SECURITY AND HUMAN RIGHTS IN CONFLICT: A GEO-SECURITY INTERACTIVE MODEL OF THE ANTI-PERSONNEL MINE CONVENTION

by

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(Under the Direction of Robert Grafstein)

ABSTRACT

The APM Convention opened a new era in prohibiting widely used conventional weapons for the first time. Most previous studies have paid little attention to the political decision-making at the state level, despite the fact that states are in general the principal actors and violators of human rights. Therefore, in an attempt to supplement insufficient explanations and generalizations, a geo-security interactive model examines and tests diverse security and economic interests as well as human rights concerns regarding the total ban of anti-personnel landmines. In particular, since security concerns vary with economic development, and vice versa, a multiplicative model is applied to measure the joint effects of security concerns and economic development. As a result, the geo-security interactive model demonstrates that the determination of each country for the APM Convention has been in large part influenced by its self-defensive, border, and extraterritorial security concerns. On the other hand, economic interests and human rights concerns are not a necessary and sufficient condition of participating in the total ban of anti-personnel landmines. Finally, this research suggests that promoting bilateral agreements between antagonistic states can directly mobilize non-signatory countries to join the APM Convention by reducing their self-defensive and border security concerns.

INDEX WORDS: The APM Convention, Anti-Personnel Landmines, Self-Defensive Security, Border Security, Regime Security, Extraterritorial Security, Human Rights

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TABLE OF CONTENTS

Page

LIST OF TABLES

Page

CHAPTER 1

INTRODUCTION

Conventional weapons are basic and widespread weapons that are used in armed conflicts around the world by both regular forces and guerillas. During the period 1989-2001, there were 115 armed conflicts throughout the world, and 34 conflicts were active in 28 countries in 2001 (Gleditsch et al., 2002). Nevertheless, complicated interests of each country have discouraged states around the world from constraining the proliferation of conventional weapons and from creating conventional arms control for regional or global stability. Yet conventional weapons are becoming more lethal, sophisticated, and diffused (Burt, 1977; Pierre, 1997).

In this context, the Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction (the APM Convention), which opened for signature in Ottawa on December 3, 1997 and entered into force on March 1, 1999, is a significant turning point in that it establishes for the first time a new era in prohibiting widely used conventional weapons at the global level (English, 1998; Thakur and Maley, 1999). This unprecedented landmine case not only may help researchers understand the diverse behaviors of various countries in international relations but may help policymakers take appropriate steps for more general conventional arms control, which is in deadlock. [1]

[1] The 1990 Treaty on Conventional Armed Forces in Europe (the CFE Treaty) limits equal ceiling on tanks, armored combat vehicles, artillery, aircraft, and helicopters between the North Atlantic Treaty Organization (NATO) and the Warsaw Pact states. However, Russia has not yet implemented the CFE treaty because of NATO's intervention in Kosovo, the enlargement of NATO, and the conflict in Chechnya. The 1999

Up until now, most research has ascribed the success of the APM Convention to the role of human rights groups (Gruhn, 1997; Williams and Goose, 1998; Warkentin and Mingst, 2000) or to the application and development of international humanitarian laws (Dennis, 1998; Thakur and Maley, 1999; Meron, 2000). However, the former has paid little attention to the political decision-making at the state level, despite the fact that states are in general the principal actors and at the same time, violators of human rights (Donnelly, 1986). In particular, the latter, by mostly emphasizing the operation of legal procedures, leaves little room for politics. Therefore, it is unclear that what international relations factors influence the determination of each country to join the APM Convention.

Since those studies have focused more on why signatory countries have accepted the total ban of anti-personnel landmines, there is uncertainty about why many countries still remain uncommitted to the APM Convention. On the basis of the prior works, can one simply allege that non-signatory countries have less human rights concerns or that their foreign policies are less likely to be influenced by Non-Governmental Organizations (NGOs)? Without considering these non-signatory countries, one cannot generalize the idea that human rights concerns account for the unprecedented landmine case as a whole. Therefore, in an attempt to supplement current insufficient explanations and generalizations, subsequent research should be conducted not only by focusing on the political decision-making at the state level but also by including signatory and non-signatory countries together.

Agreement on Adaptation, which limits national and territorial ceiling, will enter into force when all 30 parties have ratified. The Open Skies Treaty is in stalemate because of the failure of ratification in Belarus, Russia, and Ukraine. The Association of South-East Asian Nations (ASEAN) has not yet produced a tangible agreement. The 1998 Economic Community of West African States (ECOWAS) is ineffective because of the lack of implementation to monitor arms trafficking. Stockholm International Peace Research Institute. 2000. *SIPRI Yearbook 2000.* Oxford: Oxford University Press. Pp. 577-646.

Article 1 of the APM Convention provides that each state party undertakes never under any circumstances to use, develop, produce, acquire, stockpile, retain, or transfer anti-personnel mines to anyone.[2] For this reason, it is easier to understand why security and economic interests are closely related to the determination of each country. However, security concerns about the total ban of anti-personnel landmines vary with the degree of economic development, because the cheap cost of planting landmines is more attractive to developing countries than to developed countries, which can easily find another way to replace anti-personnel landmines with other substitutes, even those which require high cost. Nevertheless, little research based on quantitative methods has been conducted to measure the joint effects of security concerns and economic development on the APM Convention.

Prior to March 1, 1999, although 136 countries had signed and 65 had ratified the APM Convention, more than 50 countries had not joined it. [3] These non-signatory countries include not only major states such as the U.S., Russia, and China but also small states in different global regions such as Armenia, Myanmar, and Somalia. Without the participation of non-signatory countries, the APM Convention may lose significance and effectiveness in the near future, because non-signatory countries account for a large part

[2] American Society of International Law. 1997. "Convention on the Prohibition of the Use, Stockpiling, Production and Transfer of Anti-Personnel Mines and on their Destruction." *International Legal Materials* 36 (6):1507-19.

[3] *SIPRI Yearbook 2000* (p.608) shows that 133 states had signed and 65 had ratified the APM Convention prior to March 1, 1999. Unfortunately, this book does not include the date of signatory and ratification. Instead, the data from *Landmine Monitor Report 2000* conducted by the International Campaign to Ban Landmines (ICBL) present not only the date of signatory and ratification but also the list of signatory and non-signatory countries. For this reason, this research is based on *Landmine Monitor Report 2000*. Prior to March 1, 1999, 56 countries fall into non-signatory states. International Campaign to Ban Landmines. 2000. *Landmine Monitor Report 2000: Toward a Mine-Free World.* New York, NY: Human Rights Watch.

of landmine production and deployment.[4] Therefore, the ultimate success of the APM Convention depends not only on the implementation of signatory countries but also on the mobilization of non-signatory countries. In this context, examining the diverse motivations of each country makes it possible for policymakers to take subsequent steps, which can supplement the current weaknesses of the APM Convention, for the mobilization of non-signatory countries.

In the first part of this paper, I argue, by analyzing previous studies on the APM Convention, that political decision-making at the state level should be examined to supplement current insufficient explanations and generalizations by including both signatory and non-signatory countries. The second section is devoted to measuring various interests of each country involving the APM Convention and classifying security concerns into self-defensive, border, regime, and extraterritorial security concerns, which are closely related to the use of anti-personnel landmines. I contend that the joint effects of security concerns and economic development are more appropriate to explain the diverse behaviors of various countries, because security concerns regarding the APM Convention interact with economic development, and vice versa. In the third part, I test a geo-security interactive model and argue that self-defensive, border, and extraterritorial security concerns impede countries from joining the APM Convention. These effects of security however vary across countries on the basis of their economic development, GDP Per Capita. Developing countries, compared to developed countries, focus more on self-defensive and border security. On the other hand, economic interests and human rights

[4] *SIPRI Yearbook 2000* (p.608) presents that more than 250 million landmines are stockpiled by at least 104 countries around the world. Surprisingly, those non-signatory countries account for more than 225 million landmines.

concerns are neither a necessary nor sufficient condition for the total ban of anti-personnel landmines.

Finally, I suggest that bilateral treaties between antagonistic states should follow the APM Convention to reduce self-defensive and border security concerns for the purpose of regional stability. In practice, this suggestion helps policymakers take further steps in order to develop conventional arms control in the long run and allows non-signatory countries to commit themselves to the APM Convention in the short run. These subsequent steps can in deed make the APM Convention a triumph of human rights over international political economy.

CHAPTER 2

INDISCRIMINATE NATURE OF ANTI-PERSONNEL LANDMINES AND HUMAN RIGHTS

As Article 2 of the APM Convention provides, anti-personnel landmines are mines designed to be exploded by the presence, proximity, or contact of a person, and that will incapacitate, injure, or kill one or more persons. In light of military strategy, these landmines were introduced to delay the advance of the enemy by impairing his morale, destroying his personnel and transport, or interrupting his communication after the evacuated terrain has fallen into his hand (McGrath, 2000). Historically, anti-personnel landmines were invented during the First World War and served the purpose of protecting anti-tank mines, which were easily found and removed by opposition forces. Due to their effectiveness states attributed a high value to anti-personnel landmines and thus their usage has been expanded beyond the original purpose. Since the Second World War the number and types of anti-personnel landmines have dramatically increased in response to the various demands of military strategy.[5] Today, 110 million anti-personnel mines are buried in at least 70 countries and more than 250 million landmines are stockpiled in at least 104 countries (Schubert and Kuznetsov, 2002).

Compared to other conventional weapons anti-personnel landmines have two distinctive characteristics. First, in terms of military strategy, they are more effective for

[5] Over 100 companies and government agencies in 52 countries have manufactured more than 344 types of anti-personnel landmines. Vines, Alex. 1998. "The Crisis of Anti-Personnel Mines." In *To Walk without Fear: The Global Movement to Ban Landmines*, ed. Maxwell A. Cameron, Robert J. Lawson, and Brian W. Tomlin. Don Mills: Oxford University Press. p.120.

defenders than for offenders. This can be attributed to the fact that the methods of countering anti-personnel landmines are strikingly primitive and never perfectly satisfactory while landmines become more sophisticated and undetectable (Croll, 1998). Despite the invention of various labor-saving devices, many modern landmines, especially those made of plastic still force people to remove them by hand (Keating, 1993).[6] The undectability of anti-personnel landmines impairs not only personnel and equipment but also enemy's morale. Since demining is time-consuming work and delays enemy advances, anti-personnel landmines are considered an effective defensive counter-measure.

Another characteristic of landmines is that they are very cost efficient. Specifically, an anti-personnel landmine costs as little as three dollars while it imposes tremendous burdens on enemy forces by maiming combatants rather than by killing them. Wounded soldiers require the immediate attention of their colleagues, rapid evacuation, and medical treatment. These processes not only hinder the advancement of opposite forces but also cause heavy economic burdens and impair enemies' morale. Therefore, landmines are very popular and widespread around the world, especially in developing countries, because they provide states with a relatively low cost national security option. For this reason, landmines have been referred to as the poor man's weapon (Sloan, 1986).

Contrary to their effectiveness and efficiency in terms of military strategy, two distinctive features of anti-personnel landmines cause numerous side effects on civilians.

[6] According to Schubert and Kuznetsov (2002), anti-personnel landmines are individually detected by prodding, metal detectors, or sniffer dogs. Although metal detectors work well, they cannot find many modern mines made of plastic. Furthermore, because of metal fragments buried in soils, the high number of false alarms makes metal detectors inefficient. For one detected mine, the false alarm rate varied between 100 and 1,000. Keating (1993) shows that in difficult terrain, checking every inch of the ground with prodders, even the best-trained teams could take many weeks to clear an area the size of a tennis court.

One is that they are indiscriminate and victim-triggered. That is, once anti-personnel landmines are buried in the ground, they explode whenever people step on them, regardless of the fact that those people are friend, civilian, or child. Even worse, since nobody knows exactly where they are located, landmines kill or maim about 26,000 people every year and most landmine victims are civilians, especially children (Cameron et al., 1998).

The other negative characteristic of landmines is their durability. Even if anti-personnel landmines were planted a long time ago, for example during the Vietnam War, many of them are still active and will detonate if disturbed.[7] The negative effect of anti-personnel landmines to socioeconomic lives continues indefinitely after a war ends (Gruhn, 1997; Croll, 1998; Rupiya, 1998; McGrath, 2000). Many countries are suffering high human casualties and material losses from anti-personnel landmines after the end of hostilities (Rupiya, 1998). Even worse, rural populations are forced to flee from their hometowns and find safe places even when there is no armed conflict in their own region (Weiner, 1996). The high costs of clearing landmines impede the socio-economic reconstruction in developing countries after the end of a war (Croll, 1998).

In sum, despite the usefulness in war, the indiscriminate nature and durability of anti-personnel landmines have provoked human rights concerns throughout the world. The misery and suffering of victims have caught the attention of Western media and have mobilized many individuals, international organizations, and NGOs to participate in the

[7] The shelf-life is often stated as a minimum of 10 years and can be as much as 20 years. Historically, in the Falklands War, Argentina used landmines, which were manufactured in the late Second World War. Sloan, C.E.E. 1986. *Mine Warfare on Land*. London: Brassey's Defense Publishers. p.50.

movement for banning anti-personnel landmines.[8] Finally, the APM Convention, which not only prohibits the use and production of anti-personnel landmines but also mandates the destruction of them, entered into force on March 1, 1999. This APM Convention has drawn the attention of international relations researchers because it is the first achievement at globally banning a widely used conventional weapon (English, 1998; Thakur and Maley, 1999).

Although there are controversial debates on the nature of the APM Convention, broadly speaking, this APM Convention is a form of conventional arms control in that it prohibits specific weapons. Traditionally, states have participated in conventional arms control agreements in order to enhance stability or to reduce military expenditure (Dudzinsky and Digby, 1977; Oelrich, 1990; Sadowski, 1992). The multilateral reduction of offensive capabilities plays a useful role in mitigating tension and alleviating the danger of arms racing or war (Borg, 1992; Dean and Forsberg, 1992). However, strictly speaking, the APM Convention is closer to international humanitarian law (Thakur and Maley, 1999). It is due to the fact that the APM Convention is based on human rights concerns in order to protect human dignity rather than on security concerns in order to enhance stability.

For this reason, previous studies on the unprecedented landmine case approach the topic in one of two ways: the role of human rights groups (Gruhn, 1997; Williams and Goose, 1998; Warkentin and Mingst, 2000); the development of international humanitarian law (Dennis, 1998; Thakur and Maley, 1999; Meron, 2000). Theoretically,

[8] It was Afghanistan in the mid-1980s that first drew the attention of the world to the problem of landmines (McGrath, 2000). At an individual level, Princess Diana played a significant role in bringing the misery of victims to public attention. During her visit to Angola in 1997, the powerful pictures of Diana with limbless children had a great impact on human rights concerns around the world. New Statesman. 1999. "Mourning: It's a Minefield." *New Statesmen* 128 (4451): p.4.

both approaches are based on the premise of neo-liberalism. That is, even under anarchy, states can work together like a repeated game of the Prisoner's Dilemma (Rosenau, 1992). The development of transportation, communication, and information has made countries around the world interdependent with one another. Under these circumstances, states can no longer be dominant actors in world politics (Peterson, 1992). Instead, international institutions and international regimes can play a significant role in reducing the uncertainty that impedes international cooperation (Haas, 1958; Mitrany, 1966; Nye, 1971; Bull, 1977; Keohane and Nye, 2001).[9] For these reasons, security concerns cannot prevail in international relations as a main agenda, and military force proves a less useful tool in foreign affairs (Gartzke et al., 2001). Instead, economic incentives shape foreign policies (Abdelal and Kirshner, 1999/2000), and diverse issues such as environmental problems and human rights concerns, which were not highlighted in power politics in the past, emerge as a global agenda (Vogelsesang, 1979; Sikkink, 1998).

In particular, increasing interaction among transnational actors across national borders challenges the traditional state-centric system, and makes the world a global civil society based on common interests and values in which states conceive themselves to be bound by a common set of rules (Brown, 1995;Keck and Sikkink, 1998; Price, 1998; Turner, 1998). [10] A well-developed civil society has the potential of influencing state

[9] International regimes are sets of implicit or explicit principles, norms, rules, and decision-making procedures around which actor's expectations converge in a given area of international relations. Young, O.R. 1986. "International Regimes: Toward a New Theory of Institutions." *World Politics* 39 (1): 104-22.

[10] A global civil society refers to a set of interactions among an imagined community to shape collective life that is not confined to the territorial and institutional spaces of states. Lipschutz, Ronnie D. 1996. *Global Civil Society and Global Environmental Governance,* Albany: State University of New York Press. p.209. A civil society is a complex network of economic, social, and cultural practices based on friendship, family, the market, and voluntary affiliation. Wapner, Paul. 1995. "Politics beyond the State: Environmental Activism and World Civic Politics." *World Politics* 47 (3): p.312. While researchers have used various terms to define a global civil society, the principle idea is almost similar: Wapner (1995) employed world civil politics to focus on activist society-oriented activities; Price (1998) used a

governments in two ways. First, it enhances political responsiveness by aggregating and expressing the wishes of the public through a wealth of non-governmental forms of association. Second, it safeguards public freedom by limiting the government's ability to impose arbitrary rule by force (Ghils, 1992; Clark et al., 1998). In a global civil society, NGOs emerge as prime actors on a broad range of global issues, framing agendas, mobilizing constituencies, and monitoring compliance (Spiro, 1994; Wapner, 1995; Raustiala, 1997; Warkentin and Mingst, 2000).[11] Therefore, a global civil society is widely characterized by voluntary cooperation and non-violent political action (Turner, 1998).

In this context, NGOs promote the creation and maintenance of an international public consensus on principles of human rights that tends to impel responsive states to adhere to new legal and behavioral norms of practice (Clark, 1995). Their aims are not only to stop states from abusing human rights, but also to secure the compliance of states in enforcing international standards of human rights (Turner, 1998). NGOs have been entirely successful in generating an issue that has become prominent on the international agenda of states in a short time, and that touches the very core of national security policy (Price, 1998). As a result, human rights policies and practices are contributing to a gradual, significant, and probably irreversible transformation of sovereignty in the modern world (Sikkink, 1993).

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transnational civil society because a civil society is much more uneven and issue-specific than an international society. Price, Richard. 1998. "Reversing the Gun Sights: Transnational Civil Society Targets Land Mines." *International Organization* 52 (3): p.615.

[11] The Union of International Associations recognizes some 14,500 international NGOs, of which more than 5,000 have membership structures. Spiro, Peter J. 1994. "New Global Communities: Non-Governmental Organizations in International Decision-Making Institutions." *The Washington Quarterly* 18 (1): p.48.

Based upon these perspectives, Gruhn (1997) insists that the work and activism of human rights groups are the main impetus for the APM Convention. In particular, NGOs play a pivotal role as effectual actors in their own rights capable of acting independently of international institutions and states (Rutherford, 2000; Warkentin and Mingst, 2000). More attention has focused on the astonishing success of the "International Campaign Ban Land Mines" (ICB) in bring this issue to the forefront of international politics.[12] In addition, the World Wide Web, Internet, has created a new international political environment that allows NGOs and individuals to communicate across the globe quickly and inexpensively (Isaac, 1998; Price, 1998; Warkentin and Mingst, 2000). The landmine process, therefore, reveals a new texture in the international system where negotiation tables have new players and shapes, where linkage and networks transcend state limits, and even perhaps, where moral sensibilities have a voice (English, 1998).

However, first, those previous studies stressing human rights groups have paid little attention to the political decision-making at the state level, despite the fact that states with their authoritative power are the principal violators of human rights and at the same time, the principal actors directly governed by the regime's norms (Donnelly, 1986). The principle of equal concern and respect requires the government to intervene to reduce social and economic inequalities (Howard and Donnelly, 1986). Second, since the basic

[12] In October 1992, the International Campaign to Ban Landmines (ICBL) was created by Handicap International, Human Rights Watch, Medico International, Mines Advisory Group, Physicians for Human Rights, and Vietnam Veterans of American Foundation. In 1993, the Campaign Steering Committee formalized and up to 1997, Afghan Campaign to Ban Landmines, Cambodia Campaign to Ban Landmines, Kenyan Coalition against Landmines, Rädda Barnen, and South African Campaign to Ban Landmines had joined. In 1998, the Coordination Committee replaced the Campaign Steering Committee and Association to Aid Refugees, Japan, Colombian Campaign against Landmines, Inter-African Union of Human Rights, Landmine Survivors Network, Lutheran World Federation, and Norwegian People's Aid had joined. In 1997, the Novel Peace Prize was awarded to ICBL and its coordinator, Jody Williams. Today, ICBL represents over 1,100 NGOs in over 60 countries. Williams, Jody, and Stephen Goose. 1998. "The International Campaign to Ban Landmines." In *To Walk Without Fear: The Global Movement to Ban Landmines*, ed. Maxwell A. Cameroon, Robert J. Lawson, and Brian W. Tomlin. Don Mills: Oxford University Press. Pp. 20-47.

framework of their research has been based on the general notion of human rights, there is uncertainty as to what concept of human rights such as political rights, civil liberties, and social and economic rights is closely related to the APM Convention. Third, those prior works fail to examine various interests of each country in more detail, which are linked to the total ban of anti-personnel landmines, while they emphasize that diverse interests shape foreign policies under interdependence. According to Clark et al. (1998), when NGOs seek to engage states, most states seem to respond by calculating their interests rather than by cultivating a relationship with NGOs. By the same token, Luard (1980) contends that any government that seeks to commit itself to a human rights policy is bound to find itself faced by difficult choices and to encounter serious constraints which appear to limit its freedom of action. Finally, those previous studies cannot effectively explain why many countries still remain uncommitted to the APM Convention. Without considering non-signatory countries, the generalization of human rights concerns is called into question. That is, no one can allege on the basis of the prior works that non-signatory countries are less concerned about human rights issues or that the NGOs of those non-signatory countries are less influential in shaping foreign policies.

Other previous studies on the APM Convention are based on the development of international humanitarian law.[13] Historically, the principle of reciprocity served as the main impetus for the formation of the law of war in order to diminish unjustified wars

[13] International humanitarian law -- also called the law of armed conflict or the law of war -- is a special branch of law governing situations of armed conflict. International humanitarian law seeks to mitigate the effects of war, first in that it limits the choice of means and methods of conducting military operations, and secondly in that it obliges the belligerents to spare persons who do not or no longer participate in hostile actions. Gasser, Hans-Peter. 1993. *International Humanitarian Law.* Geneva: Henry Dunant Institute and Haupt. p.3. Prokosch, Eric. 1995. *The Technology of Killing: A Military and Political History of Antipersonnel Weapons.* London: Zed Books Ltd. p.171. Maresca, Louis, and Stuart Maslen. 2000. *The Banning of Anti-Personnel Landmines: The Legal Contribution of the International Committee of the Red Cross.* Cambridge: Cambridge University Press. p.7.

(Meron, 2000). With the International Red Cross and Red Crescent Movement, international humanitarian law originated in 1864 with the Convention for the Amelioration of the Condition of the Wounded in Armies in the field. The law states that army medical units on the battlefield should not be attacked or hindered when providing aid to the wounded and dead. This is the first known attempt at bringing humanitarian activities under a multilateral framework (Gasser, 1993). Subsequently, the Convention on the Laws and Customs of War on Land (the Hague Convention) in 1907 followed to determine the rights for the prisoners of war. The Convention on the Protection of Civilian in Time of War (the Geneva Convention) in 1949 was finally introduced to protect those who take no active part in the hostilities in wartime such as women, children, and old men.

Basically, international humanitarian law is based on three principles to protect human dignity in wartime. First, the right of the parties to a conflict to adopt means of injuring the enemy is not unlimited. Second, it is forbidden to use weapons which cause superfluous injury or unnecessary suffering – proportionality. Finally, in the conduct of hostilities, parties to a conflict must always distinguish between civilians and combatants – discrimination (Maresca and Maslen, 2000). From these perspectives, the APM Convention has been examined by the normative developments and the elaboration of new standards in terms of international humanitarian law (Matheson, 1997; Dennis, 1998; Thakur and Maley, 1999). Recently, Meron (2000) argues that human rights law has greatly influenced the evolution of humanitarian law.[14]

[14] Unlike international humanitarian laws, which constrain inhumane treatments in wartime, human rights laws protect physical integrity and human dignity in all circumstances. Meron, Theodor. 2000. "The Humanization of Humanitarian Law." *American Journal of International Law* 94 (2): p.240.

However, first, those previous studies based on legalism have left little room for politics. They have not yet taken into account the political decision-making of each country in the process of international humanitarian law. Instead, a legal mechanism has been highlighted to explain how international humanitarian laws have evolved and in this context, why the use of anti-personnel landmines is against the law of war. Second, since they have paid more attention to the interpretation and applicability of international humanitarian laws, it is uncertain why regimes arise in a particular issue-area. It is obvious that like anti-personnel landmines, nuclear weapons should have been prohibited on the basis of international humanitarian law because these weapons seriously violate the nature of both proportionality and discrimination. Finally, regarding the APM Convention, the previous works focusing on the law of war have not elucidated why anti-personnel landmines are totally prohibited not only in wartime but also in peacetime, while international humanitarian laws have been introduced to constrain the behaviors of states in wars.

In sum, as discussed above, both schools concerning the APM Convention have not yet examined the political decision-making at the state level. Obviously, the APM Convention does not simply reflect the human rights concerns of each country. But rather there are various motivations in accordance with the security concerns and economic interests of each country because this agreement prohibits each state party from using, producing, and transferring anti-personnel landmines to anyone, and it also mandates the destruction of all anti-personnel landmines. Furthermore, since human rights issues have a direct impact on the sovereignty of states, without examining the political interactions

at the state level, it is, therefore, too early to interpret the emergence of the APM Convention as a triumph of human rights concerns over international political economy.

Unlike the neo-liberal perspectives noted earlier, states continue to dominate the procedures and the substance of interaction on key sovereignty-related issues, since the construction of a global society is under way but is far from being completed, (Clark et al., 1998). That is, the unattainability of world community has always rests upon the ultimate unwillingness of states to surrender sovereignty (Brown, 1995). According to realism, in all political life, power and security are primary concerns in human motivation (Gilpin, 1984). Traditionally, realism has succinctly described world politics as an international anarchy because there is no world government that can effectively control the behaviors of each state. Under these circumstances, self-help dominates international relations (Waltz, 1959; Aron, 1973; Hoffmann, 1973; Waltz, 1979), and the lust for power of each state is a basic motivation in world politics (Carr, 1964; Morganthau, 1985) because like a one-shot game of the Prisoner's Dilemma, defection rather than cooperation would be a dominant strategy of each country even under common interest (Hoffmann, 1973; Waltz, 1979). Therefore, international institutions have minimal influence on the behaviors of each state and hold little promise for promoting stability (Mearshmeimer, 1995). Instead, stability is accomplished by a balance of power, while the discrepancy of power between states tends to increase conflict (Mesquita, 1981; Morgenthau 1985).

Although the notion of power is subject to controversial debate, traditionally, the combination of demographic, military, and industrial capabilities account for state power. Gaps in these capabilities coupled with a high degree of threat perception cause states to

feel highly concerned for their security and ultimate survival (Singer, 1972; Cusack, 1985; Bennett, 1996). Based upon these arguments, it is clear that China views the issue of anti-personnel landmines from a security rather than humanitarian perspective. One could argue that China needs landmines for defending its territory against foreign military interference and invasion until a better substitute is available (Wandi, 1998). China's use of anti-personnel landmines on its own soil should not be an issue covered by an international treaty (Yuan, 1998).

However, even though anti-personnel landmines are widespread and effective weapons to defend countries against external threats, these weapons account for a small part of military capabilities. It is, therefore, hardly expected that anti-personnel landmines represent the security concerns or military capabilities of each country as a whole. Nevertheless, the previous works based on realism has been little devoted to classifying the general notion of security into specific security concerns that are closely related to the use of anti-personnel landmines in order to avoid the overestimation of security concerns. Moreover, since security concerns link to industrial capabilities, it is easier to understand that security concerns vary with economic development. Nonetheless, those previous studies have in large part focused on the independent effect of security on the APM Convention rather than the joint effects of security and economic development.

In short, previous studies based on neo-liberalism have paid little attention to the political decision-making at the state level, and they have not examined the various interests of each country with respect to the total ban of anti-personnel landmines. Therefore, it is too early to generalize that human rights concerns are the main impetus for the APM Convention. As discussed earlier, various security concerns and economic

interests are closely related to the determination of each country for the APM Convention. However, the general notion of security posed by realism cannot be directly applied to the landmine case because of the overestimation of security concerns. In particular, since security concerns vary with economic capabilities, the joint effects of security concerns and economic development on the APM Convention are more appropriate to understand the diverse behaviors of each country in international relations as a whole. For these reasons, in an attempt to supplement the weaknesses of both realism and neo-liberalism, this research focuses on four kinds of specific security concerns. This is done to measure the joint effects of security concerns and economic development of both signatory and non-signatory countries in order to explain the diverse motivations of various countries regarding the total ban of anti-personnel landmines.

CHAPTER 3

A GEO-SECURITY INTERACTIVE MODEL OF THE APM CONVENTION

Studies of the military utility of anti-personnel landmines, which were conducted by the Institute for Defense Analyses (IDA) in 1994 and the International Committee of the Red Cross (ICRC) in 1995, reveal that landmines are useful in static defense situations and in protecting extensive national borders from infiltration or attack in wars, [15] while most conventional weapons are used for both defense and offense (Gard, 1998). Anti-personnel landmines are also effective and popular for both governments and rebels in civil wars to hold specific territory with a few costs. For these reasons, it is more likely to expect that anti-personnel landmines are used for the control of national borders in interstate wars, or for the control of specific boundaries in intrastate wars in line with defensive strategies. Furthermore, since many countries have sent their troops abroad to participate in peacekeeping operations or to support their allies, not only the homeland but also the host countries' security might have an impact on the perspectives toward the APM Convention. Therefore, the general notion of security is classified into four specific

[15] The office of the U.S. Secretary of Defense commissioned IDA to conduct a study of the military utility of anti-personnel landmines in 1994. The study concluded that anti-personnel landmines were judged to be useful in static defensive situations with marginal utility; on the other hand, the use of landmines in offensive operations would probably yield a negative net military utility for U.S. Forces. Institute for Defense Analyses. 1994. *"The Military Utility of Landmines: Implications for Arms Control."* ICRC also analyzed the military use and effectiveness of anti-personnel landmines in 26 conflicts between 1940 and 1995. The study reached a conclusion that no case was found in which the use of anti-personnel landmines played a major role on the outcome of a conflict. However, these weapons had a marginal tactical value in protecting extensive national borders from infiltration or attack. International Committee of the Red Cross. 1996. *"Anti-Personnel Landmines: Friend or Foe? A Study of the Military Use and Effectiveness of Anti-Personnel Mines.*

kinds of security that are closely related to the use of anti-personnel landmines: self-defensive, border, regime, and extraterritorial security concerns.

In addition, since the APM Convention prohibits the production of landmines and also mandates the destruction of them, two distinctive economic interests are categorized: one is the economic benefit from exporting anti-personnel landmines; the other is the economic burden for finding and removing landmines. According to Vines (1998), over 100 companies and government agencies in 52 countries manufacture more than 344 types of anti-personnel landmines. Although the production and transfer of landmines accounts for only a small part of arms exports, it is still lucrative to some cash-hungry countries because the simplicity of many anti-personnel landmines makes them easy to export (Keating, 1993).[16]

Contrary to the relative cheap cost of planting a mine, it is estimated that clearing an anti-personnel landmine costs at least 1,000 dollars.[17] Surprisingly, on the basis of the present removal rate, it would take 4,300 years to eradicate all landmines, which are buried around the world.[18] Therefore, these economic burdens for demining would discourage states, especially developing countries from committing themselves to the APM Convention because states are unwilling to invest in removing landmines at the expense of their economic growth. For this reason, it is more likely that the determination

[16] According to *Landmine Monitor Report 2001* (p.8), forty-one nations have ceased production of anti-personnel mines; on the other hand, fourteen countries still produce them.
[17] New Statesman. 1999. "Mourning: It's a Minefield." *New Statesmen* 128 (4451): p.4. According to Keating (1993), clearing one mine in Afghanistan is estimated at 2,000 dollars. Gruhn (1997) expects that the cost of removing an anti-personnel landmine is 1,200 dollars.
[18] According to a 1994 UN report, if such landmines are immediately banned and all nations commit themselves to their eradication, over 33 billion dollars and over one thousand years is at least required to remove all existing mines. See the article. Isaac, Jeffrey C. 1998. "Reclaiming the Wasteland: Thinking About Land Mines and Their Eradication." *Dissent* 45 (4): p.72.

of each country for the total ban of anti-personnel landmines would be positively correlated with economic development.

However, those security concerns -- self-defensive, border, regime, and extraterritorial security concerns -- and economic development are not independent but interdependent of each other. Since military expenditure diverts economic resources away from civilian sectors to military fields (Brzoska, 1981), the economic growth of states is influenced by the amount of the national budget spent on military expenditure (Yildirim and Sezgin, 2002). Conversely, for this reason, even if countries feel high security concerns against external threats, their military expenditures cannot be unlimited. But rather defense spending is constrained by national budgets. Therefore, military expenditure strategies depend on the economic development of each country as well as its evaluation of the threat. This means that the relationship between security concerns and economic development is interdependent rather than independent. That is, security concerns influence the economic development of each country by diverting resources for economic growth to military fields and economic development has an impact on national security by constraining defense spending in terms of the absolute and relative value of military expenditure.

In particular, in the landmine case, it is more likely that the cheap cost of planting anti-personnel landmines makes the relationship between security concerns and economic development for the APM Convention more distinctive. It is because developed countries compared with developing countries can easily find another way to replace anti-personnel landmines with other substitutes, even those which require high cost. For this reason, even if countries have the same level of security concerns, their determination of the

APM Convention would vary with the degree of their economic development. By the same token, even if countries have the same degree of economic development, their perspectives toward the APM Convention differ on the basis of their security concerns. As a result, those four specific security concerns interact with economic development, and vice versa.

In sum, a geo-security interactive model is developed to test the diverse motivations of various countries for the APM Convention as follows:

Y (the Anti-Personnel Mine Convention) = b_0 + b_1 Self-Defensive Security + b_2 Border Security + b_3 Regime Security + b_4 Extraterritorial Security + b_5 Deterrence + b_6 Economic Development + b_7 Interdependence + b_8 Arms Export + b_9 Human Rights + b_{10} (Self-Defensive Security × Economic Development) + b_{11} (Border Security × Economic Development) + b_{12} (Regime Security × Economic Development) + b_{13} (Extraterritorial Security × Economic Development)

Methodologically, as discussed above, first, since the relationship between security concerns and economic development is interdependent, a multiplicative model rather than an additive one is applied to measure the joint effects of security concerns and economic development on the APM Convention. Second, the geo-security interactive model is based on a logit model rather than a linear probability model because the dependent variable is a binary variable. If a linear regression model is used to the analysis of binary outcomes, estimators in a linear probability model are biased because errors are not normally distributed and are heteroscedastic (Aldrich and Nelson, 1984; Long, 1997). Third, the Amelia program is applied to impute missing data while the data for 193 countries are taken from *Landmine Monitor 2000*.[19] This multiple imputation is a

[19] The Amelia program is based on multiple imputation for missing data. This program is much faster and far easier to use than existing multiple imputation methods, and it allows the usage of about 50% more information than is currently possible. King Gary, James Honaker, Anne Joseph, and Kenneth Scheve. 2001. "Analyzing Incomplete Political Science Data: An Alternative Algorithm for Multiple Imputation." *American Political Science Review* 95 (1): 49-69.

superior approach to the problem of missing data which are not randomly distributed, while listwise deletion discards many valuable cases (Tanner, 1996; Kmenta, 1997; King et al., 2001; Little and Rubin, 2002). Finally, the Clarify program is useded to combine the datasets,[20] which are obtained by the Amelia program, in order to estimate coefficients and a variance-covariance matrix (King et al., 2000).

Dependent Variable

In an attempt to measure each country's commitment, I determine whether or not a country has signed the APM Convention prior to March 1, 1999 rather than using the date of ratification as a measure of the dependent variable. In terms of international law, since Article 16 of the APM Convention provides that this Convention is subject to ratification, acceptance, or approval of the signatories, the act of signing does not constitute an expression of a state's consent to be bound by the terms of the Convention. However, the act of signing arguably creates an obligation of good faith to refrain from acts which would defeat the object and purpose of a treaty, which obligation continues until a party has ratified a treaty or has made clear its intention not to become a party to that treaty.[21] For this reason, the act of signing is an appropriate indicator that effectively reflects a country's perspective toward the APM Convention, and that is influenced by the political decision-making of a country in light of international relations. For the dependent variable, as a binary variable, 1 was coded if a country had committed itself to the APM

[20] The Clarify program simulates quantities of interest for the most commonly used statistical models, including linear regression, binary logit, binary probit, ordered logit, ordered probit, multinomial logit, Poission regression, negative binomial regression, weibull regression, seemingly unrelated regression equation, and the additive logistic model for compositional data. King, Gary, Michael Tomz, and Jason Wittenberg. 2000. "Making the Most of Statistical Analyses: Improving Interpretation and Presentation." *American Journal of Political Science* 44 (2): 347-61.

[21] International Campaign to Ban Landmines. 1999. *"Landmine Monitor Report 1999."* New York, NY: Human Rights Watch. p.1038.

Convention prior to March 1, 1999; 0 was coded, otherwise.[22] The data from 193 countries were taken from *Landmine Monitor 2000*.

Self-Defensive Security

Self-defense is the ability of a country to protect itself without others' help. Although countries make military alliances to enhance their total capabilities, the concern about whether or not allies honor their commitments makes countries build their own military capabilities for national defense.[23] For this reason, regardless of participation in military alliances, countries invest in defense budgets to manage, train, and procure military personnel and equipment in order to assure their national security by themselves.

Basically, since military spending varies with the evaluation of threats and economic ability of each country (Majeski, 1983), the absolute value of military expenditure is not a good estimator that can perfectly compare a country's security concerns with other's (Cusack, 1985). That is, even if two countries have the same level of security concerns, their military expenditures are different on the basis of their economic development. On the other hand, the percentage of GDP devoted to military expenditure is a good estimator to measure a country's relative security concerns (Sample, 1998). Specifically, the increase of military expenditure enhances military strength but at the same time, it decreases economic resources that are needed for other civilian sectors (Brzoska, 1981). Under these circumstances, as rational actors, states try to maximize the

[22] *Landmine Monitor Report 2000* does not show the date of signing for Equatorial Guinea and Macedonia, but it provides the date of ratification: September 16, 1998 and September 9, 1998, respectively. Since the signing act preceded ratification, 1 was coded for the two countries on the basis of the date of ratification.
[23] During the period 1815-1945, among 1744 wars, 5 percent of the actions were accounted for by nations on the more numerous side aiding one another militarily, 4 percent by nations on the other side, with 91 percent of the war performance opportunities taken up by nonparticipation or military neutrality. Singer J. David, and Melvin Small. 1966. "Formal Alliances, 1815-1939: A Quantitative Description." *Journal of Peace Research* 3 (1):1-32.

utility of government spending within budget constraints so that the allocation of national budgets reaches the state of Pareto optimality[24] In this context, how much military expenditure accounts for GDP is an appropriate indicator to measure the relative security concerns of each country. That is, it is expected that countries with a high proportion of military expenditure as a GDP are much more concerned about their self-defensive security.

In the case of the APM Convention, since landmines are used far more defensively against enemies rather than offensively, self-defensive security concerns might be closely related to the determination of each country. For the self-defensive security variable, the percentage of GDP devoted to military expenditure was coded. The data on GDP and military expenditure based on U.S. million dollars were taken from *The Military Balance 1998/99* conducted by the International Institute for Strategic Studies (IISS).[25]

Hypothesis 1: Countries with high self-defensive security concerns are less likely to commit themselves to the APM Convention.

Border Security

Border security means territoriality which is the activity of defending and controlling political boundaries (Cox, 2002). Traditionally, it is widely recognized that the primary goal of states is to protect their people and territories against external threats. Historically,

[24] Pareto optimality means that no individual could be made better off without someone else being made worse off. Pareto, V. 1935. *The Mind and Society*. New York: Harcourt Brace.

[25] *The Military Balance* is updated each year to provide an accurate assessment of the military forces and defense expenditures of 169 countries. The IISS follows the NATO definition of military spending that regards military expenditure as the cash outlays of central or federal government to meet the costs of national armed forces. NATO defense expenditures are reported in four categories: Operating Costs; Procurement and Construction; Research and Development; and Other Expenditure.

many wars broke out between neighboring countries and territory issues frequently accounted for the cause of wars (Mesquita, 1981; Vasquez, 1995). For this reason, neighbor status is correlated with national security concerns.[26] The existence of antagonistic states as neighbors forces countries to control their national borders more tightly and to invest a large amount of military expenditure in defending their borders.

In this context, first, the experience of war with neighboring states causes uncertainty that makes countries perceive high border security concerns. Second, the significant discrepancy of political ideology between neighboring states increases border security concerns. For example, as in the Cold War era, democratic countries are more likely to feel high border security concerns from the existence of communist countries as neighbors, and vice versa. Finally, the existence of a rivalry -- two countries' diplomatic relationships have frequently been in conflict -- as a neighbor also provokes high border security concerns, [27] even if two countries have not had a war or they have similar political ideologies.

According to Wayman and Jones (1991), an enduring rivalry has three conditions as follows. First, two states engage in at least five militarized disputes that last more than thirty days. Second, the time difference between the outbreak of the first dispute and the termination of the last dispute should exceed twenty-five years. Third, if the gap between

[26] Previous studies have focused more on geographical proximity between states to explain the causes of wars. Diehl, Paul F. 1985. "Contiguity and Military Escalation in Major Power Rivalries, 1816-1980." *The Journal of Politics* 47 (4): 1203-11. Gleditsch, Nils Petter. 1995. "Geography, Democracy, and Peace." *International Interactions* 20 (4): 297-323. However, security concerns are more likely to be related to the dyad relationship between countries rather than the geographical distance between them.

[27] Bennett (1996) defines an interstate rivalry as a dyad in which two states disagree over the resolution of some issue(s) between them for an extended period of time, leading them to commit substantial resources (military, economic, or diplomatic) toward opposing each other, and in which relatively frequent diplomatic or military challenges to the disputed status quo are made by one or both of the states. Bennet, D. Scott. 1996. "Security, Bargaining, and the End of Interstate Rivalry." *International Studies Quarterly* 40 (2): 157-83.

any two militarized disputes exceeds ten years, enduring rivalry continues only if the territorial issues do not settle down and there is at least one militarized dispute within a period of twenty-five years.

Since anti-personnel landmines are very effective in defending vast national borders against external threats with a few costs, border security concerns might be closely related to the determination of each country for the APM Convention. To measure border security concerns, the length of national borders was added if a country borders other countries 1) in which they had an interstate war after the Second World War, 2) in which one of them has a communist government and the other has a democratic government, or 3) in which they have a rivalry.[28] To avoid double counts, even if two neighboring countries satisfy three conditions above at a time, the length of borders was added only one time. The data on the length of borders and political ideology were taken from *CIA World Factbook 1997/98*. The data on interstate wars was obtained by the Correlate of War 2 Project (COW 2),[29] and for consistency with previous research, the data on rivalries were taken from Bennet's measure of rivalry (1996).

Hypothesis 2: Countries with high border security concerns are less likely to commit themselves to the APM Convention.

[28] One may suggest that bordering rogue states such as Iran, Iraq, Libya, and North Korea should be included to measure border security concerns. However, the lack of multilateral agreement on which states are rogues states made the geo-security interactive model exclude rogue state as an independent variable, which depends on the vagaries of U.S. national interests. Bertsch, Gary K., Richard T. Cupitt, and Takehiko Yamamoto. 1997. "Trade, Export Controls, and Non-Proliferation in the Asia-Pacific Region." *The Pacific Review* 10 (3): 407-25.

[29] The Correlates of War 2 Project originates in the Correlates of War Project founded in 1963 by J. David Singer. This COW 2 Project presents the systematic accumulation of scientific knowledge about intra-state and extra-systemic war.

Regime Security

Regime security means political stability that includes the absence of violence, governmental longevity, the absence of structural change, legitimacy, and effective decision-making (Hurwitz, 1973). During the period between 1989-1998, although a total of 108 armed conflicts occurred in 73 locations around the world, surprisingly, intrastate wars accounted for 101 armed conflicts (Wallensteen and Sollenberg, 1999).[30] That is, more than two-thirds of all armed conflicts broke out in the form of civil wars, wars of state against nation, wars of secession, and major armed uprisings to oust a government since 1945 (Holsti, 1995; Enriquez, 1999). These intrastate wars in large part occur in developing countries in Africa and Asia (Collier and Sambanis, 2002). Although there are various causes of internal armed conflicts, it is obvious that weak and/or failed states will be the areas of high incidence of both internal and interstate armed conflicts; on the other hand, regions containing large numbers of states of medium strength will be excluded from the outbreak of wars (Holsti, 1995).[31] The apparent distinction between strong and weak states lies in socio-political cohesion rather than in military strength (Buzan, 1989).

Historically, many anti-personnel landmines have been used in civil wars by both governments and rebellions in order to hold conquered territory, to defend against enemy

[30] An armed conflict is a contested incompatibility which concerns government and/or territory where the use of armed force between two parties, of which at least one is the government of a state, results in at least 25 battle-related deaths. Wallensteen, Peter, and Margareta Sollenberg. 1999. "Armed Conflict, 1989-98." *Journal of Peace Research* 36 (5): p.605.

[31] Failed states are refers to the complete or partial collapse of state authority, or ability to impose the rule of law. Therefore, failed states are usually associated with widespread crime, violent conflict, or severe humanitarian crises. King, Gary, and Langche Zeng. 2001. "Improving Forecasts of States Failure." *World Politics* 53 (4): 623-58. When one or more of the following characteristics prevail, states fail or collapse. 1) There are one or more armed mini-sovereigns within the state. 2) An external power wields effective authority or influence within the territory of the state and has the coercive capacity to resist pressures from the legal authorities. 3) Communities war against each other and the central authorities do not have the capacity to end the slaughter. 4) A state is incapable of providing minimal security for the ordinary tasks of life - commerce, transportation, agriculture, and communication - to proceed. Holsti, K.J. 1995. "War, Peace, and the State of the State." *International Political Science Review* 16 (4): 319-39.

incursion, and simply to contain resident populations (Isaac, 1998). For example, in Angola, throughout the nearly 20-year civil war, the estimates of the number of land mines range from 9 to 20 million (Gruhn, 1997). Therefore, since anti-personnel landmines are very popular and widespread in countries which are in civil wars, regime security concerns might be closely related to the determination of each country for the APM Convention because the total ban of landmines may enable unstable countries to lose their effective control with a few costs over existing or potential rebellion groups.

However, regime security concerns cannot be perfectly measured by the duration or the number of casualties in civil wars, not because the size or severity of internal armed conflicts does not matter, but because when a country experienced a war is more crucial. Suppose that two states had civil wars one year and ten years ago, respectively. In this case, even though the severity of a civil war ten years ago in a country was strong, now, the regime security concerns are more likely to be higher in a country, which just finished a civil war one year ago. Therefore, the size or severity of civil wars is not perfectly capable of representing regime security concerns because of the time difference between the outbreak of a civil war and the existence of a current regime.

In stead, the degree of regime stability is a more appropriate estimator to reflect regime security concerns. That is, regardless of regime types such as democracy or autocracy, assuring regime security is based on a higher political stability. On the other hand, the instability of a regime may escalate the high possibility of domestic turmoil. In this context, unstable countries are less likely to join the APM Convention because the total ban of landmines may leave little room for controlling opposite groups in light of military strategies. For the regime security variable, the indicator of polity durability

based on the number of years since the last regime transition or since 1900 was coded from the Polity IV Project.[32] For consistency with other security variables, the original dataset was transformed: 0 is most stable; 97 is least stable.

Hypothesis 3: Countries with high regime security concerns are less likely to commit themselves to the APM Convention.

Extraterritorial Security

Many countries have sent their troops abroad to support allies for common defense or to participate in peacekeeping operations as a member of a global community. In these circumstances, it is not unusual that countries are interested not only in their homeland security but also in the host countries' security in order to protect their troops stationed in foreign countries. However, extraterritorial security does not simply mean the host country's security, not because the security environment in the host countries does not matter but because the effect of extraterritorial security varies with the number of armed forces abroad. It is obvious that as the number of armed forces abroad increases, states are more likely to be concerned about extraterritorial security. In this context,

[32] The Polity IV project originates with Polity I project in 1975 which informed the authority characteristics of states in the world. This updated dataset annually monitors regime change and the effects of regime authority. The Polity IV study includes all independent members of the international system, as defined in the Correlates of War project, with some modifications. (1) For inclusion, states must have achieved independence by 1998 and have a population greater than 500,000 in 1998. (2) Authority characteristics are coded annually beginning in 1800, for states that were then independent (even if they were not yet members of the international system, as defined in the COW project), or from the year in which the state first gained effective autonomy (which in some cases is earlier than the year in which system membership begins). Gurr, Ted Robert. 1974. "Persistence and Change in Political Systems, 1800 – 1971." *American Political Science Review* 68 (4): 1482-1504. Gurr, Ted Robert, Keith Jaggers, and Will H. Moore. 1990. "The Transformation of the Western State: The Growth of Democracy, Autocracy, and State Power since 1800." *Studies in Comparative International Developing* 25 (1): 73-108. Jaggers, Keith, and Ted Robert Gurr. 1995. "Tracking Democracy's Third Wave with the Polity 3 Data." *Journal of Peace Research* 32 (4): 469-82. However, Gleditsch and Ward (1997) argue that the autocracy scale score is highly nonlinear, asymmetric, and intransitive; the democracy scale score is much simpler but remains (slightly) intransitive. Gleditsch, Kristian S., and Michael D. Ward. 1997. "Double Take: A Reexamination of Democracy and Autocracy in Modern Polities." *The Journal of Conflict Resolution* 41 (3): 361-83.

extraterritorial security means not only the host country's security but also its degree of involvement.

Basically, armed forces abroad are directly exposed to the danger of landmine casualties and at the same time, they have an incentive to use anti-personnel landmines in order to protect themselves against rebellions or external threats. The former is demonstrated by the fact that 42 peacekeepers were killed and 315 injured by anti-personnel landmines during the UN peacekeeping operation in the former Yugoslavia (Thakur and Maley, 1999). The latter is also proved by the U.S. case. One of the important reasons that the U.S. has not signed the APM Convention is the existence of armed forces stationed in the Republic of Korea (Wareham, 1998).[33] President Clinton said, "As commander in chief, I will not send our soldiers to defend the freedom of our people and the freedom of others, without doing everything we can to make them as secure as possible (Kitfield, 1997)."

However, 83.3 percent of total armed forces abroad account for troops that have been sent to support military alliances.[34] It is more likely that countries favor the use of anti-personnel landmines in order to protect their troops abroad against external threats. Therefore, I assume that extraterritorial security concerns are negatively correlated with the mobilization of each country to the APM Convention. For the extraterritorial security

[33] Another main reason is that the U.S. wants a treaty exemption for smart self-destructing anti-tank/anti-personnel landmines instead of the total ban of landmines. Kitfield, James. 1997. "Holding Out for Smart Land Mines." *National Journal* 29 (4): 1980-81.

[34] *The Military Balance 1998/99* reveals that in 1997, countries have sent 363,564 armed forces abroad to support their allies; on the other hand, they have dispatched 72,932 to participate in peacekeeping operations.

variable, the total number of armed forces abroad was coded from *The Military Balance 1998/99* conducted by the International Institute for Strategic Studies (IISS).[35]

Hypothesis 4: Countries with high extraterritorial security concerns are less likely to commit themselves to the APM Convention.

Human Rights

Human rights are rights that derive from the inherent dignity of the human person (Donnelly, 1982). Traditionally, human rights have been distinctively divided into political rights and civil liberties recognized by the international community (Park, 1987; Arat, 1991; Kegley and Wittkopf, 2001) while subsequent research has classified it in more detail. Park (1987) defines the concept of human rights broadly to encompass three aspects: the political rights of the First World, the social rights of the Second World, and the basic economic rights of the Third World. On the basis of the Universal Declaration of Human Rights, Donnelly (1986) categorizes human rights into personal rights, legal rights, civil liberties, subsistence rights, economic rights, social and cultural rights, and political rights. Therefore, in an attempt to minimize confusion and enhance replicability, researchers should carefully define the concept of human rights and describe the operationalizations in accordance with their studies (Poe and Tate, 1994).

According to the Universal Declaration of Human Rights, which was adopted by the UN General Assembly on December 10, 1948, political rights are described as the right to take part in government directly or through freely chosen representatives. In doing so, periodic and genuine elections by universal and equal suffrage are necessary for

[35] *The Military Balance 1998/99* shows that Turkey has sent 30 – 33,000 numbers of troops to Cyprus. In this case, the mean value, 31,500, was coded.

the equal access to public service. On the other hand, civil liberties are the right to freedom of thought, conscience, religion, opinion, and peaceful assembly and association.[36] In the case of the APM Convention, as many previous studies have argued, the rights of protection against inhumane treatment have provoked human rights concerns around the world. The freedom of opinion and peaceful assembly has been a corner stone that has enabled many NGOs and individuals to participate in the movement of the total ban of landmines. For these reasons, in this paper, human rights stand for civil liberties rather than political rights.

Until now, many previous works have relied on *the Amnesty International Report* or *the Department of State: Country Reports on Human Rights Practices* so as to measure human rights concerns. However, these data, conducted by both Amnesty International and the Department of State, have not distinguished civil liberties from political rights. Instead, they have in large part focused on the specific evaluation of human rights abuses such as torture, arbitrary detention, death penalty, the prisoners of conscience and political disappearances. Furthermore, these data are not comprehensive in their coverage: Amnesty International provides an average of 132 national profiles per year; the State Department covered an average of 151 (Poe and Tate, 1994).

By contrast, the Freedom House provides indexes for both political rights and civil liberties on the basis of annual survey data. This civil liberty index has been

[36] According to Arat (1991), political rights are the right to vote and nominate for public office and to form and join political parities. Civil rights are the right to life, security, justice, ownership, and assembly. Specifically, they mean not only the freedom from slavery, servitude, torture, inhuman punishment, arbitrary arrest, and imprisonment but also the freedom of speech, faith, opinion, and expression. Arat, Zehra F. 1991. *Democracy and Human Rights in Developing Countries*. London: Lynne Rienner Publihsers. p.3.

developed to measure institutions and personal autonomy apart from the state.[37] Moreover, the data from the Freedom House cover 192 countries in 1997. For these reasons, the data on human rights were taken from *The Annual Survey of Political Rights and Civil Liberties 1996-1997* conducted by Freedom House. As an ordinal level variable, 7 was coded as the most free; 1 was coded to represent the least free.[38]

Hypothesis 5: Countries with high human rights concerns are more likely to commit themselves to the APM Convention.

Other variables

In general, countries form military alliances to balance against external threats by enhancing allies' military capabilities (Walt, 1995).[39] Empirically, 88 percent of all actual alliances produce a positive change in the security level of nations forming alliances (Lalman and Newman, 1991). For this reason, not only do smaller states create military

[37] The checklist of civil liberties is as follows. 1) Are there free and independent media, literature and other cultural expressions? 2) Is there open public discussion and free private discussion? 3) Is there freedom of assembly and demonstration? 4) Is there freedom of political or quasi-political organization? 5) Are citizens equal under the law, with access to an independent, nondiscriminatory judiciary, and are they respected by the security forces? 6) Is there protection from political terror, and from unjustified imprisonment, exile or torture, whether by groups that support or oppose the system, and freedom from war or insurgency situations? 7) Are there free trade unions and peasant organizations or equivalents, and is there effective collective bargaining? 8) Are there free professional and other private organizations? 9) Are there free businesses or cooperatives? 10) Are there free religious institutions and free private and public religious expression? 11) Are there personal social freedoms, which include such aspects as gender equality, property rights, freedom of movement, choice of residence, choice of marriage, and size of family? 12) Is there equality of opportunity, which includes freedom from exploitation by or dependency on landlords, employers, union leaders, bureaucrats or any other type of denigrating obstacle to a share of legitimate economic gains? 13) Is there freedom from extreme government indifference and corruption? The Freedom House. 1997. *Freedom in the World: The Annual Survey of political Rights & Civil Liberties 1996-1997.* New Brunswick, NY: Transaction Publishers. Pp. 573-4.

[38] The Freedom House presents political rights and civil liberty indexes on the basis of a seven point scale: 1 is the most free; 7 is the least free. However, I transformed this index to make it consistent with other data in order to make the geo-security interactive model much easier. *The Annual Survey of Political Rights & Civil Liberties 1996-1997*does not show the index for Democratic Republic of Congo and Samoa. Instead, Zaire, the former name of Congo, is on the books. For Samoa, the updated dataset on the website of the Freedom House (http//www.freedomhouse.com) was used to avoid missing data.

[39] 76 percent of the allied nations received fighting support from some of their allies, while only 17 percent of the nonallied states found anyone fighting alongside of them. Mesquita, Bruce Bueno de. 1975. "Measuring Systemic Polarity." *The Journal of Conflict Resolution* 19 (2): 187-216.

alliances with major states or other small states to assure their national security, but also larger states do so to keep their dominant power in international relations.[40] In particular, the existence of major power states as allies affects enemies' expectations toward the outbreak of war (Huth, 1988; Smith, 1996). Specifically, challengers to the status quo are willing to avoid military escalation when major powers are expected to intervene in support of their adversaries, and defending states seek outside support to counter threats to their security (Huth, 1998). Therefore, the existence of major power states as allies offers deterrence power against external threats or raises the threshold level of provocation for militarized disputes (Lebow, 1985; Huth, 1988).[41]

For the deterrence variable, 1 was coded if a country had military alliances with major power states based on defense pacts or ententes; 0 was coded, otherwise.[42] However, unlike previous research on military alliances, neutrality and non-aggression pacts were excluded to account for deterrence. Although these agreements indirectly impact on security concerns by changing the expectation of hostility, they do not mandate the support of major power states. Instead, since these agreements require that each party state should be neutral without any military intervention, it is hard to expect that these

[40] Asymmetric alliances are easier both to form and to maintain their organizations compared with symmetric alliances. Morrow, James D. 1991. "Alliances and Asymmetry: An Alternative to the Capability Aggregation Model of Alliances." *American Journal of Political Science* 35 (4): 904-33.

[41] A militarize dispute is a set of interactions between or among states involving threats to use military force, displays of military force, or actual uses of military force. Gochman, Charles S., and Zeev Maoz. 1984. "Militarized Interstate Disputes, 1816-1976: Procedures, Patterns, and Insights." *The Journal of Conflict Resolution* 28 (4): 585-616.

[42] Singer and Small classified bilateral and multilateral treaties of alliances on the basis of their operative clauses into three classes, depending upon the response required in certain specified contingencies. Labeled as defense pacts, neutrality or non-aggression pacts, and ententes, the general obligation criteria were as follows: 1) Defense Pact: Intervene militarily on the side of any treaty partner that is attacked. 2) Neutrality and Non-Aggression Pact: Remain militarily neutral if any co-signatory is attacked. 3) Entente: Consult and/or cooperate in a crisis, including armed attack. Singer J. David, and Melvin Small. 1966. "Formal Alliances, 1815-1939: A Quantitative Description." *Journal of Peace Research* 3 (1): 1-32. Small, Melvin, and J. David Singer. 1969. "Formal Alliances, 1816-1965: An Extension of the Basic Data." *Journal of Peace Research* 6 (3): 257-82.

agreements with major power states give deterrence allies. The data on military alliances were taken from the Correlates of War 2 Project.

In order to test economic incentives, first, the value of arms export on the basis of U.S. million dollars was coded from the Arms Sales Monitoring Project that was based on *World Military Expenditures and Arms Transfers* conducted by U.S. Arms Control and Disarmament Agency[43] because as discussed earlier, anti-personnel landmines are still lucrative for cash-hungry countries. Second, for the economic development variable, GDP Per Capita on the basis of U.S. million dollars was coded from *The Military Balance 1998/99* conducted by the International Institute for Strategic Studies. This economic development may have far-reaching effects on the behaviors of each country: the high costs for finding and removing landmines keep developing countries from sharing the economic burden at the expense of their already weak economic growth; better economic conditions enable developed countries to replace anti-personnel landmines with other weapons; the high degree of economic development allows NGOs to easily access facilities for communication such as Internet, which accommodates their activities by reducing transaction costs. In sum, as economic development grows, there would be a high possibility of participating in the APM Convention.

However, as noted earlier, the effect of economic development varies with security concerns, and vice versa. It is because security concerns influence economic

[43] Since 1991, the Arms Sales Monitoring Project has worked for transparency, accountability and deep reductions in global conventional weapons production and trade. Arms transfers (arms imports and exports) represent the international transfer (under terms of grant, credit, barter, or cash) of military equipment, usually referred to as conventional, including weapons of war, parts thereof, ammunition, support equipment, and other commodities designed for military use. Dual use equipment, which can have application in both military and civilian sectors, is included when its primary mission is identified as military. The building of defense production facilities and licensing fees paid as royalties for the production of military equipment are included when they are contained in military transfer agreements. U.S. Arms Control and Disarmament Agency. 1996. *World Military Expenditure and Arms Transfers 1996*. Washington D.C.: U.S. Arms Control and Disarmament Agency. p.189.

development by diverting resources for economic growth to military areas and economic development constrains military spending strategies. That is, even if countries have the same level of economic development, their determinations for the APM Convention differ on the basis of their self-defensive, border, regime, and extraterritorial security concerns. Conversely, even if countries have the same level of security concerns, their perspectives toward the APM Convention are different across their economic development. This means that the effect of security concerns or economic development on the APM Convention is conditional rather than general because it is expected that the positive effect of economic development is offset by the negative effect of self-defensive, border, regime, and extraterritorial security concerns. Therefore, it is appropriate to measure the joint effects of security concerns and economic development rather than the separate effect of each variable. For this reason, the geo-security interactive model contains four interactive variables: *Selfint* (Self-Defensive Security × Economic Development); *Borint* (Border Security × Economic Development); *Regint* (Regime Security × Economic Development); *Extint* (Extraterritorial Security × Economic Development)

Finally, for the interdependence variable, the total percent of trade as a GDP was coded.[44] According to neo-liberalism, interdependence promotes international cooperation rather than conflict by creating means to settle down conflicts peacefully without resorting to military violence (McMillan, 1997; Bliss and Bruce, 1998; Gartzke et al., 2001). In particular, trade and technology incentives are important factors in

[44] The total value of imports in Sierra Leone abruptly increased from 294 million dollars in 1996 to 17,583 million dollars in 1997. Except for 1997, the total value of imports in Sierra Leone is almost consistent. Therefore, as an extreme outlier, the case of Sierra Leone might cause a significant distortion of the effect of interdependence because the value of interdependence in Sierra Leone exceeds 1,000 percent, while other values vary from 12.4 to 438.5. For this reason, a missing value was coded for Sierra Leone.

fostering a degree of bilateral cooperation (Long, 1996). Trade participants who benefit more from an interaction have a greater incentive to reduce hostilities towards other participants. The increase of trade is associated with the decrease of conflicts while the relationship is hyperbolic rather than linear (Gasiorowski and Polachek, 1982). All data on economic statistics were taken from *the Direction of Trade Statistics Yearbook 1998* conducted by the International Monetary Fund (IMF).

CHAPTER 4

TESTING A GEO-SECURITY INTERACTIVE MODEL OF THE APM CONVENTION

The dataset for the geo-security interactive model has a lot of missing data because many countries have not presented accurate statistics regarding their economy and military. Although data from 193 countries, based on *The Landmine Monitor 2000*, were taken from various sources to measure the independent variables, listwise deletion contains 145 observations for analyses.[45] Since nearly 50 cases of missing data are not randomly distributed, listwise deletion not only discards many valuable cases but also may cause a statistical bias in estimating parameters for the geo-security interactive model (Kmenta, 1997; King et al., 2001; Little and Rubin, 2002). For these reasons, multiple imputation was applied to deal with the missing data by using the Amelia program. As a result, the analysis of the geo-security interactive model is based on the total 193 observations.

However, since the Amelia program produces several datasets based on multiple imputation, how to combine those datasets remains a crucial part of establishing a dataset for the geo-security interactive model: one is to perform logit -- the geo-security interactive model is based on a binary logit model -- on each imputed dataset, then average coefficients; the other is to use the Clarify program in order to estimate coefficients and a variance-covariance matrix. For the geo-security interactive model, as

[45] Listwise deletion is a statistical method that discards incompletely recorded units, and that analyzes only the units with complete data. Little and Rubin use the term, a complete-case analysis, instead of listwise deletion. Little, Roderick J.A., and Donald B. Rubin. 2002. *Statistical Analysis with Missing Data*. New Jersey: John Wiley & Sons, Inc. Pp.3-19.

Table 4.1 shows, the latter was used to combine the five datasets from the Amelia program.

TABLE 4.1 A GEO-SECURITY INTERACTIVE MODEL OF THE APM CONVENTION

	Coefficient	Standard errors	t	P > | t |
Self-defensive security	-0.281*	0.128	-2.20	0.015
Border security	-0.001*	5.2×10^{-4}	-2.61	0.005
Regime security	0.037	0.026	1.44	0.084
Extraterritorial security	-1.9×10^{-4}	1.2×10^{-4}	-1.53	0.066
Deterrence	2.936*	1.043	2.82	0.003
Economic development	9.1×10^{-5}	1.4×10^{-4}	0.64	0.263
Interdependence	-0.003	0.004	-0.92	0.179
Arms export	0.001	0.001	0.95	0.175
Human rights	0.211	0.173	1.22	0.112
Selfint	1.2×10^{-5}	1.2×10^{-5}	0.96	0.170
Borint	6.0×10^{-8}	1.1×10^{-7}	0.54	0.294
Regint	-3.0×10^{-6}	1.9×10^{-6}	-1.57	0.065
Extint	-2.9×10^{-9}	7.0×10^{-9}	-0.42	0.338
Constant	-1.135	2.040	-0.56	0.291
Number of observation	193			
*p < .05 (one-tailed test)				

The coefficients of each independent variable in Table 4.1 present the direction of an effect, but it does not directly mean the change of a magnitude because the geo-security interactive model is based on a binary logit model. That is, a coefficient (b_k) in a logit model measures the effect of a change in X_{ik} on the continuous and unobserved variable Y_i*, not the discrete observed variable Y_i (Aldrich and Nelson, 1984; Long, 1997). For a predicted probability (Y_i),

$$Y_i = \frac{e^{\sum b_k X_{ik}}}{(1+e^{\sum b_k X_{ik}})} \quad \textbf{(Equation 1)}$$

$$Y_i^* = \sum b_k X_{ik} + u_i$$

For example, suppose that except for the self-defensive security variable, all other independent variables are equal to zero. Given that self-defensive security concerns increase from 1 percent to 2 percent, the predicted probability is as follows.

From Table 4.1,

$Y^* = b_0$ (constant) + $b_1 X_1$ (self-defensive security)

$= -1.135 - 0.281\ X_1$

From Equation 1,

If $X_1 = 1$,

$Y^* = -1.135 - 0.281 = -1.146$

$$Y = \frac{e^{-1.146}}{(1+e^{-1.146})} = 0.241$$

If $X_1 = 2$,

$Y^* = -1.135 + (-0.281 \times 2) = -1.697$

$$Y = \frac{e^{-1.697}}{(1+e^{-1.697})} = 0.122$$

As a result, the increase of GDP devoted to military expenditure from one percent to two percent decreases a predicted probability of committing to the APM Convention from 0.241 to 0.122 when all other independent variables are equal to zero.

However, since the geo-security interactive model is based on a multiplicative model, the effect of self-defensive security concerns on the APM Convention varies with economic development. For example, the conditional relationship between the APM Convention (Y) and self-defensive security (X_1) for a specified value of economic development (X_6) is

$Y^* = b_0$ (constant) + $b_1 X_1 + b_{10} X_{10}$

Since *Selfint* (X_{10}) = Self-defensive security (X_1) × Economic development (X_6),

$Y^* = b_0 + b_1 X_1 + b_{10} X_1 X_6$

$= b_0 + (b_1 + b_{10}X_6)\, X_1$ **(Equation 2)**

If economic development is equal to zero, the joint effects of self-defensive security and economic development on the APM Convention are the same as the coefficient of self-defensive security (b_1) in Table 4.1 shows.

$Y^* = -1.135$ (constant) + [-0.281 (b_1) + (0.0000117 (b_{10}) × 0 (X_6))] X_1
$= -1.135 - 0.281\, X_1$

However, in the geo-security interactive model, economic development, GDP Per Capita, varies from $400 (Eritrea) to $29,300 (the U.S.). Since the coefficient of *Selfint* (b_{10}) has a positive impact on the APM Convention by 0.0000117, the joint effects are very different across countries on the basis of their GDP Per Capita.

For example, suppose that self-defensive security (X_1) is changed from 3 percent to 4 percent in Eritrea, which has $400 of GDP Per Capita ($X_6 = 400$).

From Equation 2,

if $X_1 = 3$,
$Y^* = -1.135$ (constant) + [-0.281 (b_1) + (0.0000117 (b_{10}) × 400 (X_6))] × 3 (X_1)
$= -1.135 + ((-0.281 + 0.00468) \times 3)$
$= -1.964$

$$Y = \frac{e^{-1.964}}{(1 + e^{-1.964})} = 0.123$$

If $X_1 = 4$,
$Y^* = -1.135$ (constant) + [-0.281 (b_1) + (0.0000117 (b_{10}) × 400 (X_6))] × 4 (X_1)
$= -1.135 + ((-0.281 + 0.00468) \times 4)$
$= -2.240$

$$Y = \frac{e^{-2.240}}{(1 + e^{-2.240})} = 0.096$$

Therefore, the increase of GDP devoted to military expenditure in Eritrea from three percent to four percent causes the decrease of a predicted probability of participating in the APM Convention from 0.123 to 0.096. That is, the joint effects of self-defensive

security concerns and economic development have a negative impact on the APM Convention.

On the other hand, the effect of self-defensive security concerns in the U.S., which has $29,300 of GDP Per Capita ($X_6 = 29300$), is as follows.

From Equation 2,

if $X_1 = 3$,

$$Y^* = -1.135 \text{ (constant)} + [-0.281\ (b_1) + (0.0000117\ (b_{10}) \times 29300\ (X_6))] \times 3\ (X_1)$$
$$= -1.135 + ((-0.281 + 0.34281) \times 3)$$
$$= -0.950$$
$$Y = \frac{e^{-0.950}}{(1 + e^{-0.950})} = 0.279$$

If $X_1 = 4$,

$$Y^* = -1.135 \text{ (constant)} + [-0.281\ (b_1) + (0.0000117\ (b_{10}) \times 29300\ (X_6))] \times 4\ (X_1)$$
$$= -1.135 + ((-0.281 + 0.34281) \times 4)$$
$$= -0.888$$
$$Y = \frac{e^{-0.888}}{(1 + e^{-0.888})} = 0.292$$

Thus, the increase of GDP devoted to military expenditure in the U.S. from three percent to four percent causes the increase of a predicted possibility of joining the APM Convention from 0.279 to 0.292. That is, the joint effects of self-defensive security concerns and economic development in the U.S. have a positive impact on the APM Convention. Comparing Eritrea with the U.S., the one percent increase of GDP devoted to military expenditure from three to four percent reveals opposing directions and magnitudes, which are due to their different economic development.

Basically, the standard error of self-defensive security (s_{b1}) in Table 4.1 is effective only if economic development is equal to zero. Therefore, the conditional relationship between the APM Convention and self-defensive security concerns for a

specified value of economic development requires a conditional standard error to test a statistical significance of the joint effects. For the interactive variables in the geo-security model, the standard errors of conditional coefficients also vary according to the level of other independent variables. For example, as a multiplicative model, the conditional standard error of self-defensive security concerns and economic development is defined as follows (Friedrich, 1982).[46]

$$s(b_1 + b_{10} X_6) = \sqrt{\text{var}(b_1) + X_6^2 \,\text{var}(b_{10}) + 2X_6 \,\text{cov}(b_1, b_{10})} \quad \textbf{(Equation 3)}$$

In an attempt to calculate conditional standard errors for the geo-security model, as Table 4.2 shows, the variance-covariance matrix was obtained by the Clarify program.

TABLE 4.2 THE VARIANCE-COVARIANCE MATRIX FOR THE GEO-SECURITY INTERACTIVE MODEL

	Selfsec	Borsec	Regsec	Extsec	Ecodev	Selfint	Borint	Regint	Extint
Selfsec	2×10^{-02}								
Borsec	7×10^{-6}	3×10^{-7}							
Regsec	-1×10^{-3}	-2×10^{-6}	7×10^{-4}						
Extsec	2×10^{-6}	8×10^{-9}	-4×10^{-7}	2×10^{-8}					
Ecodev	-1×10^{-6}	-6.E-09	3×10^{-6}	-2×10^{-9}	2×10^{-8}				
Selfint	-1×10^{-6}	-1×10^{-10}	1×10^{-7}	-3×10^{-12}	3×10^{-11}	2×10^{-10}			
Borint	-5×10^{-10}	-4×10^{-11}	2×10^{-10}	-2×10^{-12}	9×10^{-13}	-2×10^{-13}	1×10^{-14}		
Regint	8×10^{-8}	2×10^{-10}	-4×10^{-8}	4×10^{-11}	-2×10^{-10}	-1×10^{-11}	-2×10^{-14}	4×10^{-12}	
Extint	1×10^{-10}	-4×10^{-13}	3×10^{-11}	-2×10^{-13}	2×10^{-13}	-5×10^{-15}	1×10^{-16}	-1×10^{-15}	5×10^{-17}

From Equation 3, the conditional standard error of self-defensive security concerns and economic development is calculated to test a statistical significance of the joint effects as follows.

[46] There are three basic rules for variance and covariance.
1. $\text{var}(aX) = a^2\text{var}(X)$
2. $\text{var}(X + Y) = \text{var}(X) + \text{var}(Y) + 2\text{cov}(X, Y)$
3. $\text{cov}(X, aY) = a\,\text{cov}(X, Y)$

$$s(b_1 + b_{10}X_6) = \sqrt{0.016 + (1.5 \times 10^{-10})X_6^2 + (2 \times -1.1 \times 10^{-6})X_6}$$

This equation effectively shows that the standard error of self-defensive security varies with economic development, GDP Per Capita.

The conditional standard error of the joint effects of self-defensive security and economic development for Eritrea and the U.S. is as follows.

For Eritrea, since $X_6 = 400$,

$$s(b_1 + b_{10}X_6) = \sqrt{0.016 + (1.5 \times 10^{-10})400^2 + (2 \times -1.1 \times 10^{-6})400}$$
$$= 0.123$$

The conditional coefficient for Eritrea is

$(b_1 + b_{10}X_6) = [-0.281\ (b_1) + (0.0000117\ (b_{10}) \times 400\ (X_6))] = -0.276$

$$t = \frac{(b_1 + b_{10}X_6)}{s(b_1 + b_{10}X_6)} = \frac{-0.276}{0.123} = -2.24$$ **(Equation 4)**

Therefore, for Eritrea, the joint effects of self-defensive security concerns and economic development have a significant negative impact on the APM Convention. [47]

Likewise, for the U.S., since $X_6 = 29300$,

$$s(b_1 + b_{10}X_6) = \sqrt{0.016 + (1.5 \times 10^{-10})29300^2 + (2 \times -1.1 \times 10^{-6})29300}$$
$$= 0.283$$

The conditional coefficient for the U.S. is

$(b_1 + b_{10}X_6) = [-0.281\ (b_1) + (0.0000117\ (b_{10}) * 29300\ (X_6))] = 0.062$

$$t = \frac{0.062}{0.283} = 0.219$$

Thus, for the U.S., the joint effects of self-defensive security concerns and economic development have a positive impact on the APM Convention, but this is not statistically

[47] Rounding errors make these conditional coefficients and conditional standard errors a little bit different from the results in Table 4.3, which use 0.016393 for *Selfsec* variance.

significant. In sum, comparing Eritrea with the U.S., the statistical significance of the joint effects is different because of the discrepancy of their economic development.

Table 4.3 shows the conditional coefficients, standard errors, and t-values between the APM Convention and self-defensive security concerns for a specified economic development, GDP Per Capita.

TABLE 4.3 THE CONDITIONAL ESTIMATORS FOR SELF-DEFENSIVE SECURITY CONCERNS

GDP Per Capita	Conditional Coefficient	Conditional Standard Error	t-value
400	-0.277*	0.125	-2.22
1000	-0.270*	0.120	-2.25
2000	-0.258*	0.112	-2.30
3000	-0.246*	0.106	-2.33
4000	-0.235*	0.100	-2.35
5000	-0.223*	0.096	-2.33
6000	-0.211*	0.093	-2.28
7000	-0.199*	0.091	-2.18
8000	-0.188*	0.092	-2.05
9000	-0.176*	0.094	-1.88
10000	-0.164*	0.097	-1.70
10200	-0.162*	0.098	-1.66
10300	-0.161	0.098	-1.64
12500	-0.135	0.111	-1.22
15000	-0.106	0.131	-0.81
17500	-0.077	0.154	-0.50
22500	-0.018	0.207	-0.09
24100	0.001	0.225	0.00
25000	0.011	0.235	0.05
29300	0.062	0.284	0.22

*p < .05 (one-tailed test)

Self-defensive security concerns have a significant negative impact on the APM Convention if economic development is equal to zero (Table 4.1). However, this negative effect of self-defensive security is offset by the positive effect of economic development. For this reason, as economic development grows, the coefficient, standard error, and t-value increase together, and the direction of the coefficient is changed from negative to

positive if GDP Per Capita is equal to or more than $24,100. Therefore, the joint effects of self-defensive security concerns and economic development have a significant negative impact on the APM Convention only if GDP Per Capita is equal to or less than $10,200. On the other hand, if GDP Per Capita is equal to or more than $10,300, the significance disappears, while the joint effects still have a negative impact on the APM Convention. By the same token, if GDP Per Capita is equal to or more than $24,000, the joint effects are positively correlated with the total ban of anti-personnel landmines but they are not supported by a statistical significance. In sum, these statistical results support hypothesis 1 that countries with high self-defensive security concerns are less likely to commit themselves to the APM Convention under the condition in which GDP Per Capita is equal to or less than $10,200. The determination of developing countries, compared to that of developed countries, is negatively influenced by their self-defensive security concerns.

For the joint effects of border security concerns and economic development, the conditional coefficient is

$(b_2 + b_{11}X_6) = (-0.0013\ (b_2) + (6.0\times10^{-8}(b_{11}) \times X_6))$

The conditional standard error is

$$s(b_2 + b_{11}X_6) = \sqrt{2.7\times10^{-7} + (1.2\times10^{-14})X_6^2 + (2\times -4.2\times10^{-11})X_6}$$

Table 4.4 shows the conditional coefficients, standard errors, and t-values between the APM Convention and border security for a specified economic development, GDP Per Capita. Border security concerns have a significant negative impact on the APM Convention if economic development is equal to zero (Table 4.1). However, this negative effect of border security is offset by the positive effect of economic development. For this

reason, as economic development grows, the coefficient, standard error, and t-value increase, and the direction of the coefficient is changed from negative to positive if GDP Per Capita is equal to or more than $22,600. Therefore, the joint effects of border security concerns and economic development have a significant negative impact on the APM Convention only if GDP Per Capita is equal to or less than $6,600.

TABLE 4.4 THE CONDITIONAL ESTIMATORS FOR BORDER SECURITY CONCERNS

GDP Per Capita	Conditional Coefficient	Conditional Standard Error	t-value
400	-0.00133*	0.00049	-2.71
1000	-0.00129*	0.00045	-2.88
2000	-0.00123*	0.00040	-3.09
3000	-0.00117*	0.00038	-3.08
4000	-0.00111*	0.00040	-2.79
5000	-0.00105*	0.00045	-2.35
6000	-0.00099*	0.00052	-1.90
6600	-0.00095*	0.00057	-1.67
6700	-0.00095	0.00058	-1.63
7000	-0.00093	0.00061	-1.53
8000	-0.00087	0.00070	-1.24
9000	-0.00081	0.00080	-1.00
10000	-0.00075	0.00091	-0.82
12500	-0.00060	0.00119	-0.50
15000	-0.00045	0.00147	-0.30
17500	-0.00030	0.00176	-0.17
20000	-0.00015	0.00205	-0.07
22600	0.00001	0.00235	0.00
25000	0.00015	0.00263	0.06
29300	0.00041	0.00313	0.13

*p < .05 (one-tailed test)

On the other hand, if GDP Per Capita is equal to or more than $6,700, the joint effects are not statistically significant, while they still have a negative impact. By the same token, if GDP Per Capita is equal to or more than $22,600, the joint effects are positively correlated with the APM Convention but they are not supported by a statistical significance. In sum, these statistical results support hypothesis 2 that countries with high

border security concerns are less likely to commit themselves to the APM Convention under the condition in which GDP Per Capita is equal to or less than $6,600. The determination of developing countries, compared to that of developed countries, is negatively influenced by border security concerns.

For the joint effects of regime security concerns and economic development, the conditional coefficient is

$(b_3 + b_{12}X_6) = (0.0367\ (b_3) + (-3.0\times10^{-6}\ (b_{12}) \times X_6))$

TABLE 4.5 THE CONDITIONAL ESTIMATORS FOR REGIME SECURITY CONCERNS

GDP Per Capita	Conditional Coefficient	Conditional Standard Error	t-value
400	0.03550	0.02495	1.42
1000	0.03370	0.02403	1.40
2000	0.03071	0.02255	1.36
3000	0.02772	0.02113	1.31
4000	0.02473	0.01979	1.25
5000	0.02174	0.01855	1.17
6000	0.01875	0.01742	1.08
7000	0.01576	0.01644	0.96
8000	0.01277	0.01563	0.82
9000	0.00978	0.01502	0.65
10000	0.00679	0.01463	0.46
12200	0.00022	0.01462	0.01
12300	-0.00008	0.01465	-0.01
15000	-0.00816	0.01625	-0.50
17500	-0.01563	0.01888	-0.83
20000	-0.02311	0.02223	-1.04
22500	-0.03058	0.02601	-1.18
25600	-0.03985	0.03107	-1.28
27500	-0.04553	0.03430	-1.33
29300	-0.05091	0.03742	-1.36
*p < .05 (one-tailed test)			

The conditional standard error is

$$s(b_3 + b_{12}X_6) = \sqrt{0.000654 + (3.6\times10^{-12})X_6^2 + (2\times-4.0\times10^{-8})X_6}$$

Table 4.5 shows the conditional coefficients, standard errors, and t-values between the APM Convention and regime security for a specified economic development, GDP Per Capita. Regime security concerns have a positive impact on the APM Convention if economic development is equal to zero but this is not statistically significant (Table 4.1). However, this positive effect of regime security concerns is offset by the negative effect of economic development. For this reason, as economic development grows, the coefficient and t-value decrease, and the direction of the coefficient is changed from positive to negative if GDP Per Capita is equal to or more than $12,300. Nevertheless, neither the positive nor negative joint effects are supported by a statistical significance. Thus, these results refute hypothesis 3 that countries with high regime security concerns are less likely to join the APM Convention.

TABLE 4.6 THE MEAN YEARS OF REGIME SINCE THE LAST REGIME TRANSITION

	Less than $12,300	Over $12,300	Total
Signed	11.67	57.26	21.12
	(107)	(28)	(135)
Not-signed	21.5	40.82	24.83
	(48)	(10)	(58)
Total	14.71	52.94	22.24
	(155)	(38)	(193)
parenthesis stands for the number of countries			

Interestingly, regime security concerns in developing countries are positively correlated with the mobilization of the total ban of anti-personnel landmines, while this is not statistically significant. This means that if GDP Per Capita is equal to or less than $12,200, unstable states, compared to stable ones, are more likely to commit themselves

to the APM Convention. As Table 4.6 shows, the mean years of regime since the last regime transition in developing countries which signed the APM Convention is 11.67; on the other hand, those of regime in developing countries which have not signed is 21.5. These differences make the effect of regime security positive, while this is not significant. Although the geo-security interactive model does not directly reveal why the positive effect of regime security concerns in developing countries appears, it is likely that tremendous landmine casualties in wartime as well as in peacetime may give those unstable developing countries a lesson how harmful anti-personnel landmines are. This may in turn lead those unstable developing countries to favor the total ban of anti-personnel landmines. Subsequent studies are therefore needed to explain the participation of unstable developing countries in the APM Convention.

For the joint effects of extraterritorial security concerns and economic development, the conditional coefficient is

$(b_4 + b_{13}X_6) = (-0.000189\ (b_4) + (-2.9\times10^{-9}\ (b_{13}) \times X_6))$

The conditional standard error is

$$s(b_4 + b_{13}X_6) = \sqrt{1.5\times10^{-8} + (4.9\times10^{-17})X_6^2 + (2\times -2.0\times10^{-13})X_6}$$

Table 4.7 shows the conditional coefficients, standard errors, and t-values between the APM Convention and extraterritorial security for a specified economic development, GDP Per Capita. Extraterritorial security concerns have a negative impact on the APM Convention if economic development is equal to zero but this is not statistically significant (Table 4.1). The negative effect of economic development makes the negative effect of extraterritorial security increase. For this reason, as economic development grows, the coefficient decreases continuously but the conditional standard error increases.

Therefore, if GDP Per Capita is equal to or less than $2,500, the joint effects of extraterritorial security concerns and economic development have a negative impact on the APM Convention, but they are not statistically significant. On the other hand, if GDP Per Capita is between $2,600 and $15,100, the joint effects have a significant negative impact. Finally, if GDP Per Capita is equal to or more than $15,200, the negative relationship is not supported by a statistical significance.

TABLE 4.7 THE CONDITIONAL ESTIMATORS FOR EXTRATERRITORIAL SECURITY CONCERNS

GDP Per Capita	Conditional Coefficient	Conditional Standard Error	t-value
400	-0.00019	0.00012	-1.56
1000	-0.00019	0.00012	-1.59
2000	-0.00020	0.00012	-1.63
2500	-0.00020	0.00012	-1.64
2600	-0.00020*	0.00012	-1.65
3000	-0.00020*	0.00012	-1.66
4000	-0.00020*	0.00012	-1.69
5000	-0.00020*	0.00012	-1.71
6000	-0.00021*	0.00012	-1.73
7000	-0.00021*	0.00012	-1.74
8000	-0.00021*	0.00012	-1.74
9000	-0.00022*	0.00012	-1.74
10000	-0.00022*	0.00013	-1.73
12500	-0.00023*	0.00013	-1.70
15100	-0.00023*	0.00014	-1.65
15200	-0.00023	0.00014	-1.64
17500	-0.00024	0.00015	-1.59
20000	-0.00025	0.00016	-1.52
25000	-0.00026	0.00019	-1.39
29300	-0.00028	0.00021	-1.29
*p < .05 (one-tailed test)			

In sum, these statistical results support hypothesis 4 that countries with high extraterritorial security concerns are less likely to commit themselves to the APM Convention under the condition in which GDP Per Capita is between $2,600 and $15,100.

The coefficient and standard error in Table 4.7 suggest that while the determination of countries is negatively influenced by their extraterritorial security concerns, a large variance among countries in which their GDP Per Capita is equal to or more than $15,200 makes a statistical significance disappear: 19 out of 23 countries, which have sent their troops abroad, signed the APM Convention; 4 states have not participated in it. The mean number of armed forces abroad of the former is 5958.12; that of the latter is 55852.31. Therefore, for developed countries, extraterritorial security concerns are not general. But rather it is limited to those countries which have sent a large number of armed forces abroad.

Unlike the security variables, deterrence is positively correlated with the total ban of anti-personnel landmines, and this claim is supported by a statistical significance (Table 4.1). That is, countries having military alliances with major power states are more likely to participate in the APM Convention. The existence of major power states as allies increases a predicted probability of joining the APM Convention from 0.601 to 0.804 when other independent variables are held in constant at their mean.[48] Traditionally, security concerns are succinctly delineated as follows (Cusack, 1985; Bennett, 1996).

Security concern = [(An Enemy's own Capabilities × Hostility) + Σ (The Capabilities of an Enemy's Allies)] / [(A Country's own Capabilities + Σ (The Capabilities of a Country's Allies))]

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[48] The mean value of each independent variable is as follows: Selfsec = 3.69; Bordersec = 396.06; Regimesec = 74.76; Extrasec = 1677.31; Deterrence = 0.31; Interdependence = 77.52; Arms export = 207.55; Human rights = 4.31; Selfint = 22868.41; Borint =1215994; Regint = 386079.7; Extint = 2.7×10^7.

Therefore, if deterrence is equal to 0, Y* = 0.411. $Y = \frac{e^{0.411}}{1+e^{0.411}} = 0.601$

If deterrence is equal to 1, Y* = 1.411. $Y = \frac{e^{1.411}}{1+e^{1.411}} = 0.804$

In this context, the significant positive relationship between deterrence and the APM Convention is easier to understand because a country's total capabilities are the sum of its own power and the allies'. The existence of major power states as allies give deterrence by enhancing the allies' capabilities (Lalman and Newman, 1991; Walt, 1995).

From these results, it is demonstrated that regarding the APM Convention, the determination of each country has been in large part influenced by its security concerns: self-defensive, border, and extraterritorial security concerns. Therefore, the geo-security interactive model supports realists' arguments to some extent that security concerns are an important motivation of states in international relations in order to preserve their sovereignty (Carr, 1964; Aron, 1973; Hoffmann, 1973; Waltz, 1979; Gilpin, 1984; Morganthau, 1985). However, these security concerns vary with economic development - yet, this finding has not been thoroughly examined by realism. Since a country's own capabilities consist of demographic, industrial, and military capabilities, it is obvious that security concerns interact with economic development. Nevertheless, realists have paid more attention to the independent effect of security or economic development rather than the joint effects. Furthermore, since their arguments are in large part based on the general notion of power rather than the specific concept of power, neo-liberalism has criticized the overestimation of power and the lack of operationalization (Vasquez, 1998; Clarke, 2001).

In this context, the geo-security model presents a better explanation power with respect to the APM Convention by measuring the joint effects of security and economic development. That is, self-defensive, border, and extraterritorial security concerns are negatively correlated with the mobilization of countries for the total ban of anti-personnel

landmines, but these effects vary with their different economic development, GDP Per Capita. Developing countries, compared to developed countries, pay more attention to self-defensive and border security. As discussed earlier, the cheap cost of anti-personnel landmines enables developed countries to easily find another way that can replace landmines with other weapons, even those which require high cost. It is therefore expected that the strategy of developed countries for the APM Convention is not seriously influenced by their security concerns. Contrary to those security concerning external threats, the determination of each country is not correlated with internal threats: regime security concerns do not play a significant role in discouraging countries from commit themselves to the total ban of anti-personnel landmines.

For economic development, as an interactive variable, the coefficient (b_6) in Table 4.1 is effective only if all four security variables are equal to zero. However, since the effect of economic development varies with the four security concerns, the conditional coefficient of economic development is equal to $(b_6 + b_{10}X_1 + b_{11}X_2 + b_{12}X_3 + b_{13}X_4)X_6$. By the same token, the conditional standard error is defined as follows.

$$s\left(b_6 + b_{10}X_1 + b_{11}X_2 + b_{12}X_3 + b_{13}X_4\right)$$
$$= \sqrt{\begin{array}{l}\operatorname{var}(b_6) + X_1^2 \operatorname{var}(b_{10}) + X_2^2 \operatorname{var}(b_{11}) + X_3^2 \operatorname{var}(b_{12}) + X_4^2 \operatorname{var}(b_{13}) + 2X_1 \operatorname{cov}(b_6, b_{10}) \\ + 2X_2 \operatorname{cov}(b_6, b_{11}) + 2X_3 \operatorname{cov}(b_6, b_{12}) + 2X_4 \operatorname{cov}(b_6, b_{13}) + 2X_1X_2 \operatorname{cov}(b_{10}, b_{11}) \\ + 2X_1X_3 \operatorname{cov}(b_{10}, b_{12}) + 2X_1X_4 \operatorname{cov}(b_{10}, b_{13}) + 2X_2X_3 \operatorname{cov}(b_{11}, b_{12}) \\ + 2X_2X_4 \operatorname{cov}(b_{11}, b_{13}) + 2X_3X_4 \operatorname{cov}(b_{12}, b_{13})\end{array}}$$

For this reason, the effect of economic development on the APM Convention is very different across self-defensive, border, regime, or extraterritorial security concerns. It is therefore hard to predict the constant pattern of these joint effects. However, if three out of four security concerns are held in constant, the relatively distinctive pattern between

economic development and the APM Convention for a specified value of the rest of security concerns can be measured.

TABLE 4.8 THE CONDITIONAL ESTIAMTORS FOR ECONOMIC DEVELOPMENT

Selfsec	Bordersec	Regimesec	Extrasec	Conditional Coefficient	Conditional Standard Error	t-value
0.0	0.0	0.0	0.0	0.00009	0.00014	0.65
5.0	0.0	0.0	0.0	0.00015	0.00016	0.97
10.0	0.0	0.0	0.0	0.00021	0.00019	1.10
20.0	0.0	0.0	0.0	0.00033	0.00029	1.14
30.0	0.0	0.0	0.0	0.00044	0.00040	1.12
0.0	5000	0.0	0.0	0.00039	0.00057	0.68
0.0	10000	0.0	0.0	0.00069	0.00111	0.62
0.0	15000	0.0	0.0	0.00099	0.00166	0.60
0.0	20000	0.0	0.0	0.00129	0.00220	0.59
0.0	0.0	25.0	0.0	0.00002	0.00011	0.16
0.0	0.0	50.0	0.0	-0.00006	0.00008	-0.70
0.0	0.0	79.0	0.0	-0.00014*	0.00009	-1.65
0.0	0.0	97.0	0.0	-0.00020*	0.00011	-1.88
0.0	0.0	0.0	50000	-0.00006	0.00041	-0.14
0.0	0.0	0.0	100000	-0.00020	0.00074	-0.27
0.0	0.0	0.0	150000	-0.00035	0.00109	-0.32
0.0	0.0	0.0	200000	-0.00049	0.00144	-0.34
1.0	1000	5.0	10000	0.00012	0.00021	0.57
2.0	2000	10.0	20000	0.00015	0.00032	0.45
3.0	3000	15.0	30000	0.00017	0.00045	0.39
4.0	4000	20.0	40000	0.00020	0.00058	0.35
5.0	5000	25.0	50000	0.00023	0.00072	0.32
10.0	10000	55.0	100000	0.00035	0.00140	0.25
15.0	15000	70.0	150000	0.00052	0.00208	0.25
20.0	17000	80.0	170000	0.00061	0.00236	0.26
25.0	19000	90.0	190000	0.00070	0.00263	0.27
30.0	20274	97.0	206984	0.00076	0.00282	0.27
*p < .05 (one-tailed test)						

As Table 4.8 shows, economic development has a positive impact on the APM Convention if the four kinds of security concerns are all equal to zero while this is not

statistically significant. This means that countries with high GDP Per Capita are more likely to favor the total ban of anti-personnel landmines. Even if states highly feel all four kinds of security concerns at a time, the positive effect of economic development is not changed. However, the separate effect of economic development has opposing directions and magnitudes across security concerns: for self-defensive or border security concerns, economic development has a positive impact on the APM Convention; on the other hand, for regime or extraterritorial security, it is negatively correlated with the total ban of anti-personnel landmines.

It is not unusual that since a country's total capabilities is the combination of demographic, economic, and military capabilities, economic growth increases the total capabilities which in turn decreases its security concerns. This suggests that enhancing military capabilities is not the only way to reduce security concerns. Instead, economic growth may help countries commit themselves to international regimes involving security issues by reducing self-defensive or border security concerns.

On the other hand, economic development for countries with high regime or extraterritorial security concerns has a negative impact on the total ban of anti-personnel landmines while this is not in large part supported by a statistical significance. Olson (1971) argues that rapid economic growth is a disruptive and destabilizing force that leads to political instability. Likewise, economic growth may aggravate extraterritorial security concerns. It is because states, which actively intervene foreign affairs, require both high economic and military capabilities. In this case, economic growth may lead those countries to engage in international affairs more actively which in turn increase extraterritorial security concerns. It is however hard to expect that countries feel only

regime or extraterritorial security without concerning any other security. For this reason, economic development is more likely to have a positive impact on the APM Convention as a whole.

Unlike expectations, the interdependence variable has a negative impact on the APM Convention, while this is not statistically significant (Table 4.1). This means that as an economic interest, international trade does not play an important role in mobilizing countries to join the APM Convention. Likewise, the arms export variable is positively correlated with the APM Convention, but this is not supported by a statistical significance, either (Table 4.1). Therefore, these results from the geo-security interactive model confirm realism again to some extent that security concerns are a dominant strategy of states in international relations. On the contrary, unlike neo-liberal perspectives (Haas, 1958; Mitrany, 1966; Nye, 1971; Bull, 1977; Keohane and Nye, 2001), economic interests are not a decisive factor for the total ban of anti-personnel landmines. The result however may suggest that economic growth for countries with high self-defensive or border security concerns can be an alternative to enhance a country's total capabilities which in turn mobilize countries to participate in the APM Convention by reducing those security concerns; on the other hand, economic growth for countries with high regime or extraterritorial security concerns is hard to expect a positive impact on the total ban of anti-personnel landmines.

As human rights grow, the predicted probability of participating in the APM Convention increases from 0.422 to 0.740 when other independent variables are held in constant at their mean (Table 4.8). However, as Table 1 presents, human rights concerns are neither necessary nor sufficient for countries in joining the total ban of anti-personnel

landmines. This result does not support hypothesis 5 that countries with high human rights concerns are more likely to commit themselves to the APM Convention. Although the security-centered foreign policies have become less critical and ideologically-centered foreign affairs have emerged more important (Meernik et al., 1998), states are still embedded in security concerns.

TABLE 4.9 THE PREDICTED PROBABILITY FOR HUMAN RIGHTS

Human rights	Y*	Predicted probability
1	-0.286	0.429
2	-0.075	0.481
3	0.135	0.534
4	0.346	0.586
5	0.556	0.636
6	0.767	0.683
7	0.977	0.727
deterrence is equal to 0 and other independent variables are held in constant at their mean		

This means that even if the total ban of anti-personnel landmines has originated with the human rights concerns of some proponent countries, the determination of each country does not simply reflect its human rights concerns. But rather, as the results of the geo-security interactive model reveal, states tend to make a political decision on the basis of their various interests. From these results, it is expected that states' choices between cooperation and competition are highly conditional (Glaser, 1995; Jervis, 1999). In the case of the APM Convention, unlike neo-liberal perspectives (Moravcsik, 1997; Reinicke, 1997), states are still unwilling to give up their sovereignty involving security issues (Clark et al., 1998).

As a whole, from the results of the geo-security interactive model, first, even under interdependence, security concerns are embedded in the determination of each

country for the total ban of anti-personnel landmines. Second, security concerns about external threats such as self-defensive, border, and extraterritorial concerns play a significant role in making a political decision for foreign policies; on the other hand, security concerns about internal threats, regime security concerns, are not a decisive factor for the mobilization of each country in international relations. Third, those security concerns are not limited to countries' own territories. But rather, not only homeland security but also extraterritorial security concerns are negatively correlated with the APM Convention. Fourth, those security concerns, however, vary with economic development: developing countries, compared to developed countries, focus more on self-defensive and border security concerns. Fifth, the existence of military alliances with major power states increases a predicted probability of participating in APM Convention. Finally, neither economic interests nor human rights concerns are a necessary and sufficient condition in mobilizing states to commit themselves to the total ban of anti-personnel landmines.

CHAPTER 5

CONCLUSION

The APM Convention is a valuable regime, which for the first time prohibits widely used weapons at the global level. This unprecedented landmine case not only may help researchers understand the diverse behaviors of various countries in international relations but also may help policymakers take appropriate steps for more general conventional arms control. Until now, most research based on neo-liberalism has ascribed the success of the APM Convention to the role of human rights groups or to the application and development of international humanitarian laws. However, those previous studies have paid little attention to the political decision-making at the state level, despite the fact that states are the principal actors and violators of human rights.

For this reason, the geo-security interactive model examined and tested diverse security and economic interests as well as human rights concerns regarding the total ban of anti-personnel landmines. In particular, the general notion of security posed by realism was classified into self-defensive, border, regime, and extraterritorial security that are closely related to the use of anti-personnel landmines in order to prevent the overestimation of security because landmines cannot represent security concerns or military capabilities as a whole. In addition, since security concerns vary with economic development, and vice versa, a multiplicative model rather than an additive one was applied to measure the joint effects of security concerns and economic development.

As a result, the geo-security interactive model supports realism to some extent that security concerns are an important factor in international relations in order to preserve countries' sovereignty. Specifically, self-defensive, border, and extraterritorial security concerns have a significant negative impact on the APM Convention. These security concerns however vary with economic development. Developing countries, compared to developed countries, pay more attention to self-defensive and border security concerns. The existence of military alliances with major power states increases a possibility of favoring the total ban of anti-personnel landmines. On the other hand, the geo-security interactive model does not support the claim that interdependence promotes international cooperation and that human rights concerns play a significant role in foreign policies as posed by neo-liberalism. Unfortunately, regarding the APM Convention, economic interests and human rights concerns are not a necessary and sufficient condition.

Regarding the APM Convention, territoriality is still a primary concern for sovereign states in order to preserve their political boundaries while interdependence has blurred economic boundaries between states (Cox, 2002). In particular, bordering antagonistic states provokes high self-defensive and border security concerns to assure national security. Historically, most wars broke out between neighboring states and the cause of wars in large part stemmed from territory issues (Vasquez, 1995; Sample, 1998; Polachek et al., 1999). This historical evidence suggests that without alleviating border security concerns, wars will repeatedly occur in the future and a global civil society cannot emerge at various fields involving security issues for the purpose of world peace.

Therefore, policymakers should be aware of the fact that promoting bilateral agreements between antagonistic states under the auspices of international communities could play a significant role in reducing self-defensive and border security concerns that discourage many states from committing themselves to international agreements. Those bilateral agreements can directly mobilize non-signatory countries to participate in the APM Convention in the short run by enhancing regional stability. However, without alleviating self-defensive and border security concerns between neighbors, it is nearly impossible for states around the world to cooperate with one another for global prosperity on the basis of multi-lateral agreements involving security issues. For this reason, the mobilization of non-signatory countries for the APM Convention cannot be perfectly accomplished by the mere pressure of international norms or treaties.

Furthermore, since self-defensive and border security concerns are more embedded in developing countries, the economic growth of those countries would be an effective indirect way in the long run that can successfully alleviate those security concerns. As discussed earlier, a country's total capabilities are defined by the combination of demographic, industrial, and military capabilities. In this context, enhancing military capabilities are not the only method to assure national security. In stead, the economic growth of developing countries is a significant alternative to promote regional stability which in turn enables developing countries to respect human rights (Mitchell and McCormick, 1988). In doing so, developed countries should be aware of the fact that supporting developing countries with finance and technologies for economic growth finally reduces their extraterritorial security concerns.

In conclusion, it is traditionally recognized that the primary goal of states is to preserve people, wealth, and territories. However, the role of states is not limited to the protection of physical integrity or material resources. There is no doubt that human beings include both the human body and the human entity. In this context, realism should expand its perspectives to include the human entity as a primary goal of states. This makes human rights concerns emerge at various fields involving security issues in international relations. In doing so, a global civil society will be formed to achieve global prosperity. For this reason, the unprecedented landmine case is invaluable in that it is not only the first step but the giant step that teaches countries around the world how to cope with the conflict between security and human rights for the purpose of perpetual peace.

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