

## 국제 환경기관의 환경문제가 국가정책채택에 영향력을 미치는 요인에 관한 연구

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### The Study on the influencing to adopt national policies on international environmental issues

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#### 요 약

이 연구는 국제 환경기관간의 환경문제가 관한 국가정책채택에 영향력을 미치는 요인이 무엇 인지에 관한 내용이다. 이를 위하여 다변량에 의한 회귀분석을 이용하여 환경정책의 채택에 관한 국가정책의 영향력을 분석하였다. 데이터 분석은 세계의 모든 부분에서 130 개국의 샘플에 대한 독립 변수의 측정에 의해 각 국가의 비준된 환경협약을 인덱스 포인트로 하여 회귀분석을 실시하였다. 분석결과 전반적으로, 회귀 분석은 일반적으로 독립 변수에 대한 가설을 긍정적으로 보여주고 있다. 결과에서 외부적 결정요인은 국제 환경기구들과 관련하여 국가 환경 정책 도입의 수준을 설명하는 내부적 요인보다 더 강한 것으로 나타났다. 즉 모든 국제 환경 기구, 국제 비정부기구 및 지역 다국적 기관은 국가간이 아닌 국제 환경 정책 방향에 호의적인 자세로 국가에 영향을 미치는 긍정적인 방향에 기능하는데 입증되었다. 본 연구의 결과는 한국 환경정책 시스템의 효능을 개선하는 방법에 대한 유용한 정보를 제공할 것으로 보인다.

▶ Keywords : 정책채택, 국가환경정책, 환경단체, 국제환경보호

#### Abstract

This research paper examined to the influencing factors to adopt national policies of international organization's environment. For this a multivariate regression model has been used to examine cross-national differences in environmental policy adoption.

The data analysis was conducted by regression analysis, the indexed point of international environmental agreements were ratified by each nation on the measure of independent variables for

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a sample of 130 countries in all parts of the world.

From analysis results, overall, the regression analysis illustrates that the regression model generally fits our predictions for independent variables. The finding has revealed that external determinants are stronger than internal ones in explaining the level of national environmental policy adoption in relation to international environmental cooperation. Namely, All international environmental organizations, international nongovernmental organizations, and regional multinational institutes proved to function in a positive way in influencing number nations to have a favorable attitude toward international environmental policies. The findings of this study will provide helpful information on how to improve the efficacy of the Korean environmental policy system.

- ▶ Keywords : Policy adoption, Nation environmental policy, Environmental organization, International environmental protection

## I. Introduction

Global environmental protection has become increasingly important as international communities are facing many global environmental problems, such as global warming, biodiversity protection, ozone layer depletion, and pollution of international waters. Global environmental problems have arisen continuously in every corner of the globe, and these problems are to be solved with cooperative efforts made by the countries that contributed to creating these problems. Such collaborative efforts have resulted in numerous international environmental entities and regimes(1). Responding to several weaknesses in the literature, we propose a coherent research framework for assessing NGO influence in international environmental negotiations. We contend that influence can be said to have occurred when NGOs intentionally transmit information that alters the behavior of negotiators, and call for collecting and analyzing evidence of NGO influence in a more systematic fashion.

This paper fills research vacancy by formulating a theoretical model and testing it empirically. The

research question is: what are the key factors in explaining national policy adoption associated with legitimizing international policy products, especially in the environmental field? To answer this question, this study tests the hypothetical relationships among national government responses to policies made by international agreements, whether they adopt international policies, laws, rules, treaties, conventions or not and the internal as well as external factors that impact government policy adoption. This paper is organized as follows. The second section addresses the importance of this study by giving a brief overview of previous research in this field, which has concentrated on internal variables, and proposing a new approach that takes external variables into consideration as well(3). The third section presents hypotheses to be tested for this study. The fourth section specifies the variables and data used for this study.

Finally, It provides an empirical analysis of cross-national difference among nearly 130 nations in the degree of participation in a world environmental regime. All countries which are Members of the United Nations may become members of WHO by accepting its environmental constitution. many countries may be admitted as members when their application has been approved

by environmental agreement of the World Health Assembly.[4]

Despite the inherent weakness of international arrangements, pressure from an international regime is presumably apt to encourage any national government to initiate new policies or adjust current policies to the direction that the regime purchase[5].

Previous research in this field has focused on internal variables, though the research results vary depending upon theoretical perspectives, methods of empirical testing, and finally the unit of analysis. Considering the determinants of public policy making across countries[6].

Territories which are not responsible for the conduct of their international relations may be admitted as Associate Members upon application made on their behalf by the Member or other authority responsible for their international relations. Members of WHO are grouped according to regional distribution in 130 Member States.

In the conclusion, I'd like to suggest an alternative on the problems of hyper urbanization and policy alternatives direction in the world. The resulting comparability provides a basis for analysis of NGO influence across cases, and ultimately contributes to better understanding of the variation of NGO influence in global environment politics[7][8].

## II. Hypothesis

### 1. Hypotheses of domestic determinant

Based on findings the domestic determinants model of this study assumes that a national environmental policy orientation is affected by the nation's political as well as socio-economic conditions. [10]

### 2. Domestically Environmental Organization

Pluralism is the most common expression of

contemporary politics. It means that public policy is largely created by negotiation and compromise among various groups, organizations, and institutions. While group activity is not the only explanatory variable in determining public policy, it is often regarded as very important. Like other organizations, NGOs differ significantly in terms of size, the number of members, resources, and other factors. Based on these variables, NGOs have diverse levels of strength and influence when attempting to have an impact on a particular stage of the policy process. Particularly for NGOs, the ability to attract media attention is a preliminary key step in the agenda setting process.

The role of these organizations has been described in terms of "the institutionalization of environmental concern"[11]. The research reported in this study concerns the relationships among an organization's environment, structure and information system. Based on an empirical study it appears that information systems and organizational structures are both a function of the environment. However, after controlling for the effects of the environment, it does not appear that an organization's information system and structure are significantly related to each other.

This study assumes that, as the number of organizations increases, these organizations will become stronger and more supportive to any policy orientation. Therefore organizations are to be measured by numbers.[12]

The hypothesis has been set as follow:

〈Hypothesis 1〉

Environmental NGOs are more likely to adopt environmental policies that contribute to global environmental protection.

〈Hypothesis 2〉

More governmental environment institutions are more likely to adopt environmental policies that contribute to global environmental protection.

⟨Hypothesis 3⟩

The greater the number of international NGOs in which a national government participates, the more likely the nation is to adopt international environmental policies.

### III. Data Analysis

#### 1. The Dependent Variables

From a global perspective, environmental improvements can be achieved in three important phases: reaching an international agreement, ratifying the agreement by national parliaments or governments, and implementing the agreement. The focus of this paper is on the second phase, by examining whether or not a country adopts international environmental policies or agreements in national policy system[13]. The level of governmental involvement in world environmental policy adoption is defined by giving an indexed number to each country. The data have been obtained from the Green Globe Yearbook 2010, providing us with information about international agreements and degrees of participation by each country.[14] The degrees of participation are distinguished by categorizing the countries into three groups: "states that have not signed," "states that have signed, but not ratified, accepted, approved, or acceded." To differentiate the level of participation, we gave 0 points to the first group, 2 points to the second group, and 4 points to the last group.

#### 2. The Independent Variables

##### 2.1 Variables of internal determinants

The independent variables that are used to test internal(domestic) determinants hypotheses are: the number of environmental NGOs, the number of national level environmental institutions or agencies, national income, level of education, and level of urbanism.

The level of GNP per capita and the level of urbanism have been obtained from the United Nations Statistical Yearbook 2010[15]. The research reported in this study concerns the relationships among an organization's environment, structure and information system. Based on an empirical study it appears that information systems and organizational structures are both a function of the environment. However, after controlling for the effects of the environment, it does not appear that an organization's information system and structure are significantly related to each other. These data are available in the Human Development Report 2011 published by the UNDP[16].

##### 2.2 Variables of external determinants

Results also show that the same decision unit implemented different organizational structures, and that these differences in structure were, particularly under conditions of high uncertainty, related to the decision unit's effectiveness. The data on international environmental organizations can be found in the Green Globe Yearbook 2011. This publication covers most of the important international organizations that are concerned with environmental protection. The data on international nongovernmental organizations have been obtained from The Yearbook of International Organizations 2011.

The regional independent variable is coded in the form of a dummy variable in which a country with a membership in a major regional institution has the value of "1," otherwise "0." Like GNP values, the values indicating the number of international NGOs in which a national government participates were also too big compared to those of other variables in the transformation of the original values of international NGO to natural log values. First, the value of KMO was 0.947 in the factor of variables, so that it was judged to be acceptable to what we have done the analysis of factor since the criteria to suitability of factor analysis performance is higher than 0.5, and the loading of factor in here means, it

Table 1. Components Analysis and Reliability Test of Environmental Variables

Variable	Name	Description	components			Eigen value	Cronbach $\alpha$
			1	2	3		
Dependent	Adopt	Signing international environmental agreements	.822	.398	.108	1.845	.910
Independent	EnvGo	Number of governmental organizations for environmental protection	.786	.274	.248	1.296	.905
	EnvNGO	Number of nongovernmental organizations for environmental protection	.636	.455	.302		
	InEnvO	Having national branch offices of international environmental organizations	.599	.496	.238		
	LMInNGO	Natural log of number of international NGO that a nation participates	.516	.605	.178	1.210	.886
	Regional	Membership in major regional institutions	.352	.596	.511	1.108	.842
	LNGNP	Natural log of GNP per capita	.354	.752	.656		
	HDI	Human Development Index	.255	.411	.597		
Urban	Urban population	.297	.531	.540			

(Note) : (\*) means removed items, KMO=0.947

is the extend that fact may describe of the variables. Generally, where the absolute value of loading of factor exceeds 0.4, it is regarded as a variable taking heed so that the factors extracted may be judged into what it has any meaning in the some extent because the value was more than 0.5. In other hand, to verify the reliability with respect to factor extracted, we estimated the reliability of factor by calculating the value of Cronbach's alpha

that may estimate the internal consistency according to each measurement tool. In social science, where the value of Cronbach's alpha is more than 0.6, it may be decided as that having the reliability in some degree. According to the result of analysis, as the value of Cronbach's alpha was appeared as more than 0.80 in the function of variables, and more than 0.842 in Governance, we decided that the analyzed result has reliability as appeared what

Table 2. Description of Variables

Variable	Name	Description	Unit	Mean(Std)
Dependent	Adopt	Signing international environmental agreements	Indexed number	19.83(3.21)
Independent	EnvGo	Number of governmental organizations for environmental protection	Number	4(.72)
	EnvNGO	Number of nongovernmental organizations for environmental protection	Number	13(2.21)
	InEnvO	Having national branch offices of international environmental organizations	Number	31(4.33)
	LMInNGO	Natural log of number of international NGO that a nation participates	Number	7.21(1.08)
	Regional	Membership in major regional institutions	Dummy	0.2(.02)
	LNGNP	Natural log of GNP per capita	Number	7.41(1.11)
	HDI	Human Development Index	%	6.6(1.0)
Urban	Urban population	%	22(3.45)	

exceeding the criteria, and utilized it for analysis post

In this study, Tool kits took a measurement tools that the validity determinant whether was measured or not. For this end, analyzed the factors of principal component analysis and varimax way. Eigen values and one or more factors were only determined by the number of factors.

#### IV. Results and Discussion

The research reported in this study concerns the relationships among an organization's environment. A multivariate regression model has been used to examine cross-national differences in environmental policy adoption.

The data analysis was conducted by regressing the indexed point of international environmental agreements ratified by each nation on the measure of independent variables for a sample of 130 countries in all parts of the world.

Overall, the regression analysis illustrates that the regression model generally fits our predictions for independent variables. The magnitude of R square demonstrates the statistical soundness of the model. As (Table 3) indicates, the value of R square explicitly shows that the model is statistically robust by indicating that the listed independent variables

all together explain about 80% of the variation in the degree of policy adoption of international environmental agreements.

This study has revealed that external determinants are stronger than internal ones in explaining the level of national environmental policy adoption in relation to international environmental cooperation.

As for external variables, both kinds of international organizations, regardless of environmental protection or not prove to be statistically significant in explaining the adoption of national environmental policies at a 0.05 confidence level. Regional institutions also proved to be a significant factor influencing national governments to be pro-environmental toward international environmental issues. It is acceptable to argue that national differences in environmental policy adoption are attributable to the activities of international environmental or non governmental organizations and regional institutions in which a nation is involved. National governments willing to participate(or have branch offices of international environmental organizations) in international environmental organizations or international NGOs are likely to adopt international environmental policies.

In contrast, internal variables are much weaker

Table 3. Regression Regular: Comparison of Internal and External Determinant

Variable	Standardized Coefficients	Standard Errors	t	Max Significance
Internal Determinants				
EnvGo	.173	.142	1.459	.192
EnvNGO	-.265	.046	-1.762	.085*
LNGNP	.152	.768	.933	.340
HDI	-.062	3.815	-.493	.645
Urban	.041	.036	.386	.721
External Determinants				
InEnvO	.321	.052	2.222	.033**
LnInNGO	.342	1.486	2.276	.027**
Regional	.251	1.348	3.246	.002***
Constant	9.996	1.536	6.575	.000***

Df:116 R2: .688(Ad:.678)

N:130 ANOVA(F:32.855 p:.000) \*p<.10. \*\*p<.05. \*\*\*p<.01

The t-test compares the actual difference between two means in relation to the variation in the data

in explaining whether a nation will adopt international environmental policies or not. The fact that a nation has numerous environmental governmental organizations does not necessarily mean that it is more likely to adopt any environmental policy in relation to international environmental policies.

The national organizations probably make an effort to focus more on domestic environmental issues than on internal ones. This is especially true for countries that have a federal system. In the federal system, the number of national environmental organizations does not necessarily indicate the level of interest toward international environmental issues because most of these organizations likely to have environmental concerns for individual tastes, not for the nation as a whole. Decision Making channel theory has emphasized the "internal" mechanisms of achieving integrated actions. However, channels consist of exchanging organizations that are affected not only by their collective interests, but also by forces "external" to the relationship.

〈Table 3〉 shows the arranged result of hypothesis verification on the base of analysis result like this.

## V. Conclusion

All international environmental organizations, international non-governmental organizations, and regional multinational institutes proved to function in a positive way in influencing number nations to have a favorable attitude toward international environmental policies.

Contrary to our expectation, national environmental organizations do not play an important role in getting a national policy adopted. This confirms contingency theories of organization, indicating that different types of organizational structures are appropriate for different types of situations. The findings of this study provide important policy implications in terms of

alternatives for getting international environmental policies nationally adopted in each nation in accordance with participation in international or regional organizations. Others have been concentrated on with international factors that make international environmental treaties or agreements work. Few studies, however, have tried to examine national policy orientation towards international environmental issues. This study is confined to an explanation of the initial stage of policy process, factors that influence the implementation as well as the outcome of national environmental policies related to international issues need to be investigated. Studied the effects of environmental uncertainty on different types of decision-making structures development organizations. Evaluations were made with Likert-type scales. Results indicate the existence of differences in decision-unit organization for making routine and non routine decisions under differing conditions of perceived uncertainty and perceived environmental influence in decision-making.

External to the relationship and Internal coordination mechanisms are likely to be less effective to the extent channel members are faced with uncertainties emanating from external sources. In conducting such a study, the percentage change of the targeted pollutants could be a possible measure of possible measure of policy implementation and outcome.

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