, spirits) as a percentage of retail price	Monthly, Quarterly or Annually (n ≥30, 2014 (backward)	Percentage	Not available
Tax revenues for each alcoholic beverage (beer, wine, spirits)	Monthly, Quarterly or Annually (n ≥30, 2014 (backward)	Thousands of dollars	Available in Grenada for 2012-2104, Jamaica for 1990-2014, supplied in Trinidad for limited periods.
Share of tourism in the economy (tourism as a % of GDP)	Monthly, Quarterly or Annually (n ≥30, 2014 (backward)	Percentage	Available for limited periods

			for all three countries.
Employment in the tobacco industry	Monthly, Quarterly or Annually (n ≥30, 2014 (backward)	Thousands	Available for limited periods for Jamaica, not available for Grenada and Trinidad and Tobago.
Employment in the alcohol industry	Monthly, Quarterly or Annually (n ≥30, 2014 (backward)	Thousands	Available for limited periods for Jamaica, not available for Grenada and Trinidad and Tobago
Exports (value and volume) of beer wine and spirits	Monthly, Quarterly or Annually (n ≥30, 2014 (backward)	Thousands of dollars/units	Available in Grenada for 2012-2104, Jamaica for 1990-2014, supplied in Trinidad for limited periods.
Imports (value and volume) of beer wine and spirits	Monthly, Quarterly or Annually (n ≥30, 2014 (backward)	Thousands of dollars/units	Available in Grenada for 2012-2104, Jamaica for 1990-2014, supplied in Trinidad for limited periods.
Exports (value and volume) of cigarettes	Monthly, Quarterly or Annually (n ≥30, 2014 (backward)	Thousands of dollars/units	Available in Grenada for 2012-2104, Jamaica for 1990-2014, supplied in Trinidad for limited periods.
Imports (value and volume) of cigarettes	Monthly, Quarterly or Annually (n ≥30, 2014 (backward)	Thousands of dollars/units	Available in Grenada for 2012-2104, Jamaica for 1990-2014, supplied in Trinidad for limited periods.

Other data			
Dummy variable indicating the presence of anti-smoking campaign			
An intercept dummy variable for the introduction of an anti-smoking campaign in the year Y, where D = 0 in the years prior to the Y and 1 from the year Y onwards (and back to D = 0 for the year of the discontinuation of the campaign).			
Data on the utilization of revenues derived from tobacco and alcohol taxation			Some data available in Jamaica , not available in Trinidad and Tobago and Grenada
History of alcohol and tobacco tax changes.			Available.
Data on the prevailing tobacco and alcohol tax structure.			Available.
Information relating to the implementation of antismoking and drinking legislation and campaigns.			
Expert estimates on the level and nature of smuggling- alcohol and tobacco			

Appendix A8.F: Research Methodology Protocol

Objective 4b, IDRC Project

I. RATIONALE AND BACKGROUND

As the region contends with the onslaught of Chronic Non-Communicable Diseases (NCDs), it has become clear that this issue holds the potential to erode the substantial health and economic gains that have been made in the past decade or so. It is well established that a major contributor to the incidence of NCDs in the Caribbean is the consumption of tobacco[1] and the abuse of alcohol. Data show that about half of all years of life lost in the Caribbean are as a result of NCDs compared to only 30 percent from communicable diseases and 20 percent from injuries. The most common health-related danger of abusive alcohol consumption is liver disease. Besides liver disease though, chronic alcohol consumption has also been linked to a host of other serious medical conditions including respiratory and cardiovascular diseases, various cancers and mental illness. Further, alcohol-related road fatalities and domestic abuse contribute to some of the more severe external costs associated with excessive ethanol intake. Moreover, according to the Centre for Disease Control and Prevention, when compared to the risk of non-smokers, smoking is estimated to increase the risk of coronary heart disease and stroke by between 2 to 4 times and causes men to be 23 times and women 13 times more likely to suffer from lung cancer. The habit has also been linked to at least 10 other types of cancers, including cancer of the cervix, kidney and stomach. (Anderson et al. 2009, PAHO 2011, Hagley 2011)

Having recognized the enormity of the problem, the Caribbean Community (CARICOM) convened a Summit in 2007 to comprehensively address NCDs. At this Summit on NCDs prevention and control, the Port of Spain Declaration was issued. The declaration entitled, “United to Stop the Epidemic of NCDs”, contained 15 functional recommendations and was accompanied by 27 commitments. To date, the implementation of these commitments and recommendations has seen some measure of success, however, portions remain unrealized. To this end, it was agreed that a comprehensive assessment of the current status of the implementation process has become necessary.

II. STUDY GOALS AND OBJECTIVES

This study[2] will undertake an in-depth analysis of the potential for raising additional tobacco and alcohol tax revenues through the implementation of a special tax to fund NCDs prevention and control efforts, while having a limiting effect on consumption of these products. In support of this objective, the study will also examine the potential effects of the special tax on tobacco and alcohol smuggling, while drawing from the experiences of CARICOM Member States with respect to the collection and utilization of revenues derived from pre-existing tobacco and alcohol taxes.

1 The use of the word “tobacco” includes all tobacco and tobacco products and is used interchangeably with cigarettes.

2 Study to “Estimate the Potential for Revenue Generation for NCD Prevention and Control from Taxes on Tobacco and Alcohol”.

The study will seek to answer the following research questions:

i. What is the potential for revenue generation from the imposition of specific taxes on tobacco and alcohol products in CARICOM Member States?

ii. (a) Will specific tobacco and alcohol taxes impact on the consumption of these products?
(b) Will these taxes be successful in raising revenue, as well as in controlling the use of tobacco and alcohol?

iii. How will aggregate revenue levels change with the introduction of specific tobacco and alcohol taxes?

iv. What will be the tax level required to raise revenue while avoiding smuggling of tobacco and alcohol products?

III. METHODOLOGY

Firstly, the study will seek to examine individual country circumstances to gather information on the prevalence and intensity of tobacco and alcohol consumption, the demographic characteristics of the "using" population and the nature of the industries, where appropriate. Information will also be gathered on the current situation with respect to tobacco and alcohol tax structures, rates and the degree to which tobacco and alcohol tax revenues are collected. Econometric models, where applicable, together with other relevant approaches will be used to estimate the quantities of interest, for example, the price and income elasticities of demand for cigarettes and alcoholic beverages, the current and potential degree of smuggling within the Caribbean region, the potential to raise revenues from tobacco and alcohol taxes and the degree to which consumption of these substances will be affected by an applied tax.

(A) TOBACCO

Research Question (i): What is the potential for revenue generation from the imposition of specific taxes on tobacco products in CARICOM Member States?

Many attempts have been made at tobacco control and revenue generation through taxation. Naturally, the effectiveness of a tax on tobacco in achieving these aims depends on a number of factors including the nature of the tax[3], the potential for smuggling and the response of smokers and potential smokers to the resulting price increase i.e. price elasticity of demand (Van Walbeek2005, Bartlett 1998). What is known is that the larger the absolute value of the price elasticity, the greater the impact on consumption and on government revenues, ceteris paribus (Van Walbeek 2005). A number of studies have attempted to quantify the price elasticity of demand for tobacco. Lee et al. (2005) showed that the price elasticity for cigarettes usually ranges between -0.644 and -0.822.

3 Given the overall intent of the tax and current strength of tax administration in the Caribbean region, an excise tax may produce the best results.

Assessing the potential for revenue generation from tobacco taxation will employ an approach used by Van Walbeek (2000). In this South African study, actual revenues collected were compared with predicted revenues for a particular period of time. According to Van Walbeek (2000), such studies are normally conducted with serious consideration for the price elasticity of demand. The study showed that in the context of the demand function for tobacco, the point of revenue maximization is located where the quantity demanded is halved. Against this theoretical background, Van Walbeek (2000) specified two (2) demand equations; one (1) in per capita terms and the other in aggregate terms. For this study, the aggregate equation is the equation of interest and is expressed as:

CONS = f (RETAIL, PDI, ASC)

With variables defined as follows:
CONS Cigarette consumption (millions of packs per annum)[4]
RETAIL Real price of cigarettes (cents per pack of 20, deflated by the Consumer Price Index)
PDI Real personal disposable income
ASC Dummy variable indicating the presence of anti-smoking campaign
Van Walbeek (2000)

This equation is estimated in linear form on the assumption of finite and measurable consumer surplus and constant price elasticity of demand (Van Walbeek 2000). The above equation will be estimated using the Engel and Granger (1987) two-step procedure. While acknowledging the theoretical superiority of the Johansen procedure, Van Walbeek (2000) outlined a number of reasons for arriving at "an empirical compromise" in the Engle and Granger procedure. Given that the Johansen procedure is very data intensive, the use of small data sets will possibly result in small sample bias, among other hardships. This study is likely to encounter similar complications given the historical difficulties experienced with the availability of data in the Caribbean region. As the demand equation is assumed to be linear in form, price elasticity will be calculated (at the mean values of the variables) using the formula, $b* P/Q$, where b is the price coefficient and P and Q are price and quantity respectively.

ASSESSING THE REVENUE POTENTIAL OF A TAX ON TOBACCO
Assessing the impact of tobacco tax increases on the government's future revenue potential will be done using the results of the regression and the appropriate theoretical foundation. Revenue estimates will be adjusted to reflect the estimates of smuggling derived through the procedure explained below. Further details of the process can be found in the Appendix A8.F-I.

Research Question (ii): (a) Will specific tobacco taxes impact on the consumption of the product? (b) Will these taxes be successful in raising revenue, as well as in controlling the use of tobacco?

4 Measured as total packs sold per annum.

Research Question (iii): How will aggregate revenue levels change with the introduction of specific tobacco taxes?

The above questions will be addressed using econometric modelling. Once the level of smuggling has been determined, this study will proceed to estimate the demand for tobacco using the framework methodology employed by Van Walbeek (2005). While the original approach will undergo some modifications for this study, selection of this model was mainly based on the fact that the data requirements will likely be met and given the fact that the original study was conducted in Jamaica, a country with similar characteristics as most of the other CARICOM countries. Its appropriateness for use in the Caribbean is also likely to be less problematic. Van Walbeek (2005) concedes that while there are more advanced methods of estimating the demand for tobacco, the scarcity of data and the low quality of that which exist may result in significant challenges if used in the more sophisticated models. Consequently, a linear model and a double log model were specified and estimated by Ordinary Least Squares (OLS). The models employed the following variables:

AGCIGCON	Aggregate cigarette consumption, expressed in thousands of units (Dependant Variable). It is assumed that sales equal consumption after adjustment for estimates of smuggling.
GDP	Gross domestic product, expressed in millions of constant dollars.
PC_GDP	Per capita GDP, where the population is defined as all people aged above 15 years, expressed in constant dollars (as a possible alternative to GDP).
CIGP	Price of a pack of 20 cigarettes, deflated by the Consumer Price Index.
D_Y	An intercept dummy variable for the introduction of an anti-smoking campaign in the year Y, where D = 0 in the years prior to the Y and 1 from the year Y onwards (and back to D = 0 for the year of the discontinuation of the campaign).

Similar to the approach taken by Van Walbeek (2005), many different specifications of the demand equation will be employed, rotating between the two (2) functional forms (linear and double log). Calculations of the short-run and long-run price and income elasticities will vary depending on the functional form of the model used. The calculated elasticities for the linear model will be interpreted as variable elasticities, while for the double log model, the respective beta coefficients will be interpreted as constant elasticities. (Refer to Appendix A8.F-II for further details).

SIMULATING THE EFFECTS OF THE TAX ON REVENUES

To conduct the simulations, a baseline will be established and key assumptions will be made on the current situation in each study country to allow for the evaluation of the potential impact of the imposition of the special tax. Simulations, using the regression results, will look at both the short-run and long-run impact of the tax increase and will evaluate the impact of different tax rates on government's revenues.

Simulations will be based on the following assumptions:

a. When all taxes on cigarettes are removed, what remains is the industry price; and
b. The price of cigarettes will increase by the amount of the increase in the tax, hence the entire tax is passed to the consumer.

The baseline will be established using the following information:

a. The current level of cigarette consumption (sales);
b. The current level of government's revenues from taxes on cigarettes; and
c. The current price of cigarettes.

To evaluate how the applied tax will affect government's revenues, an initial tax increase of 10 percent for example, will be assumed. From this, the new price and the percentage change in price will be calculated. Calculating the product of the price elasticity (from the regression) and percentage change in price yields the percentage change in cigarette consumption. This new level of consumption will then be multiplied by the tax level to get the new level of government revenues from taxes on cigarettes. Different assumptions about the percentage change in tax and the range of price elasticities (short-run and long-run elasticities) will be employed in order to evaluate how revenues will change. The specific tax per pack of cigarette can be identified to allow for the calculation of revenues to government from the specific tax imposition under different scenarios. The above analysis inherently allows for the examination of the impact of the new tax on consumption and on government's revenues.

Research Question (iv): What will be the tax level required to raise revenue while avoiding smuggling of tobacco products?

Alamar et al. (2003) examined the issue of cigarette smuggling in California between 1970 and 2002. The study showed that the incentive for all forms of smuggling—regional and international bootlegging and regional and international commercial smuggling—can be measured by the ratio of total tax to retail price of cigarettes. According to the study, when this ratio increases the potential economic returns from smuggling also increases since the ultimate aim of the smuggler is to avoid or at least minimize payments of government taxes. The study therefore contended that the use of this ratio (i.e. total tax / retail price of cigarette) as a "*predictor of smuggling will provide a reasonable estimate of the level of smuggling"* (Alamar et al. 2003, 14). The model used to estimate smuggling was specified as follows.

$$ln\ Sales = \alpha_{price} ln(price) + \underset{price}{\underline{\alpha\ tax}}\ ln(total\ tax/reatil\ price) + \beta_{program} anti$$

$$+ smoking\ program + \beta_{year} ln(year)$$

where,
Sales = Cigarette sales ($)
Price = Price of cigarette
Tax = Tax on cigarette ($)

To account for the effects of time and anti-smoking initiatives, the variables year and tobacco control program were included in the model. The tobacco control program variable was assigned the value zero for the years prior to the implementation of the program and the value 1 was assigned for the year the program started, with this value increasing by one (1) for each year thereafter. This variable took into account the cumulative effect of the program. The year (time) variable was included in the model to "control for other factors and the long-term decline in smoking that predated the program" (Alamar et al. 2003, 14). The model will be employed and estimated using OLS.

The process of evaluating the effects of changes in the tax rate on the level of smuggling will be by use of the coefficient of the total tax/retail price ratio. For example, with an estimated coefficient of say -0.23 and a given annual percentage change in tax to retail price ratio of say 20 percent, the annual change in sales can be calculated to be 4.6 percent (i.e. -0.23 x 20). This percentage change in sales can now be multiplied by the tax paid sales of the previous year. The result gives the change in tax paid sales that are due to a change in the total tax to retail price ratio and can be interpreted as the change in the level of smuggling in any given year (Alamar et al. 2003). Examining different levels of tax rates will provide an indication of the level of smuggling that may occur at a given rate of taxation. A 95 percent confidence interval of the estimated level of smuggling will also be constructed.

(B) ALCOHOL

Research Question (i): What is the potential for revenue generation from the imposition of specific taxes on alcohol products in CARICOM Member States?

Salisu and Balasubramanyam (1997)[5] investigated the revenue potential that resides in taxing alcoholic beverages in England in the 1990s. Their work made use of cointegration and the error correction mechanism (ECM) techniques to estimate consumer's income and price response to changes in the price of alcohol that will result from a tax increase. The model's dependant variable is per capita demand for each of the beverages in the study (wine, beer and spirits) and demand is measured by real consumer expenditure of the adult (15 years and older) population.

The model has two (2) main explanatory variables; real price of each of the beverages and per capita real disposable income. For the study to be undertaken, the rate of employment, the number of Fridays in the month and number of other week days will be included as they are believed to have an important impact on alcohol demand.

Salisu and Balasubramanyam (1997) used the techniques of cointegration and ECM that were developed by Johansen in 1988. However given the extensive data demands of this approach, it will likely be difficult to adopt, in entirety, these techniques in the current study. As a result, a modified approach will be employed where three (3) equations, one (1) for each of the three (3) beverages under consideration (wine, beer and spirits), will be estimated. They will take the following form:

5 Study entitled, "Income and price elasticities of demand for alcoholic drinks".

LnQ_{wine} = $\beta 1 LnRP_{wine}$ + $\beta 2 LnPDI$ + $\beta 3 LnEmp$ + $\beta 4 LnNWD$ + $\beta 5 LnNF$ (1)
LnQ_{beer} = $\beta 1 LnRP_{beer}$ + $\beta 2 LnPDI$ + $\beta 3 LnEmp$ + $\beta 4 LnNWD$ + $\beta 5 LnNF$ (2)
$LnQ_{spirits}$ = $\beta 1 LnRP_{spirits}$ + $\beta 2 LnPDI$ + $\beta 3 LnEmp$ + $\beta 4 LnNWD$ + $\beta 5 LnNF$ (3)
where,
Q = Real consumer expenditure on the ith beverage, i = 1, 2, 3 (wine, beer and spirits)
RP = Real price of the ith product
PDI = Per capita disposable income
EMP = Employment rate
NWD = Number of other week days in the month
NF = Number of Fridays in the month

There is reason to believe that the error terms of each of the equations may be correlated and, as a result, this study will be specified as a Seemingly Unrelated Regression (SUR). According to Gruenewald et al. (2006), by accounting for this correlation among the error terms of the three (3) equations, *"SUR models can achieve greater efficiency than separate ordinary least squares regression [OLS]".* Hence, estimation will be via the Feasible Generalized Least Squares (FGLS). Each of the relevant research questions will be answered in a similar fashion as described above, using the regression results of each of the stated equations.

ASSESSING THE REVENUE POTENTIAL OF A TAX ON ALCOHOL
Assessing the impact of alcohol tax increases on the government's future revenue potential and the public's consumption of alcohol will proceed, in similar fashion to the tobacco study, by making use of the results of each the regressions.

Research Questions (ii): (a) Will specific alcohol taxes impact on the consumption of the product? (b) Will these taxes be successful in raising revenue, as well as in controlling the use of alcohol?

Research Question (iii): How will aggregate revenue levels change with the introduction of specific alcohol taxes?

These questions will also be addressed using the estimated parameters of the equations above.

SIMULATING THE EFFECTS OF THE TAX ON REVENUES
To conduct the simulations, a baseline will be established and key assumptions will be made on the current situation in each study country to allow for the evaluation of the potential impact of the imposition of the special tax. Simulations, using the regression results, will look at the impact of the tax increase on each of the three (3) beverages and will evaluate the impact of different tax rates on government's revenues and on consumption. Simulations will follow a similar path as the tobacco component above.

Research Question (iv): What will be the tax level required to raise revenue while avoiding smuggling of alcohol products?

The approach used to address this question for the tobacco component will be utilized for the alcohol component, except in this case there will be three (3) separately estimated equations and the variables in each of three (3) equations will relate to the three (3) beverages under consideration, minus the "program" variable. Therefore, the equation will now take the following form:

$ln\ Salesi$ = $\alpha priceln(pricei)$ + $\alpha\ tax$
$price$
$ln(total\ tax/reatil\ pricei)$ + $\beta yearln(year)$
where,
i = 1, 2, 3 for the three (3) alcoholic beverages (wine, beer and spirits) being analysed

The estimation of the tax level on alcohol that will produce results on the level of smuggling will also be carried out in a similar manner as was done for the tobacco component.

IV. DATA COLLECTION AND INTEGRITY

The secondary data collection process will take place in three (3) phases; one (1) phase for each of the three (3) study countries selected. Econometric analysis and other non-parametric methods will be used to analyse the data. Data spanning as many years as possible, from the sample of three (3) countries will be collected from the relevant government ministries, including the Ministries of Finance, the Statistical Offices, Offices of Consumer Affairs, Customs and Excise etc., as well as private sector organizations, wholesale and retail outlets of alcoholic beverages and tobacco products. Every effort will be expended to ensure that the occurrence of missing data is minimized, including the identification of relevant proxies of variables for which data may not be available or missing. Still, it is expected that this study will experience challenges with missing data. In the likely event that this does occur, multiple imputation or pairwise deletion will be utilized as possible remedies to this potential issue.

Integral to the analysis is quality assurance and measures to ensure this will take the form of the following:

a. For precision and accuracy, all data collected will be presented to the relevant on-site personnel for examination and verification.

b. Where possible, the same data will be sought from multiple sources and any discrepancies will be rectified. This will be done in order to certify the credibility of the data and to safeguard the conclusions that will be subsequently derived from their use. The use of multiple data sources will also serve to minimize the occurrence of missing data and any associated difficulties.

V. STUDY DISSEMINATION

A feasible dissemination method of the finding of the study is by media coverage. Most media outlets are usually interested in reporting on health–related issues and provides a means by which to reach as many persons as possible. Another important means of distributing the study's results is through policy briefs. Since the overall aim of this research effort is to provide actionable research findings that can be used to advocate regional legislative and policy changes relating to tobacco and alcohol-related NCDs, this method is deemed one (1) of the most appropriate. Other methods of dissemination are through conferences, seminars and special presentations of the results in the participating countries.

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Appendix A8.F-I: Assessing the revenues potential of cigarette tax

Van Walbeek (2000) assessed the impact of South Africa's tobacco tax increases on the government's future revenue potential and used the results of the regression, with the appropriate theoretical foundation, to assess the revenue potential of excise duties on cigarettes in South Africa. An extract of the methodology used is as follows:

1. "The pre-tax price was calculated for each year by subtracting the appropriate Excise and GST/VAT rate. This pre-tax rate corresponds to the producer price.

2. The pre-tax quantity is calculated for each year, using the long-run equation [in aggregate terms], but replacing the actual price with the calculated pre-tax price.

3. [Based on economic theory], the tax-maximising quantity is calculated as half that of the pretax quantity.

4. The tax-maximising price is calculated as the price that will satisfy the long-run equation in aggregate terms, given the tax-maximising quantity, calculated above.

5. The difference in the pre-tax price and the tax-maximising price will then be the tax per pack.

The assumption is that the producers will neither decrease nor increase the producer price in consequence of the tax.

6. Tax maximising revenues are calculated as the product of the tax-maximising quantity and the

tax-maximising tax rate." (Van Walbeek 2000:18)

Further analysis can be conducted by plotting the various tax rates against their associated expected revenues. The curve that results conveys the same meaning and interpretation of the laffer curve. This curve can then provide a simple means by which one may determine the revenue maximizing tax rate and amount of scope the authorities have to raise the tobacco tax rate (Van Walbeek 2000). This approach for assessing the revenue potential from tobacco tax is under consideration for this study.

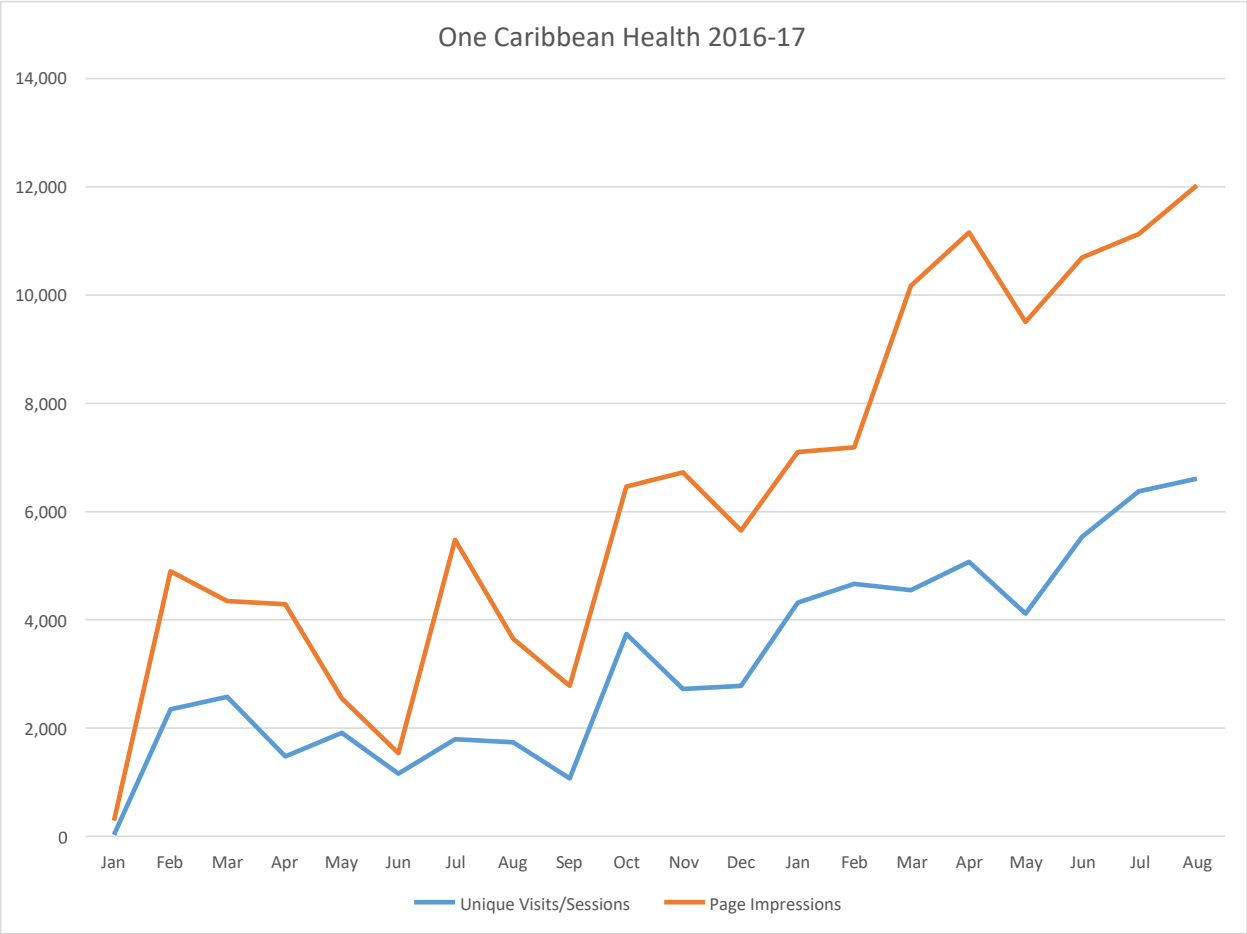
Appendix A8.F-II: Calculating elasticities

The elasticities for the double log model, for instance, are calculated as follows:
Assume a double log demand equation of:
$\ln Q_t = \alpha + \beta 1 \ln Q_{t-1} + \beta 2 \ln P_t + \beta 3 \ln Y_t$,
where,
Q = Cigarette consumption
P = Real cigarette price
Y = Real income
The short-run price elasticity of demand is simply $\beta 2$ and the long-run price elasticity of demand is $\beta 2 / (1 - \beta 1)$, where $0 < \beta 1 < 1$. The short-run income elasticity of demand is $\beta 3$, while the long-run income elasticity of demand is $\beta 3 / (1 - \beta 1)$ (Van Walbeek 2005).

Appendix for Chapter 9

Submitted by Ms Joan Tull, POSDEVAL Information & Communications Officer, Healthy Caribbean Coalition, Barbados.

Appendix A9.A: Web Stats Summary for One Caribbean Health at August 31st 2017



Total Unique Visits: 64,586 | **Total Page Impressions:** 127,647

Average Page Views per Session: 2.85 (the general benchmark is 2 pages per session)

Bounce Rate*: 36.55% (under 40% is considered excellent)

(*Bounce Rate is basically the percentage of single page views by a visitor)

Most popular pages in August 2017:

http://onecaribbeanhealth.org/index.php 3521 page impressions

http://onecaribbeanhealth.org/increasing-taxes-on-sugary-drinks-will-it-make-us-healthier/ - Increasing taxes on sugary drinks – will it make us healthier? - 253 page impressions

http://onecaribbeanhealth.org/more-facts-figures-and-implementation-ideas/ More facts, more figures, more implementation ideas - 201 page impressions

http://onecaribbeanhealth.org/about-the-project/ - About the Project - 198 page impressions

http://onecaribbeanhealth.org/about-the-team/ - About the Team - 182 page impressions

http://onecaribbeanhealth.org/port-of-spain-evaluation-major-results-revealed/ - Port of Spain evaluation: Major results revealed - 174 page impressions