Power of the process: Evaluating the impact of the Framework Convention on Tobacco Control negotiations

Heather Wipfli *, Grace Huang

Department of Preventive Medicine, University of Southern California, United States

ARTICLE INFO

ABSTRACT

Objective: Evaluate the impact of the FCTC negotiations on the diffusion of tobacco control policies.

Methods: Analyzed country characteristics to determine their effects on the frequency, type and strength of tobacco control policies adopted among WHO Member States. Bivariate analyses were conducted for each characteristic to compare the frequency and strength of control policies adopted between pre-negotiation and negotiation periods. Multivariate regression analyses were performed to determine the predictive nature of these variables.

Results: The frequency of policy adoption intensified during the years the FCTC negotiations were most intense. The strength of policies adopted also shifted significantly towards policies promoted by WHO. The average strength of policies adopted varied significantly according to country characteristics. All characteristics, with the exception of total and male smoking prevalence, were significantly associated with the number of policy types adopted.

Conclusions: This study suggests that investments in international legal processes can be effective, even when the outcomes are unclear from the start. The FCTC negotiation process coincided with a rise in domestic policy adoption in the direction advocated by WHO. However, there remains a need to improve outreach and diffusion to lower-income countries in tobacco control, as well as other areas of chronic disease control.

© 2010 Elsevier Ireland Ltd. All rights reserved.

1. Introduction

Although the risks of tobacco smoking have been known for decades [1], the pandemic of tobacco use continues. There are an estimated 1.3 billion smokers worldwide, along with millions more using various oral tobacco products [2]. Recent global estimates place the mortality burden from tobacco use at over 5 million annually. Nearly two-thirds of these deaths occur in low- and middle-income countries and this percentage is likely to rise [3]. While most high-income countries have implemented effective tobacco control policies, and have seen the positive declines in tobacco use and related death and disease [4], many low- and middle-income countries have not followed suit and have become targets for translational tobacco companies in search of new markets.

In 1998, the World Health Organization (WHO) gave priority to global tobacco control and in 1999 initiated formal negotiations on an international treaty aimed at reducing the global burden of tobacco-related death and disease. In 2003, the Member States of the World Health Assembly unanimously adopted the WHO Framework Convention on Tobacco Control (FCTC) and the treaty became binding international law <2 years later. By 2010, 168 states had signed the treaty, 171 states had ratified it or its legal equivalent (i.e. acceptance or approval), and one

* Corresponding author at: Department of Preventive Medicine, University of Southern California, 1441 Eastlake Ave., Room 4425, MC 9175, Los Angeles, CA 90033-9175, United States. Tel.: +1 323 865 0411; fax: +1 323 865 0127.

E-mail address: hwipfli@usc.edu (H. Wipfli).

Box 1: Countries that are not party to the FCTC.

1. Andorra	10. Indonesia	18. Somalia
2. Argentina	11. Liechtenstein	19. Switzerland
3. Cuba	12. Malawi	20. Tajikistan
4. Czech Republic	13. Monaco	21. Turkmenistan
5. Dominican Republic	14. Morocco	22. United States of America
6. El Salvador	15. Mozambique	23. Uzbekistan
7. Eritrea	16. St. Kitts and Nevis	24. Zimbabwe
8. Ethiopia	17. Saint Vincent and the Grenadines	
9. Haiti		

regional economic integration organization (the European Community) has become a party by the process of formal confirmation [5] (Box 1). While the treaty does not meet all of the public health "gold standards" for tobacco control, parties to the treaty do commit to implementing a common set of domestic tobacco control policies, including public smoking restrictions, tobacco advertising bans, and tobacco product health warnings [6].

The FCTC represented WHO's first experience in facilitating the negotiation of a public health treaty and its first attempt to form a global response to chronic disease. Initially, there was some doubt within WHO that the process would result in an agreed-upon treaty text or that WHO Member States would subsequently commit themselves to a binding agreement [7]. Early on, WHO officials played down the potential outcome by claiming that the 'power of the [negotiation] process' itself would have a positive impact on the development of global tobacco control, especially in low- and middle-income countries [8]. As negotiations continued, WHO pointed to the overwhelming participation of its Member States in the negotiations (over 170 states participated in at least one of the six formal negotiating sessions held in Geneva between 2000 and 2003) and argued that the process was serving as a platform for information sharing, specifically referring to the Intergovernmental Negotiating Body (INB) as a 'global university in tobacco control' [9,10]. The tobacco industry also noted the power of the FCTC process when, in 2003, the Senior Vice President for Corporate Affairs at Philip Morris International advised an industry conference that it 'has had a significant influence on us, simply because it has accelerated the pace of regulation in individual countries' [11].

Despite a number of papers on the FCTC process and final text [12–14], there have not been attempts to test these early claims about the usefulness of treaty process by quantifying the impact it had on the adoption of domestic tobacco control policies on a global scale. This paper tests the hypothesis that the negotiation process provided a platform for increased communication and international learning through which tobacco control information spread to many countries simultaneously; and that this simultaneous learning process accelerated the adoption of internationally-promoted tobacco control policies by countries around the world.

Table 1
Country characteristics included in analysis.[a]

	%
Income (n = 188)	
High	20.2
Upper middle	17.6
Lower middle	28.2
Lower	34.0
WHO region	
Africa	23.8
Americas	18.1
Eastern Mediterranean	11.9
Europe	25.9
Southeast Asia	5.2
Western Pacific	15.0
Democracy (n = 157)	
More democratic	29.3
Semi-democratic	35.7
Less democratic	29.3
Failed state	5.7
	mean (SD)
Population size	29,534, 872.74 (127,040, 173.77)
Tobacco production (tons) (n = 122)	54,755.34 (260227.73)
Smoking prevalence	
Total (n = 161)	24.44 (11.22)
Male (n = 151)	35.95 (14.76)
Female (n = 152)	13.21 (11.66)
GLOBALink participation	33.69 (169.34)
INBSessions attended	3.2 (1.17)
Tobacco control NGOs in FCA (n = 103)	2.96 (3.48)

[a] n = 193 unless otherwise noted.

2. Materials and methods

Tobacco control is a far-reaching and rapidly changing field. Therefore, data on tobacco control policies and programs at the national level worldwide are not easily accessible. As Studlar [15] noted, gathering comprehensive information about tobacco control policies is time consuming, integration of the data across countries is difficult to accomplish, and updating the data is a constant necessity. While much progress has been made recently with the release of the WHO Reports on the global tobacco epidemic report [16,17] and the *Tobacco Atlas* series [18–20], none of these datasets included trend data; thus, it remains difficult to identify when and how policies have changed over time. For this study, the *2006 Tobacco Atlas* [20] provided the most relevant dataset to capture policy changes that occurred between 1998 and 2005, encompassing the time period immediately before and after the FCTC negotiations.

The dataset for the *2006 Tobacco Atlas* includes 43 policy variables for each country. We focused on three policy areas addressed within the FCTC—public smoking restrictions (SHS), advertising restrictions (Ad), and health warning labels (Warning). For each of these areas, the year in which each policy was most recently modified was included in the database and collapsed into three categories (pre-negotiation, negotiation or post-negotiation periods) in order to examine any trends in tobacco control policy diffusion over time. For each policy area, only the most recent law passed in a country was entered, because more detailed

Box 2: Categorization of database variables according to policy type.

	Second hand smoke	Advertising policy	Health warning label
Weak (less than FCTC compliant)	Restricted in some public places	Restricted in some media or to some audiences (time on TV or radio)	One non-specific warning on the side of cigarette packages
Satisfactory (FCTC compliant)	Banned in some public places	Banned in some media or to some audiences (TV, radio, youth venues)	Multiple disease specific warnings on front or back of package
Strong (Public Health Best Practice)	Banned in all public places	Complete ban on tobacco product advertising	Warnings covering at least 30% of front and back and include a graphic image

histories on legislation worldwide are not available. As a result, if a country adopted a law in 1996 and then revised it in 1999, only the 1999 law is represented in the data. The legislation was also scored as '1 = weak', '2 = satisfactory' or '3 = strong' corresponding to how it compared to the standards promoted by WHO and eventually incorporated into the FCTC, as well as recognized best practices (Box 2).

In addition to policy data, demographic and political data for each WHO Member State were collected. These variables were used to evaluate whether state characteristics had impact on the frequency of policy adoption (Table 1). Previous diffusion literature has indicated, for example, that lower-income countries are less likely to adopt regulatory approaches than high-income countries [21,22]. In the case of tobacco, there are a number of different characteristics that could impact the likelihood of policy change. For this study, we included income level (World Bank Gross National Income) [23], WHO regional classification [24], democracy level [25], tobacco leaf production (in tons) [26], population [17], smoking prevalence [17], participation in the Intergovernmental Negotiating Body (INB) sessions [27], non-governmental organizations that are members of the Framework Convention Alliance [28], and GLOBALink membership [29]. GLOBALink is the largest international online network dedicated to facilitating communication among tobacco control advocates. GLOBALink staff provided the GLOBALink annual membership database to Wipfli in 2007. The country-level characteristics and their distribution across the 193 Member States are listed in Table 1.

The numbers of countries adopting new tobacco policies between 1996 and 2005 were assessed using two measures, *adoption of at least one policy* (0 = adopted none and 1 = adopted one or more) and the *number of policy types adopted* (ranging from 0 to 3). The *average strength score* of each adopted policy was calculated by dividing the combined strength scores of all policies adopted by the total number of policy types adopted. Bivariate analyses for these three variables were performed using cross-tabulations. χ^2 tests and Pearson correlations were used to identify statistically significant policy adoption trends with respect to the country characteristics. The *time of adoption* for each policy type was collapsed into a dichotomous variable (0 = pre-negotiation period 1996–1999 and 1 = negotiation and post-negotiation periods 2000–2005) and cross-tabulated with their respective policy strength scores. Regression analyses were conducted to determine whether certain country characteristics were more predictive of the overall average strength of policies adopted by country and the number of policy types adopted. Furthermore, logistic regression analyses were performed to assess any significant associations between the country characteristics and adoption of the various policy types during and after the negotiation period. Tobacco production and population were found to be collinear, and therefore tobacco production (in pounds) per capita was excluded from the analysis. For all regression models, missing data on the number of tobacco control NGOs ($n = 90$) were coded to zero and GLOBALink, INB, and NGO variables were categorized (Table 3) to achieve a more normal distribution.

Table 2
Number and strength of policies adopted during pre-negotiation and negotiation periods.

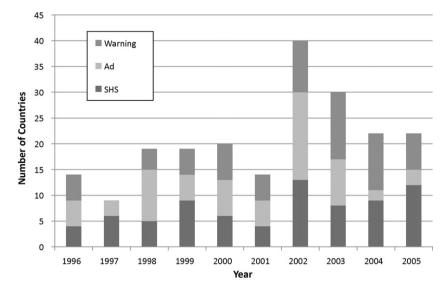| Period	Second hand smoking		Ads		Warning labels	
	N	FCTC compliant or stronger (%)	N	FCTC compliant or stronger (%)	N	FCTC compliant or stronger (%)
Pre-negotiation (1996–1999)	24	37.5	23	82.6	14	35.7
Negotiation and post-negotiation (2000–2005)	51	70.6	43	83.7	53	79.2
	$\chi^2 = 7.45$; $p = .006$		$\chi^2 = .013$; $p = .908$		$\chi^2 = 10.02$; $p = .002$	

Fig. 1. Number of countries adopting new tobacco control policies between 1996 and 2005 by policy area.

3. Results

Data from a total of 193 WHO Member States, including their respective country characteristics and tobacco policy adoption records based on the *2006 Tobacco Atlas,* were included in this study. Between 1996 and 2005, the highest number of new tobacco control policies adopted were those related to public smoking restrictions ($n = 75$), followed by new health warnings ($N = 67$) and new advertising bans ($N = 66$). In all three areas, the frequency of policy adoption intensified between 2002 and 2003. Fig. 1 shows this trend, with all three policy types increasing dramatically in year 2002, followed by more increases in Warning policies in years 2003–2004, and sustained increases in SHS policies from 2004 to 2005. The strength of new poli-

cies adopted shifted significantly between 1998 and 2005 (Fig. 2). The policies adopted in 2002 consisted predominantly of those that met the WHO recommended standards. In 2005, stronger best practice policies were more widely adopted. This shift was consistent in all three policy areas.

Comparisons of the number and strength of policies adopted between pre-negotiation and negotiation/post-negotiation periods are presented in Table 2. Cross-tabulations for the three policy areas revealed statistically significant increases in Public Smoking restrictions ($\chi^2 = 7.45$, $p = .006$) and Warning Label restrictions ($\chi^2 = 10.02$, $p = .002$), but not for Advertising Bans ($\chi^2 = .013$, $p = .908$).

Table 3 shows the cross-tabulations of country demographic variables with the three outcome measures.

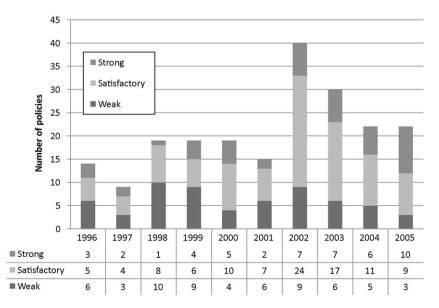|	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
■ Strong	3	2	1	4	5	2	7	7	6	10
■ Satisfactory	5	4	8	6	10	7	24	17	11	9
■ Weak	6	3	10	9	4	6	9	6	5	3

Fig. 2. Number of tobacco control policies adopted by strength.

Table 3
Policy adoption trends by country characteristics.

	Adopted at least one %	All policy types (SHS, Ad, warning) %	FCTC compliant or stronger (≥2.5) % (mean, SD)
Income (n = 188)			
High	91.9	71.1	20.6 (1.97, .576)
Upper middle	83.3	45.5	11.5 (1.79, .543)
Lower middle	82.4	45.3	4.8 (1.65, .486)
Lower	73.4	23.4	6.4 (1.63, .502)
	$\chi^2 = 8.17$; $p = .085$	$\chi^2 = 27.79$; $p = .001$	$\chi^2 = 9.07$; $p = .170$
Population size (n = 190)			
Large	96.4	66.1	11.1
Medium	87.5	51.4	11.1
Small	57.9	10.5	6.1
	$\chi^2 = 30.51$; $p < .001$	$\chi^2 = 53.65$; $p < .001$	$\chi^2 = 10.40$; $p = .034$
WHO region (n = 193)			
Africa	60.9	15.2	3.6 (1.51, .475)
Americas	78.1	28.6	8 (1.52, .532)
Eastern Mediterranean	87.0	30.4	10 (1.78, .508)
Europe	98.0	86.0	8.3 (1.87, .485)
Southeast Asia	90.0	50.0	22.2 (2.07, .494)
Western Pacific	82.1	31.0	17.4 (1.77, .605)
	$\chi^2 = 22.86$; $p < .001$	$\chi^2 = 81.71$; $p < .001$	$\chi^2 = 25.93$; $p = .004$
Democracy (n = 157)			
More democratic	100.0	82.6	17.4 (2.00, .499)
Semi-democratic	89.3	41.1	12 (1.60, .581)
Less democratic	78.3	28.3	2.8 (1.75, .401)
Failed state	44.4	11.1	0 (1.21, .250)
	$\chi^2 = 24.04$; $p < .001$	$\chi^2 = 50.78$; $p < .001$	$\chi^2 = 23.21$; $p = .001$
Tobacco production (n = 122)			
High	90.9	72.7	30.0
Upper Middle	97.5	52.5	5.1
Middle	88.4	41.9	7.9
Low	69.2	34.6	5.6
	$\chi^2 = 11.74$; $p = .008$	$\chi^2 = 20.22$; $p = .017$	$\chi^2 = 9.79$; $p = .134$
Smoking prevalence thirds			
Total (n = 161)			
High	89.1	56.4	4.1 (1.71, .485)
Middle	92.2	55.8	17.0 (1.81, .568)
Low	84.6	37.7	11.4 (1.75, .561)
	$\chi^2 = 1.47$; $p = .479$	$\chi^2 = 9.47$; $p = .149$	$\chi^2 = 4.28$; $p = .369$
Male (n = 151)			
High	90.4	51.9	8.5 (1.67, .506)
Middle	93.8	64.0	13.3 (1.84, .529)
Low	83.3	36.7	12.5 (1.78, .602)
	$\chi^2 = 2.82$; $p = .244$	$\chi^2 = 12.09$; $p = .060$	$\chi^2 = 3.48$; $p = .481$
Female (n = 152)			
High	96.2	19.2	14.3 (1.83, .527)
Middle	89.6	34.0	9.3 (1.68, .542)
Low	85.7	26.0	10.0 (1.77, .552)
	$\chi^2 = 3.32$; $p = .190$	$\chi^2 = 17.92$; $p = .006$	$\chi^2 = 3.32$; $p = .505$
GlobaLink participation quartiles (n = 193)			
High (15 or more)	100.0	79.6	20.4 (1.98, .569)
Average (4-14)	93.3	60.0	2.4 (1.67, .440)
Low (1-3)	79.6	28.6	5.1 (1.57, .473)
No participation (0)	46.0	2.0	8.7 (1.59, .557)
	$\chi^2 = 51.92$; $p < .001$	$\chi^2 = 99.18$; $p < .001$	$\chi^2 = 14.71$; $p = .023$
Number of INB sessions attended (n = 191)			
Four	91.1	58.1	11.5 (1.69, .669)
Three	67.9	17.9	5.3 (1.37, .597)
Two	60.0	13.3	0 (1.33, .500)
One or less	57.1	9.5	8.3 (1.5, .674)
	$\chi^2 = 23.82$; $p < .001$	$\chi^2 = 41.50$; $p < .001$	$\chi^2 = 6.83$; $p = .337$
Number of tobacco control NGOs in FCA (n = 103)			
Five or more	88.9	12.6	55.6 (2.04, .477)
Three or four	94.4	11.8	55.6 (1.78, .574)
Two	96.4	7.4	71.4 (1.80, .460)
One	81.6	6.4	34.2 (1.56, .446)
	$\chi^2 = 4.33$; $p = .228$	$\chi^2 = 23.16$; $p = .510$	$\chi^2 = 11.23$; $p = .259$

Table 4
Predictors of strength and number of policies adopted.

	Average strength of policies adopted		Number of policies adopted (0–3)	
	Std. B	p	Std. B	p
Income	0.265	0.038	−0.062	0.472
Population (log)	0.028	0.899	0.068	0.648
Smoking prevalence	−0.083	0.372	0.005	0.941
Democracy	−0.122	0.347	0.272	0.002
GLOBALink participation	0.059	0.690	0.421	<.0001
INB sessions attended	0.070	0.526	0.130	0.084
NGOs in FCA	0.135	0.223	−0.050	0.509
WHO region				
Africa	0.042	0.846	−0.082	0.577
E Mediterranean	0.072	0.558	0.180	0.033
SE Asia	0.225	0.026	0.018	0.793
W Pacific	0.144	0.212	0.020	0.802
Europe	0.189	0.132	0.177	0.039
F	2.261; p = .013		15.011; p < .0001	
R-squared	0.104		.534	

Table 5
Associations between country characteristics and policy adoption during the negotiation period.

	Any policy adoption		Warning policy		SHS policy		Ad policy	
	AOR	p	AOR	p	AOR	p	AOR	p
Income	1.60	0.129	0.61	0.120	1.06	0.843	0.94	0.850
Population (log)	0.45	0.076	1.68	0.296	0.97	0.960	0.36	0.034
Smoking prevalence	0.98	0.378	0.96	0.190	0.96	0.186	0.99	0.746
Democracy	0.96	0.639	1.01	0.892	0.99	0.952	0.95	0.611
GLOBALink participation	2.00	0.051	1.76	0.150	0.76	0.498	4.37	0.001
INB sessions attended	1.69	0.169	0.79	0.599	1.42	0.390	2.19	0.164
NGOs in FCA	1.39	0.118	1.03	0.883	0.89	0.568	1.15	0.549
WHO region								
Africa	0.11	0.175	5.22	0.405	1.05	0.978	0.02	0.034
E Mediterranean	1.38	0.735	2.73	0.430	1.57	0.698	1.02	0.988
SE Asia	25.98	0.005	6.42	0.168	8.52	0.062	1.59	0.703
W Pacific	0.83	0.835	1.42	0.764	1.76	0.603	0.55	0.572
Europe	32.43	<.0001	8.89	0.019	8.35	0.006	7.13	0.026

High-income countries were more likely to have adopted more policies (71.1%) compared to middle- and low-income countries (23.4%) ($\chi^2 = 27.79$, $p = .001$) although the adoption of at least one policy was evenly distributed across all income levels ($\chi^2 = 8.17$, $p = .085$). The adopted policies were stronger among wealthier countries, though this trend did not reach statistical significance. Policy adoption trends were significantly different by population size, WHO region, democracy level and GLOBALink participation. More heavily populated ($\chi^2 = 53.65$, $p < .001$) and more democratic countries ($\chi^2 = 50.78$, $p < .001$) were all significantly more likely to have adopted policies in more than one, or all three areas. More democratic countries ($\chi^2 = 23.21$, $p = .001$) had significantly stronger policies, while the same was true for smaller/less populated ones ($\chi^2 = 10.40$, $p = .034$). For policy adoption across geographical regions, there were also statistically significant differences ($\chi^2 = 81.71$, $p < .001$), with the greatest frequency occurring within Europe (86%) and the least taking place in Africa (15.2%), the Americas (28.6%) and the Western Pacific (31%). On average, Southeast Asian countries had the strongest policies, while Africa had the weakest ($\chi^2 = 25.93$, $p = .004$).

Tobacco production within each country was significantly associated with having adopted at least one policy ($\chi^2 = 11.74$, $p = .008$), and the number of policies ($\chi^2 = 20.22$, $p = .017$). Almost 73% of high tobacco-producing countries adopted policies in all three areas compared to only 34% of low tobacco-producing countries. High tobacco-producing countries, on average, had greater policy strengths compared to all other countries, but this difference did not reach statistical significance. With regard to smoking prevalence, only female gender was significantly associated with the number of policies adopted ($\chi^2 = 17.92$, $p = .006$). Higher participation in the INB sessions were also associated with the number of policy types adopted ($\chi^2 = 41.50$, $p < .001$), but not with the strength of these policies ($\chi^2 = 6.83$, $p = .337$). GLOBALink participation, on the other hand, was significantly associated with all three outcome measures. Nearly 80% of countries with 15 or more participants adopted all three policy types compared to only 2% of the countries with no participation ($\chi^2 = 99.18$, $p < .001$), and similarly, 20% of those with high participation had, on average, strong policies compared to the others ($\chi^2 = 14.71$, $p = .023$).

Regression analyses (Table 4) confirmed the above bivariate findings: wealthier countries ($\beta = .265$, $p = .038$) as well as countries in the WHO Southeast Asian Region ($\beta = .225$, $p = .026$) were predictive of greater average policy strengths. Countries that were more democratic ($\beta = .272$,

$p = .002$), participated in GLOBALink ($\beta = .421$, $p < .0001$) and those in the WHO Eastern Mediterranean and European regions ($\beta = .180$, $p = .033$; $\beta = .177$, $p = .039$) were more likely to adopt a greater number of policies, while controlling for the other country characteristics.

Logistic regression analyses (Table 5) revealed that countries residing in the European region had the highest odds of adopting all policy types during the negotiation period after controlling for other country characteristics (AOR = 32.43, $p < .0001$). In addition, countries in Southeast Asia (AOR = 25.98, $p = .005$) and those with higher GLOBALink participation (AOR = 2.00; $p = .051$) also had higher odds of adopting any type of policy overall. When policy types were analyzed separately, European countries remained significantly associated with the adoption of all three policy types. Smaller countries (AOR = .36; $p = .051$) and countries that had higher GLOBALink participation (AOR = 4.37; $p = .001$) had higher odds of adopting advertising ban policies.

4. Discussion

This paper studies the frequency of tobacco control policy adoption throughout the world between 1996 and 2005; the period just before, during, and after the negotiation of the FCTC. Three specific areas of tobacco control policy—public smoking restrictions, advertising restrictions, and health warning labels—were included. The results provide insight into the impact of the FCTC negotiation process. In 1998, when WHO initiated its preparatory groundwork for the FCTC, a rise in the number of countries adopting an evidence-based tobacco control policy can be observed. The adoption rate intensified between 2002 and 2003, the years in which international debate regarding tobacco control and the FCTC was the most intense. Moreover, the strength of the adopted policies shifted significantly throughout the years from weak policies to WHO-promoted policies as the process continued. The staggered adoption of different policy types over time suggests that they were not adopted as part of one comprehensive legislative approach to tobacco control within each WHO Member State, and that other causative factors likely intersected with the FCTC during the negotiation and post-negotiation periods (2000–2005).

The increase in domestic policy adoption that took place during the FCTC process is similar to other examples of 'rapid diffusion' supported by international institutionalization, such as those found in relation to environmental policy. The United Nations Conference on Environment and Development held in Stockholm in 1972, for example, was empirically shown to have triggered a global increase in the number of domestic environmental policies adopted worldwide [30]. The impact of the FCTC process also reflects some of the same constraints in global policy diffusion illustrated in past environmental policy studies. In the case of the FCTC, the greater intensity of policy adoption in Europe was assisted by diffusion that was promoted by institutionalization at the regional level, and in some cases by harmonization dictated by European Union (EU) directives during the period [31]. Similarly, in the case of the envi-

ronment, institutionalized peer-review and 'identification of best practice according to agreed criteria' by the EU also was identified as one of the major tools for policy transfer and the reason for greater diffusion among EU member states than among countries in other regions of the world [32].

Empirically, it has also been observed that environmental policies related to problems of long-term degeneration—the effects of which are not directly visible and therefore cannot be easily placed on the political agenda—diffuse rather slowly [33]. Alternatively, countries under pressure to resolve problems sooner rather than later often adopt policies that have been successfully adopted elsewhere. Moreover, environmental diffusion studies found that lower-income countries are less likely to adopt internationally-promoted regulatory approaches than high-income countries [21,22]. Similarly, the low level of policy adoption and the tendency to adopt weaker policies by low-income states, particularly in Africa and the Americas, likely reflects the lower rates of tobacco consumption and competition for limited health resources in the these countries. Alternatively, higher-income countries experiencing a higher burden of disease caused by tobacco and with more resources available were most likely to adopt more and stronger policies. Moreover, in an earlier analysis of the likelihood of FCTC ratification, Wipfli et al. [33] found that lower-income countries in these regions were less likely to have membership in tobacco control communication networks such as GLOBALink, which was found to be the most significant determinant of early FCTC ratification in addition to income level. This study confirms the importance of GLOBALink membership on the number of tobacco policies adopted in each country, as well as how closely these policies incorporate public health best practices or standards recommended by the WHO.

There remain multiple limitations with the dataset used. The sources from which the data were collected were not always reliable—a weakness that was addressed in the WHO reports on the global tobacco epidemic project [16,17]. Many of the fields for specific policy variables were missing, and the database is not informative as to whether a law did not exist or if the data collectors had not located the information. The year in which the legislation was passed was also often missing from the database. In order to address these concerns, the data was cross-checked with other available data sources, such as the legislative databases provided by WHO's regional offices, country websites, WHO reports on the tobacco epidemic and more recent editions of the *Tobacco Atlas*. However, it was impossible to independently confirm the data for every country and countries that passed laws within the time period might not have been identified and the sources of the information used to complete the data were not always reliable. Since only the most recent law passed in a country was entered, the analysis may also fail to capture shifts within countries over the past decade and therefore underestimate the level of policy adoption in the earlier years. However, these limitations are unlikely to change the overall findings that have been consistently illustrated for each policy area, especially given the large number of countries for which information was obtained

and the unlikelihood that a significant number of countries revised the specific tobacco control policies within the short timeframe captured by the data. The lack of pre-FCTC country profiling and data on previous laws also makes it impossible to track rates and trends in changes in policy strength and may have confounded the study results.

An additional limitation of the data concerns the selection and interpretation of the variables of diffusion. Social, political, and cultural characteristics of states are not readily quantified and there are always challenges in making macro-level conclusions about social processes based on quantitative data. Further analysis of policy implementation is needed to accurately measure the impact of the FCTC in controlling tobacco use worldwide. The passage of a new law does not automatically imply the policy was effectively implemented or that behaviors changed. Additional qualitative studies on the impact of the FCTC on domestic politics are needed to better understand how the FCTC process and the final treaty text have influenced the domestic adoption and implementation of tobacco control policies in diverse countries around the world. The goal of the project's quantitative analysis, however, was simply to provide greater information to support the hypotheses that the FCTC negotiations had an impact and to identify possible determinants of policy diffusion.

5. Conclusions

The FCTC process represents many important firsts for WHO and the larger global public health community, and provides a key case to test the power that the institutionalization of policies at the international level can have on domestic public health policy. The results presented in this paper illustrate how increased international communication coincided with a rise in domestic policy change in the direction advocated by WHO, which accelerated the pace of domestic policy change on a global scale. The results have also identified a need to improve outreach and diffusion to lower-income countries in the area of tobacco control, as well as other areas of chronic disease control. Further study is needed to evaluate the long-term impact of the FCTC after its entry into force, as well as the impact of other global initiatives, including the Bloomberg Initiative to Reduce Tobacco Use. Recent evidence from WHO suggests that the pace of policy adoption has slowed considerably and implementation of new policies may be lacking [17].

The dynamic spread of policies and shifts in the type of policies adopted illustrated in this paper suggest that the FCTC process resulted in rapid cross-national learning about tobacco control throughout the international system. One can identify a range of current global health issues that reflect many of the same characteristics as this tobacco case, including the recently concluded UN treaty on the treatment of people with disabilities, or potential treaty processes that may arise around alcohol, food, vehicle exhaust or small arms. This study suggests that investments in such international processes can be effective in the relative short-term, even when formal legal outcomes are unclear from the start.

Acknowledgements

References

[1] US Department of Health and Human Services. The health consequences of smoking. A report of the surgeon general. Atlanta, GA: US Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2004.

[2] Guindon GE, Boisclair D. Past, current and future trends in tobacco use. In: Tobacco Control WHO Tobacco Control Papers. 2003.

[3] Mathers CD, Loncar D. Projections of global mortality and burden of disease from 2002 to 2030. PLoS Med 2006;3:e442.

[4] Fiore MC, Baker TB. Stealing a march in the 21st century: accelerating progress in the 100-year war against tobacco addiction in the United States. American Journal of Public Health 2009;99: 1170–5.

[5] World Health Organization. WHO Framework Convention on Tobacco Control (FCTC). http://www.who.int/fctc/en/index.html; 2010.

[6] World Health Organization. World Health Assembly Resolution 56.1 WHO framework convention on tobacco control. Geneva: World Health Organization; 2003.

[7] Taylor AL, Bettcher DW. WHO framework convention on tobacco control: a global "good" for public health. Bulletin of the World Health Organization 2000;78:920–9.

[8] Taylor A. The framework convention on tobacco control: the power of the process. In: 11th World Conference on Tobacco or Health. 2000.

[9] Yach D, Bettcher D. Globalisation of tobacco industry influence and new global responses. Tobacco Control 2000;9:206–16.

[10] Simpson BW. Smoke Out!. The Magazine of the Johns Hopkins Bloomberg School of Public Health; 2003. pp. 26–35.

[11] Davies D. External forces: facing the future. In: Speech Given at TAB-EXPO, 26 November. 2003.

[12] Taylor AL, Bettcher DW, Peck R. International law and the international legislative process: the WHO framework convention on tobacco control. In: Smith R, Beaglehole R, Woodward D, Drager N, editors. Global public goods for health: health economics and public health perspectives. Oxford: Oxford University Press; 2003.

[13] Mackay J. The making of a convention on tobacco control. Bull World Health Organ 2003;81:551.

[14] Hammond R, Assunta M. The framework convention on tobacco control: promising start, uncertain future. Tobacco Control 2003;12:241–2.

[15] Studlar DT. Tobacco control policy instruments in a shrinking World: how much policy learning? International Journal of Public Administration 2006;29:367–96.

[16] World Health Organization. WHO report on the global tobacco epidemic, 2008: the MPOWER package. Geneva: World Health Organization; 2008.

[17] World Health Organization. WHO report on the global tobacco epidemic, 2009: implementing smoke-free environments. Geneva: World Health Organization; 2009.

[18] Shafey O, Eriksen M, Ross H, Mackay J. The tobacco atlas. 3rd ed. Atlanta: American Cancer Society; 2009.

[19] Mackay J, Eriksen M. The tobacco atlas. Geneva: World Health Organization; 2002.

[20] Mackay J, Eriksen MP, Shafey O. The tobacco atlas. 2nd ed. Atlanta, GA: American Cancer Society; 2006.

[21] Tews K, Busch P-O, Rgens H. The diffusion of new environmental policy instruments. European Journal of Political Research 2003;42:569–600.

[22] Hofstede G. Culture's consequences: comparing values, behaviors, institutions and organizations across nations. Thousand Oaks: Sage Publication; 2000.

[23] The World Bank. Data and statistics. Country classification. Washington. http://go.worldbank.org/K2CKM78CC0; 2010.

[24] World Health Organization. WHO regional offices. Geneva. http://www.who.int/about/regions/en/index.html; 2010.

[25] Freedom House. http://www.freedomhouse.org/; 2010.

[26] Food and Agricultural Organization. Tobacco leaf production. http://faostat.fao.org/; 2010.

[27] World Health Organization. Intergovernmental negotiating body on a protocol on illicit trade in tobacco products. http://www.who.int/fctc/inb/en/; 2010.

[28] Framework Convention Alliance Membership Directory. http://www.fctc.org/index.php?option=com_sobi2&Itemid=26; 2010.

[29] GLOBALink Tobacco Control, The International Tobacco Control Community. Global Smokefree Partnership. http://www.globalink.org/; 2009.

[30] Kern K, Jörgens H, Jänicke M. The diffusion of environmental policy innovations. A contribution to the globalisation of environmental policy, Discussion Paper FS II 01-302. Berlin: Social Science Research Centre; 2001.

[31] Bomberg E, Peterson J. Policy transfer and Europeanization: passing the heineken test? Queens papers on Europeanization. Belfast: Queens University; 2000.

[32] Tews K. The diffusion of environmental policy innovations: cornerstones of an analytical framework. European Environment 2005;15:63–79.

[33] Wipfli H, Stillman F, Tamplin S, da Costa e Silva VL, Yach D, Samet J. Achieving the framework convention on tobacco control's potential by investing in national capacity. Tobacco Control 2004;13:433–7.