
The Determinants of Nonproliferation Export Controls: A Membership-Fee Explanation

RICHARD T. CUPITT, SUZETTE GRILLOT, & YUZO MURAYAMA¹

*Dr. Richard T. Cupitt is Associate Director and Washington Liaison for the Center for International Trade and Security of the University of Georgia. In 2000-2001 he also served as a Visiting Scholar at the Center for Strategic and International Studies and assisted in studies on reforming U.S. and multilateral export controls. His most recent book is **Reluctant Champions: U.S. Presidential Policy and Strategic Export Controls**. Dr. Suzette R. Grillot is Assistant Professor of Political Science and International Academic Programs at the University of Oklahoma. She is co-editor of and contributor to the books **Arms on the Market: Reducing the Risk of Proliferation in the Former Soviet Union** and **Arms Control and the Environment: Preventing the Perils of Disarmament** (forthcoming 2001). Dr. Yuzo Murayama is Professor of Economic Security at Osaka University of Foreign Studies in Japan. He specializes in technology-related issues such as export controls, technology transfer, and missile defense. His most recent book on technology policy won the 2000 Fujita Future Management Prize.*

During the Cold War, the diffusion of technological capabilities in the global economy and frequent divergence of allied views on security and foreign policy made it difficult to manage the coordination of multilateral export control policies.² By the 1980s, members of the Coordinating Committee on Multilateral Export Controls (COCOM) also needed to induce more “cooperating” countries, such as the European neutrals and several newly industrializing economies in East Asia, to adopt export control systems compatible with COCOM strictures to maintain the effectiveness of the system.³ These initiatives met with mixed success.

Surprisingly, despite the demise of Soviet communism, the increasing ease of transferring sensitive technology in the information age, and divergent views on which countries constitute a proliferation threat, nearly 40 countries from six continents have become partners in at least one of the four major multilateral export control arrangements.⁴ From Argentina to South Korea, new participants

have diversified these arrangements since the early years, when it was the rich industrialized countries that characterized membership. Even more governments have adopted at least vestigial forms of nonproliferation export controls, including several countries of proliferation concern such as China, India, and Israel. In addition, thousands of companies in Europe, Japan, and the United States have set up expensive programs to comply with export controls on dual-use and military items. Why this unexpected convergence in government policies?

In this article, we construct an explanatory framework for state decisions to develop national systems of export control that comply with international standards. The framework is based on a combination of factors that stem most clearly from economic-rationalist and constructivist approaches.⁵ We then derive hypotheses from this framework and test them by comparing export control policies in 20 countries. Finally, we explore some of the theoretical and policy implications of these findings.

WHY GOVERNMENTS ADOPT COMPATIBLE NONPROLIFERATION EXPORT CONTROLS

Reasons for acquiring nuclear, chemical, or biological weapons and missiles to deliver them differ from state to state. Nonetheless, the weapons of mass destruction (WMD) programs of India, Iraq, Iran, Libya, North Korea, and Pakistan share at least two characteristics:

- most rely heavily on foreign military and dual-use items (i.e., goods, technologies, and services with both commercial and military applications) for at least some key elements; and
- most use legitimate commercial channels as cover for illicit transfers.⁶

Taken together, these factors suggest that export controls on the transfer of proliferation-sensitive technology can play a critical role in efforts to stem WMD proliferation.⁷ Nonetheless, diffusion and the development of the information economy may have diminished the utility of export controls in several key industry sectors.⁸ Lingering distrust among the allies about which governments abused COCOM in what ways also appears to have limited the opportunities for cooperation and coordination in the post-Cold War era.

In addition, the costs of administering export controls are substantial. Although there are no reliable estimates for the costs of nonproliferation export controls in recent years, two studies found that U.S. industries expended about \$9.3 billion on complying with East-West trade controls in 1985, with large companies each spending almost \$650,000 per year.⁹ Even though fewer dual-use items now require licenses than during the Cold War era, licensing has become more complex and costly, as export controls now generally target end-users (and end-uses) of proliferation concern more than countries. A recent survey of U.S. exporters of military and sensitive dual-use items indicated that the average cost of corporate compliance efforts for these kinds of exports exceeds \$637,000 per year.¹⁰ This sum for all companies now approaches the cost derived in the 1985 survey for large companies only, which suggests sharply rising compliance costs for small- and medium-size enterprises. Large companies continue to spend significant amounts to ensure compliance. Besides this administrative burden, other direct economic costs associated with export controls include: revenue and profits from denied licenses; revenue and profit losses from abstaining in trade of controlled items; and associated indirect losses in research and development (R&D)

expenditures, jobs, and the U.S. gross national product (GNP).¹¹

Export controls have a considerable impact on trade, even though the vast majority of licenses issued in most countries get approved. In early 1999, for example, the United States shifted controls on commercial satellite items from the Commerce Control List to the Munitions List, where items face more severe restrictions. U.S. Commerce Department officials attribute most of the staggering decline in the U.S. global market share in the subsequent twelve months (from 73 percent to 52 percent) and the value of U.S. commercial satellite exports (\$1.08 billion to \$637 million) to this change in export controls.¹² Export controls may also have indirect costs in other areas of public policy, such as inhibiting allies from sharing technology or increasing tensions by naming specific individuals, entities, or governments as subject to controls.

Despite the various costs associated with export control development, why have so many more governments than ever before chosen to adopt complementary export control systems? In theoretical terms, conventional realists might explain the growth in compatible export control systems as prudent government responses to the emergence of a new, widely perceived threat to national security.¹³ Certainly, the United States and Japan, among others, identify WMD proliferation as a substantial if not the foremost threat to their security interests.¹⁴ A large number of countries that have adopted nonproliferation export control systems, however, face no direct WMD proliferation threats. Even for those states most threatened by adversaries armed or seeking WMD, export controls serve as only one tool in a set of anti-proliferation policies that they may, or may not, adopt. Considerable disagreement exists among major suppliers as to which countries and technology transfers constitute proliferation threats and what policies they should adopt in response.¹⁵ Alternative approaches to export control development must, therefore, be considered as well.

A neoliberal approach, for example, suggests that states might develop compatible systems of export control when they rationally calculate the material costs and benefits and find that the benefits (such as market access and the potential for technology transfer) outweigh the costs. Material incentives or inducements provided by one state to another—and particularly across issues—also enhance the development of export control systems, as do the norms, rules, and decision-making procedures that emerge

from nonproliferation export control arrangements at large. Moreover, involvement in international export control efforts facilitates export control development, as state interaction in this area reduces uncertainty in and the perceived transaction costs of future interaction—both within and outside of the export control issue.¹⁶

Finally, a constructivist approach suggests that states develop or enhance compatible systems of export control when they interact frequently with other members of the export control community. Export control compatibility increases as a state's institutional and normative bases for a liberal democratic government. A sense of collective identity with a liberal democratic security community also enhances this compatibility. Governments which possess a "sense of community," or exhibit an interest in being a good and responsible international community member regarding export control behavior, tend to have more compatible systems.¹⁷

Only a few academic works have previously explored the determinants of post-Cold War export control systems.¹⁸ Government officials and export control authorities in dozens of countries interviewed by the authors over several years generally refer to one or more of several rationales for embracing these policies. As anticipated, some officials view WMD proliferation as a direct national security threat. These officials form a subset of a larger group that sees WMD proliferation as a threat to the international political and economic community, upon which they depend. In turn, many in this group and others believe that their governments behave as "responsible" members of the world community by adopting nonproliferation export controls. Some use export controls to keep hazardous materials from transiting their territory or limiting the influence of organized crime on legitimate commerce. Many see these policies as a means of increasing the flow of controlled technologies to their own country. Others conclude that their treaty obligations require them to develop export controls. Some officials fear economic retribution and political isolation, especially from the United States, if they do not implement an effective system of export controls. Most important, officials usually offer more than one rationale as an explanation as to why their government chooses to enforce nonproliferation export controls.

Some of these rationales obviously support conventional realist, neoliberal, and constructivist explanations about state behavior and international relations. This article does not, however, attempt to evaluate all of these rationales.

Certainly, the threat posed by Iraqi and other WMD programs sparked new interest in nonproliferation export controls and led to the enhancement of many national multilateral export control systems over the last decade, as realists might expect. Obviously, the collapse of Soviet communism redesigned the international political and economic landscape related to export controls and accounts for some of the positive changes we have witnessed in export control development, as neoliberals and even constructivists might anticipate. Nonetheless, governments could have responded to these events in many ways other than adopting compatible nonproliferation export control programs.

If anything, the pattern of adoption appears akin to the early stages of a norm cascade.¹⁹ Under those conditions, one might expect that if leaders in key governments champion a norm (in this case, this would include officials from Australia, Japan, the Netherlands, and the United States, among others), then other leaders will adopt the norm for reasons related to conformity, legitimacy, and self-esteem.²⁰ The emergence of export control norms, however, need not exclude other determinants from having a major impact on which countries choose to adopt export controls, and when.

Instead of examining these many rationales independently, we propose a framework that incorporates both economic and political factors to explain a more straightforward economic problem. The relationship between economic prosperity and a highly compatible export control system seems so obvious that one might discount its puzzling implications. The emergence of more compatible export control systems in East Asia, for example, seems vaguely tied to "take-offs" in economic growth. Japan, the original "Asian Tiger," joined the forerunner of the Wassenaar Arrangement (i.e., COCOM) in 1952 and became a founding member of the other three WMD nonproliferation arrangements. South Korea and Taiwan, which epitomize the Asian Tiger phenomenon, have also developed relatively compatible export control systems in recent years.²¹ Similarly, it appears that countries with more recent spurts of economic growth or market reform, such as China and India, have also begun the process of adopting more compatible export controls.²²

At the same time, the costs of implementing nonproliferation export controls are greater for larger, richer economies. As countries become more prosperous, they generally become more likely to produce, consume, or re-export items of proliferation concern. Moreover, offi-

cial in many emerging economies stress the primacy of economic prosperity in their national strategies, with few expressing any real concern that WMD proliferation poses much direct risk to their national security. In addition, if nonproliferation serves the collective good of the international community, then these states should face strong pressures to act as free-riders.²³ Under such conditions, one might expect relatively few states to adopt export controls compatible with international standards, as they impose real costs on domestic manufacturers. As long as the dominant suppliers, such as the United States and Japan, exercise strict controls and generally refrain from imposing sanctions on violators, then governments can free ride with nominal export control systems in place. Why, then, have the governments of many emerging economies imposed new and substantial export control measures in spite of the increasing costs?

**JOINING THE GLOBAL COMMUNITY:
A MEMBERSHIP-FEE FRAMEWORK**

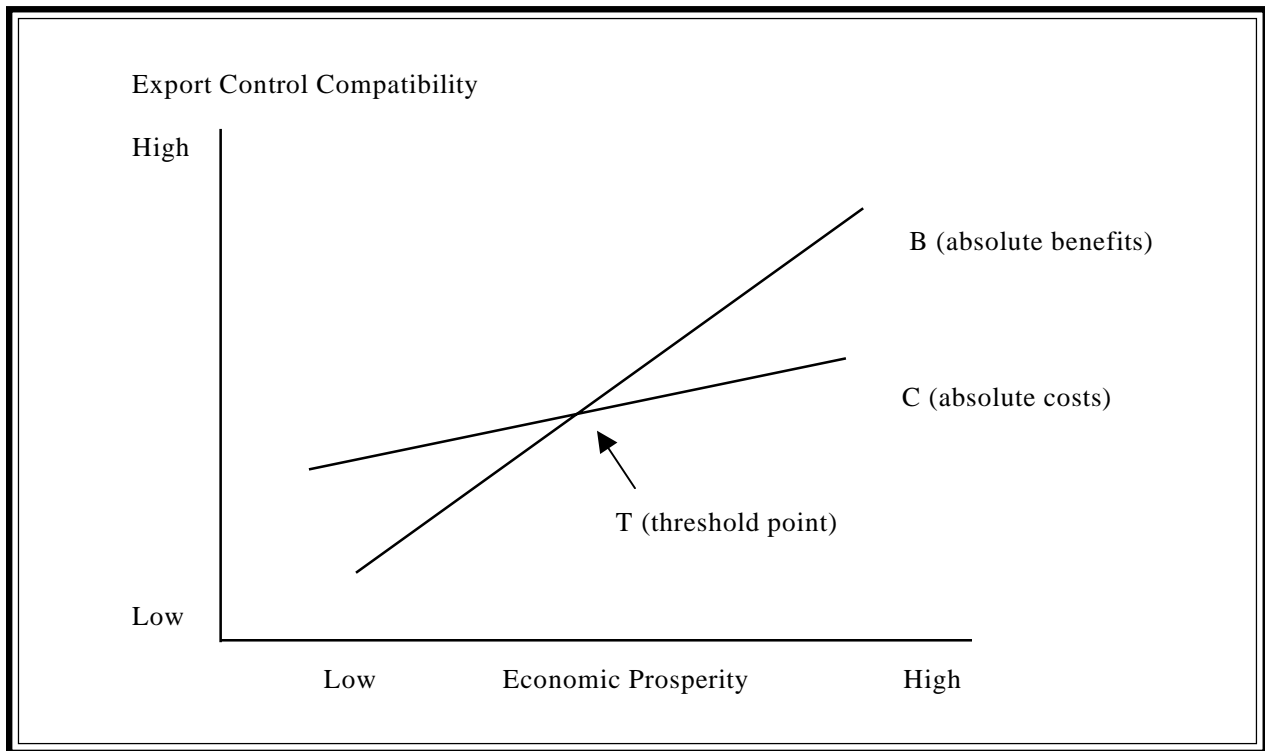
To resolve this puzzle, we propose a *membership-fee* framework for understanding why states adopt compatible nonproliferation export controls. In short, the explanation proffers a simple answer: governments develop and

implement compatible export controls in order to obtain membership in a liberal (political and economic) international community. To be a member of this community, they must have the will and capacity to absorb the costs of export controls. In other words, they must pay their dues.

In part, the relative success in attracting more countries to adopt nonproliferation export controls reflects the success of nonproliferation initiatives more broadly, which often garner widespread support and prove stable and effective.²⁴ The work of several scholars suggests that increases in international cooperation go hand-in-hand with expansion and maturation of liberal international communities.²⁵ From both constructivist (and even a neorealist) perspective, export controls may even play an important role in establishing and confirming the community to the extent that such controls help define who is, and who is not, a member.²⁶

Not all countries perceive much benefit in joining this community—witness North Korea. Integrating national economic and political interests into this community remains a policy choice, not an inalienable right. A membership-fee framework suggests that countries must absorb costs for being members of the liberal international com-

Figure 1: Framework for the Membership-Fee Theory of Nonproliferation Export Controls



munity, and that adopting export controls serves as one of many required dues. Obviously, concerns about free riders and other issues of cooperation, coordination, compliance, and enforcement will persist. However, this parallels the anecdotal evidence that officials believe governments should implement nonproliferation export control policies as a matter of behaving as a responsible member of the international community.²⁷

Figure 1 above illustrates the main theoretical relationships explored here. The vertical axis shows absolute costs of export controls, while the horizontal axis refers to the level of economic prosperity. Line C illustrates the relationship between the costs of export controls at different levels of prosperity. As prosperity increases, so do the absolute costs of an export control system compatible with international standards at any given time. In particular, more prosperous countries generally produce or consume (and by importing become a potential source of re-export) more dual-use items of proliferation concern than less prosperous countries, so they face more export licensing, monitoring, and verification issues. Certainly, most trade falls outside of the realm of high-technology items usually associated with nonproliferation export controls. WMD export controls, however, cover advanced technologies that many experts perceive as critical to future economic prosperity, including those in the fields of aerospace, advanced materials, biology, informatics, sensors, and telecommunications. In addition, some less sophisticated items, such as those associated with chemical weapons, do fall under the aegis of export controls. More important, many states have adopted “catch-all” controls that restrict the transfer of many lower-level technologies (or in some cases any items at all) if they are destined for an end-user or an end-use of proliferation concern.

In contrast, line B shows the absolute benefits accrued from implementing WMD export controls in relationship to economic prosperity. The basic assertion of the membership-fee theory is that as economies grow, the benefits accruing from implementing export controls increase faster than the costs. We believe that at least two kinds of benefits eventually overwhelm concerns about the costs of export controls in the decisionmaking process among the countries in this study:

- political benefits: officials repeatedly stress that their countries adopt export controls as befits responsible members of the international community. Benefits of membership include participating in rule-making in international bodies, periodic consultation on related is-

ues, and “fairer” treatment among states.²⁸ Maintaining good ties with other members of the community on export controls can generate diffuse benefits in other aspects of international affairs, especially as it reflects on issues of reputation, prestige, and trust.

- economic benefits: violations of international export control standards by one country have prompted sanctions or more restricted access to high-technology by other governments and multinational corporations, whereas implementing export controls can bring improved access to such items. Few governments initiate sanctions against other regime members to enforce export controls; however, most governments have more restrictive procedures for licensing exports to countries with weak export controls and a poor nonproliferation record. In the mid-1980s, for example, changes in section 5(k) of its Export Administration Act allowed the United States to provide special licensing benefits for exports to countries with complementary export control systems, even if those countries were not in COCOM. Expanding on this approach, the most recent export administration bill in the U.S. Senate, S. 149, calls for “country tiers” that would restrict exports in part based on the export control system of the importing country.²⁹ Similarly, Japan adopted a General Bulk License procedure in 1994, which allowed it to offer parallel inducements for some of its trading partners with good export control systems. To illustrate the impact of this kind of policy, many U.S. government officials suggest that China adopted controls on nuclear exports largely in response to the “ring-magnet” incident, when it realized that such controls were a prerequisite to establishing nuclear cooperation with the United States.³⁰ Many governments in the former Soviet Union adopted nonproliferation export controls in order to attract foreign assistance for specific nonproliferation, export control, and other programs, which acts as a kind of side-payment for cooperation.³¹

This does not mean these are the only benefits that play a role in calculations to adopt nonproliferation export controls. Export controls can delay the development of WMD programs in countries of concern significantly. In a few cases, officials view WMD proliferation as a direct national security concern, and export controls provide tangible security benefits. This view is most prevalent among U.S. officials and usually overrides other interests when and where it occurs. In most countries currently establishing nonproliferation export controls, however, we find that economic and political motivations dominate the

thinking of export control officials. Generally, the diffuse fear over WMD proliferation as a threat to regional or global stability primarily represents a concern over the impact any associated instability would have on economic prosperity. Even during the Cold War, several members of COCOM were not motivated primarily by military concerns. Certainly, before the Toshiba-Kongsberg case in 1987, Japan interpreted the benefits from COCOM export controls almost exclusively in economic terms.³²

Point T on Figure 1 represents a threshold after which countries adopt full-fledged export control systems, as the benefits of such policies increasingly exceed the costs. We anticipate that until countries reach this level of prosperity, governments will remain reluctant to embrace export controls comparable in practice to those found in Japan, the United States, and elsewhere. Nonetheless, states below that threshold may approve limited forms of export controls, either as a response to security interests (where they may be very tight but not necessarily compatible with international standards), to side-payments (such as promises of economic assistance for export control programs), or to their identification with the liberal community.³³

The threshold point T does not equal the tipping point associated with the transition from a norm emergence to a norm cascade, as identified by Cass Sunstein.³⁴ A tipping point describes the behavior at the level of the system, whereas the threshold point refers to an endogenous change to the costs and benefits of system constituents, in this case national governments. As the international system nears or exceeds a tipping point, however, the political and economic benefits associated with adopting export controls should also increase. This should push the threshold point for individual governments closer to the origin in Figure 1.

If one assumes that most wealthy countries derive significant economic benefits from being part of the liberal international community, then a first hypothesis emerges from this discussion. For H1, we anticipate that: the wealthier the country, the more likely its nonproliferation export control system will match standards of the liberal international community. Similarly, if one assumes that most liberal countries derive significant political benefits from being part of the liberal international community, one can derive a second hypothesis, H2: the more liberal the polity, the more compatible its nonproliferation export control system will be with standards of the liberal international community.

These factors may interact, such that rich authoritarian countries (such as oil-rich states in the Middle East) or poor democratic countries (such as Sri Lanka or South Africa) might or might not develop strong nonproliferation export control programs. The issue of interaction is considered in the next section.

METHODOLOGY

For the dependent variable, we examine the compatibility of national export control systems with multilateral standards. This data comes from case studies developed in the mid 1990s that follow the same research protocol.³⁵ Each case reviews the national export control systems across 10 elements, addressing 93 questions. Based primarily on in-country interviews with export control officials, industry representatives and other experts, coupled with on-site observations, official documents, and a variety of other primary and secondary sources, the case investigators assign scores of 0 (no, factor absent), 1 (yes, factor present), or 0.5 (yes, but factor not completely present) for each question. The number of interviews varied from less than a dozen for some of the smaller countries to more than a hundred for the United States. The questions are grouped by element. Each element has a weight for its importance relative to other elements, the weights generated from an expert international panel. The final score falls on a scale of 0–100.³⁶

Although these scores do not measure effectiveness of national systems directly, export control systems in market-oriented economies without these structures are unlikely to be effective. More important, compatibility directly addresses the effectiveness of export controls at the system level. Without compatible export control systems, countries trying to acquire WMD can exploit differences in national policies to gain access to sensitive items.

The 20 entities examined in this study include Armenia, Azerbaijan, Belarus, Cuba, Georgia, the Hong Kong Special Administrative Region, India, Japan, Kazakhstan, Kyrgyzstan, Moldova, the People's Republic of China, the Republic of China (Taiwan), the Republic of Korea, the Russian Federation, Tajikistan, Turkmenistan, Ukraine, the United States, and Uzbekistan.³⁷ All of the data comes from in-country fieldwork by investigators trained in using the assessment protocol.

Obviously, the cases do not represent a random sample. Gathering basic data on current export control policy and

practices requires interviewing government officials and others in their official environment, gathering materials often only available on-site, and making basic visual observations, such that resource constraints place severe limits on the scope of the research. In general, the rationale for covering certain cases and not others stems from two concerns:

- Is the country a major producer and potential supplier of sensitive items?
- Is the country a transit point for sensitive items?

These criteria exclude most Asian-Pacific, African, Caribbean, and Latin American countries. Another large block of countries excluded from the analysis are those in the Middle East. While several of these countries have WMD programs and have highly prosperous economies, relatively few produce or supply sensitive items or serve as key transit points for sensitive items (although Cyprus, Jordan, and Malta have attracted attention on this issue).

Despite the criteria, the set of cases does not encompass most of the members of the four major supplier groups. Most of the scores for these countries would likely be similar to the scores of Japan and the United States. Up to now, we have focused most of their research efforts on states that have begun to adopt export control systems compatible with emerging multilateral standards, but are not yet participants in all of the supplier arrangements. We believe that assessments of those systems hold the most promise for identifying programmatic targets for foreign assistance efforts that could foster export controls in countries of considerable proliferation concern. For this article, this case selection has the practical benefit of providing substantial diversity in the export control system scores, as the next section will demonstrate.

The primary independent variable is economic prosperity, as measured by gross domestic product (GDP) per capita for 1998.³⁸ As economic benefits might accrue most to those states most closely integrated into the global economy, we also examined an index of economic freedom (where 1 equals most free and 5 equals least free) and total trade in 1998 dollar value as measures that might reflect the potential for a country to garner benefits from the global community.³⁹

Although political benefits seem harder to measure, we expect that the greater the extent of political and civil rights in the system, the greater the benefits a country gains from developing nonproliferation export control systems compatible with international standards and associating with the international export control community, which largely

reflects the constituents of the liberal political community. In this case, we examined the political rights index and the civil rights index for 1998 as developed by Freedom House (ranging from 1 for most free to 7 for least free).⁴⁰

Given the potential for interaction between the two dimensions, the authors also examined several interaction terms. These terms, along with several other measures, proved problematic. The key measure, GDP per capita, showed evidence of a non-normal distribution. To create a more normal distribution required for regression analysis, the authors transformed the data by taking the natural log of GDP per capita, a standard statistical technique. This measure (as well as the simple GDP per capita measure), however, also generated considerable collinearity with the index of economic freedom and the value of total trade (imports plus exports), which led the authors to drop these measures from the analysis. Similarly, the indices of political and civil rights also produced a collinearity problem, so we used only the political index. The interaction term (the political rights index times the log GDP per capita score) also appeared collinear with the political rights index alone.⁴¹ This reduced the basic model to two variables, the log of GDP per capita and the political rights score. Nonetheless, these two measures cover the two dimensions on which the authors surmised countries might accrue the majority of benefits from adopting export controls (i.e., economic and political).

The clearest division in the independent data comes in the gulf between the wealthy and poorer states in terms of GDP per capita. Five states had GDP per capita of over \$12,500 (the United States, Hong Kong, Japan, Taiwan, and Korea), while 15 occupied a much smaller range between \$990 and \$5,200. Although the logarithmic transformation of the data diminished this gap, we chose to conduct a secondary analysis that excluded the five rich states.

FINDINGS AND ANALYSIS

Regarding export control compatibility, (i.e., the dependent variable), the countries fall into four rough categories.

1. *Leaders of the Pack* (Hong Kong, Japan, and the United States). All three governments have extensive experience in key elements of export controls, including licensing, interagency decisionmaking, import certificate/delivery verification, enforcement, industry outreach, information sharing, and more. Although Hong Kong is not a participant in the supplier groups,

Table 1: Compatibility of National Nonproliferation Export Control Systems with Multilateral Standards

Country	Score (Max = 100)
Armenia	49.89
Azerbaijan	34.96
Belarus	73.22
China (PRC)	54.02
China (Hong Kong)	97.72
China (Taiwan)	88.51
Cuba	70.31
Georgia	42.01
India	70.54
Japan	97.92
Kazakhstan	59.26
Republic of Korea	72.33
Kyrgyzstan	30.42
Moldova	55.49
Russian Federation	76.29
Tajikistan	7.89
Turkmenistan	10.57
Ukraine	85.79
United States	96.96
Uzbekistan	33.28

four other countries have made it their responsibility to keep Hong Kong abreast of supplier group activities.

2. *Odd Fellows* (Taiwan, Ukraine, Russia, South Korea, Belarus, Cuba, and India). This is an unusual mix of states, including two that retain command-style economic systems (Belarus and Cuba), one with more of a socialist than market economy (India) and two still struggling to make the transition to a market economy (Ukraine and Russia). Taiwan and South Korea have only recently begun to adopt export controls and are likely to move up to the next group soon. These states have many of the key elements of export control policy in place, but fall short in implementation and, in some cases, commitment.

3. *The Rear Guard* (Kazakhstan, Moldova, China, Armenia, Georgia, Azerbaijan, Uzbekistan, and Kyrgyzstan). Although some countries in this group have made considerable strides in adopting export controls in recent years, especially China and Kazakhstan, they typically lack several crucial elements in their respective export control systems.

4. *The Outsiders* (Tajikistan and Turkmenistan). These two countries have made little progress in developing export control systems. They lack nearly all of the central features of a functioning export control system. Nonetheless, they send delegations to export control

outreach conferences sponsored by the United States and other countries, and, as with every republic of the former Soviet Union, they both produce or have some items of proliferation concern.

The mean for the export control compatibility scores is 60, with a range from 7.89 for Tajikistan to 97.72 for Japan (see Table 1). The results of the first regression procedure (including all 20 cases) appear in Table 2. Following standard regression procedures, we rely on dividing the estimated regression coefficient for each parameter in the overall relationship (B) by the standard error of estimate for each variable (SE) to produce the observed t-ratio (t). To test the hypotheses that an association exists between the independent and dependent variables, we compare the observed value of t with the expected t-distribution of values. Using a two-tailed test of significance, any t value of less than -1.96 or more than 1.96 indicates an association between the variables at the 0.05 level of significance.

As expected, the log GDP per capita variable has a strong and significant positive relationship with export controls. As GDP per capita increases, export controls appear more complementary. Similarly, states that have more political rights (indicated by a low score) also have more complementary export control systems, as antici-

pated. While this variable has the appropriate sign, it does not exhibit a t value sufficient to accept it as a significant explanatory factor. Nonetheless, this simple model alone accounts for nearly 64 percent of the variance in export control systems.

Table 2: GDP Per Capita, Political Freedom and the Compatibility of Export Controls, 1998

Dependent Variable: Export Control Compatibility Score

Model	B	SE	t	Significance
Constant	-63.06	43.31	-1.46	.164
Log GDP per capita	16.56	4.5	3.68	.002
Political freedom	-3.22	2.2	-.146	.163
R ² = .637				
N = 20				

Excluding the richest states from the analysis does diminish the explanatory power of the model. The log GDP per capita measure remains significant and with the expected sign. While the coefficient for the political rights variable does not reach an acceptable level of significance, it still retains the expected sign. Nonetheless, the model seems sufficiently robust as to challenge others to build something with greater explanatory power, if not with as much parsimony.

Table 3: GDP Per Capita, Political Freedom and the Compatibility of Export Controls for Countries with GDP per capita less than \$10,000 in 1998

Dependent Variable: Export Control Compatibility Score

Model	B	SE	t	Significance
Constant	-162.19	92.27	-1.76	.104
Log GDP per capita	30.79	11.78	2.61	.023
Political freedom	-5.17	2.68	-1.93	.077
R ² = .468				
N = 15				

Obviously, the findings from 20 cases cannot certify either the hypotheses presented here or the “membership-fee” framework as a whole. These findings, however, provide support for the basic model, particularly its eco-

nomics dimension. More importantly, this study establishes a baseline for future studies to address. It also holds several implications for policymakers.

CONCLUSIONS AND IMPLICATIONS

A primarily economic explanation as to why most governments embrace “comparable in practice” nonproliferation export controls accounts for a considerable portion of the variance in policy, despite the clear security issues generally associated with export controls. While several states with medium to low log GDP per capita scores have adopted key elements of export controls, it appears that building a highly compatible system depends in no small part on the will of countries to pay the fees (i.e., absorb the costs) to become members of the nonproliferation export control community.

What policy implications derive from this perspective? States whose prosperity exceeds the threshold point illustrated in Figure 1 may need assistance in implementing and enforcing export controls, but they probably do not need side-payments or other incentives to adopt compatible export control policies. Officials in these countries should respond favorably to entreaties to enhance their export control systems by appealing to their interests in supporting responsible behavior by members of the international nonproliferation community and in the stability and security of the international system. Clearly, this suggests that the creation and maintenance of international norms regarding nonproliferation export controls may have an important impact on behavior.⁴² Even an unspoken chance of increased isolation from the global marketplace has profoundly negative consequences for these states, which government officials will seek to avoid through serious efforts to meet international standards.⁴³ At the same time, no norm exists in a vacuum, and important questions about which specific norms and how much importance they bear need attention.⁴⁴ In this instance, the impact of norms regarding export controls rests within a larger setting of identity and economic determinants.

States that fall well below the threshold point, however, demand different strategies from the international community to achieve more compliance with international standards. We surmise, for example, that the People’s Republic of China will develop a more compatible system of nonproliferation export controls as it nears the threshold point, but that economic incentives, such as access to U.S. technology and the U.S. market remain paramount. Although the differences between the United States and China about

the development of Chinese WMD systems will continue, the model suggests that China will place more and more controls on the export of sensitive items to Pakistan and elsewhere as its economy continues to undergo expansion.

This increases the perplexity of the role of economic sanctions related to nonproliferation, given that targeted sanctions might dissuade the Chinese government from approving sensitive exports. Moreover, if the sanctions have broad economic impact, they may slow the rate of economic growth that is the larger determinant of cooperation.⁴⁵ More important, the model implies that a recession or, as many expect, a substantial drop in Chinese economic growth will likely precipitate even less interest by Chinese enterprises in abiding by export control norms and less incentive for Beijing to enforce its existing export regulations—a trend that sanctions might not reverse.

Similarly, continued economic privatization in the former Soviet Union puts considerable pressure on the Newly Independent States to move very cautiously in adopting nonproliferation export controls. Many WMD-related enterprises in Russia, for example, face extreme pressure to export sensitive items to virtually any buyer, especially since the 1998 financial crisis. Efforts such as the International Science and Technology Centers or the Nuclear Cities Initiative can work as effective side-payments, but will not substitute for sustained economic growth in Russia as a whole in the long run. The decisions by the Kremlin to build the Bushehr nuclear power plant and renew arms sales to Iran illustrate some of the likely consequences of continued economic stagnation in Russia.

For the more modestly sized economies outside of Russia and China, side-payments could have an even greater impact. Especially if the governments of those countries control the production or transit of the most sensitive items, then such efforts could raise benefits notable at the system level without raising costs. But what kind of side-payments?

Currently, the United States appropriates relatively low levels of economic assistance to strengthen foreign export control systems, mainly in the former Soviet Union, but larger programs could prove useful as they provide direct economic benefits for implementing export controls. Tying massive packages of economic support to implementing export controls might have more impact, but contributing states would have to consider the overall effect on proliferation of strengthening the export control

system of a particular state for the price (and if they have the political capital to transfer the much larger amounts of foreign assistance this implies). Appeals based on identity with a liberal community also hold some promise, but will not have as much influence as similar appeals have among wealthier states. In some instances, concrete security assurances might push poorer states to adopt export controls. The lack of resources in those states, however, often means that governments cannot implement and enforce an effective export control system. Finally, the threat or imposition of either targeted or broad economic sanctions might prompt governments to adopt export controls (again, controls they may not be able to implement or enforce effectively), but it seems more likely that sanctions might impose debilitating economic costs that would move the target country (or the government of the target company) further away from the threshold point where benefits exceed costs.

This study examined a small number of cases, so fairly narrow conclusions are warranted. The results suggest, however, that officials of the export control community should consider giving greater credence to the value of helping other countries to prosper. Industrialists eager to promote trade have long advocated this position. At the same time, when governments support and encourage violation of nonproliferation norms, the United States, its allies, and its friends should not balk at the use of strict, if narrowly-targeted, sanctions, especially on the transfer of military or dual-use items. Where volition is less certain, however, further study of linked side-payments on the cost and benefit structure for imposing export controls might prove insightful.

In theoretical terms, this study provides additional evidence to support the notion that a liberal international community exists and has expanded in the post-Cold War era. Adherence to multilateral export control arrangements, moreover, goes beyond a conglomeration of the North Atlantic Treaty Organization and bilateral security treaties, we believe, to fit more closely with the prevailing combination of states that exhibit liberal political and economic polities. In the sense that export control policies reflect choices about national economic and security interests, this goes to the heart of the characteristics of a liberal community. At the same time, the relative importance of economics compared with politics in the findings challenges the standard constructivist view of the foundation of the liberal international community, which tends to emphasize politics over economics. Finally, this study

also supplies a plausible answer to the puzzle of why states not immediately threatened by the proliferation of weapons of mass destruction and generally committed to reducing trade barriers would expend considerable resources to implement controls on the export of sensitive advanced technologies.

¹ The authors thank the Carnegie Corporation, the Japan Foundation Center for Global Partnership, the United States Institute of Peace, the W. Alton Jones Foundation, and the University of Georgia for their support of this research.

² Examples from the extensive literature on this subject include Michael Mastanduno, *Economic Containment: COCOM and the Politics of East-West Trade* (Ithaca, NY: Cornell University Press, 1992); Michael Mastanduno, "Trade as a Strategic Weapon: American and Alliance Export Control Policy in the Early Postwar Period," *International Organization* 42 (Winter 1998), pp. 121-150; Beverly Crawford and Stefanie Lenway, "Decision Modes and International Regime Change: Western Collaboration on East-West Trade," *World Politics* 37 (April 1985), pp. 375-402.

³ Panel on the Future Design and Implementation of U.S. National Security Export Controls, National Academy of Sciences. *Finding Common Ground: U.S. Export Controls in a Changed Global Environment* (Washington, D.C.: National Academy Press, 1991), pp. 66-68.

⁴ The four major multilateral export control arrangements include: the Australia Group Informal Consultations on Preventing the Association with Chemical and Biological Weapons Programs, the Missile Technology Control Regime (MTCR), the Nuclear Suppliers Group (NSG), and the Wassenaar Arrangement on Export Controls for Conventional Weapons and Dual-Use Goods and Technologies.

⁵ For a recent review of these two approaches, see John Gerard Ruggie, "What Makes the World Hang Together? Neo-utilitarianism and the Social Constructivist Challenge," *International Organization* 52 (Autumn 1998), pp. 855-885; Barry Eichengreen, "Dental Hygiene and Nuclear War: How International Relations Looks from Economics," *International Organization* 52 (Autumn 1998), pp. 993-1012.

⁶ Unclassified presentation by U.S. Central Intelligence Agency official, BXA Update 1998, Washington, D.C., July 8, 1998.

⁷ See, for example Commission to Assess the Organization of the Federal Government to Combat the Proliferation of Weapons of Mass Destruction, Commission Report, *Combating Proliferation of Weapons of Mass Destruction* (Washington, D.C., 1999), pp. 37-42.

⁸ See, for example, U.S. Department of Defense, Defense Science Board, *Final Report of the Defense Science Board Task Force on Globalization and Security* (Washington, D.C.: Office of the Under Secretary of Defense for Acquisition and Technology, 1999).

⁹ Stephen A. Merrill, "Operation and Effects of U.S. Export Licensing for National Security Purposes," in National Academy of Science, "Panel on the Impact of National Security Controls on International Technology Transfer," *Balancing the National Interest: U.S. National Security Export Controls and Global Economic Competition* (Washington, D.C.: National Academy Press, 1987), p. 247; and William F. Finan, "Estimate of Direct Economic Costs Associated with U.S. National Security Controls," in National Academy of Science, *Balancing the National Interest*, p. 266. One study in the early post-Cold War years asserted that U.S. controls cost U.S. industry at least \$20 billion each year in lost sales. See J. David Richardson, *Sizing Up U.S. Export Disincentives* (Washington, D.C.: Institute for International Economics, 1993).

¹⁰ Center for International Trade and Security, "Survey on U.S. Industry Compliance and Export Controls," 2000, <http://www.uga.edu/cits/news/news_us_indi_full.htm>.

¹¹ Finan, "Estimate of Direct Economic Costs Associated with U.S. National Security Controls."

¹² William A. Reinsch, "U.S. Satellite Export Policy," testimony of the Under

Secretary of Commerce before the U.S. Senate Foreign Relations Subcommittee on International Economic Policy, Export and Trade Promotion, June 7, 2000, <www.bxa.doc.gov/PRESS/2000/SatelliteExportPolicyCongTest.html>.

¹³ Suzette R. Grillo, "Explaining the Development of Nonproliferation Export Controls: Framework, Theory, and Method," in Gary K. Bertsch and Suzette R. Grillo, eds., *Arms on the Market: Reducing the Risk of Proliferation in the Former Soviet Union*, (New York: Routledge, 1998), pp. 3-5. For a general example of realism see Hans Morgenthau, *Politics Among Nations: The Struggle for Power and Peace*, 5th ed. (New York: Alfred A. Knopf, 1973); and Joseph Grieco, "Anarchy and the Limits of Cooperation," *International Organization* 42 (Summer 1998), pp. 485-507.

¹⁴ See, for example, U.S. Department of Defense, Office of the Secretary of Defense, *Proliferation: Threat and Response* (1997); and Japan Defense Agency, *Defense of Japan 1998*, White Paper, English translation (Tokyo: Japan Times, 1998).

¹⁵ Robert S. Litwack, *Rogue States and U.S. Foreign Policy: Containment After the Cold War* (Washington, D.C.: Woodrow Wilson Center Press, 2000).

¹⁶ Grillo, "Explaining the Development of Nonproliferation Export Controls," pp. 5-6. For a general example of neoliberalism see David A. Baldwin, *Neorealism and Neoliberalism: The Contemporary Debate* (New York: Columbia University Press, 1993).

¹⁷ *Ibid.*, pp. 9-10. For a general example of constructivism see Alexander Wendt, *Social Theory of International Politics* (Cambridge: Cambridge University Press, 1999); and Alexander Wendt, "Constructing International Politics," *International Security* 20 (Summer 1995), pp. 71-81.

¹⁸ For the post-Cold War era, see Richard T. Cupitt, *Reluctant Champions: U.S. Presidential Policy and Strategic Export Controls* (New York: Routledge, 2000); Michael Lipson, "The Reincarnation of COCOM: Explaining Post-Cold War Export Controls," *The Nonproliferation Review* 6 (Winter 1999), pp. 33-51; Bertsch and Grillo, *Arms on the Market*; Richard T. Cupitt and Suzette Grillo, "COCOM is Dead, Long Live COCOM," *British Journal of Political Science* 27 (July 1997), pp. 361-389; and Bates Gill, Kensuke Ebata, and Matthew Stephenson, "Japan's Export Control Initiatives: Meeting New Nonproliferation Challenges," *The Nonproliferation Review* 4 (Fall 1996), pp. 30-42.

¹⁹ Cass Sunstein, *Free Markets and Social Justice* (New York: Oxford University Press, 1997), pp. 35-41; and Martha Finnemore and Kathryn Sikkink, "International Norm Dynamics and Political Change," *International Organization* 52 (Autumn 1998), pp. 887-917.

²⁰ *Ibid.*

²¹ Richard T. Cupitt, "Nonproliferation Export Controls in East Asia," *Journal of East Asian Affairs* 11 (Summer/Fall 1997), pp. 452-480.

²² See for example Dinshaw Mistry, "Diplomacy, Sanctions, and the U.S. Nonproliferation Dialogue with India and Pakistan," *Asian Survey* 39 (September/October 1999), pp. 753-771; and Zachary S. Davis, "China's Nonproliferation and Export Control Policies," *Asian Survey* 35 (June 1995), pp. 587-603.

²³ For a discussion of the problems associated with providing collective goods, see Mancur Olson, *Logic of Collective Action: Public Goods and the Theory of Groups* (Cambridge, MA: Harvard University Press, 1971, revised edition). For collective goods problems and trade, see John A.C. Conybeare, *Trade Wars: The Theory and Practice of Commercial Rivalry* (New York: Columbia University Press, 1987). For specific applications to multilateral export controls, see Lisa L. Martin, *Coercive Cooperation: Explaining Multilateral Economic Sanctions* (Princeton, NJ: Princeton University Press, 1992); and Kenneth A. Dursht, "From Containment to Cooperation: Collective Action and the Wassenaar Arrangement," *Cardozo Law Review* 19 (December 1997), pp. 1079-1123.

²⁴ John Gerard Ruggie, "The False Premise of Realism," *International Security* 20 (Summer 1995), pp. 64-65.

²⁵ Ruggie, "What Makes the World Hang Together?" See also Wendt, *Social Theory of International Politics*; Wendt, "Constructing International Politics." See also the seminal precursor by Karl Deutsch et al., *Political Community and the North Atlantic Area* (Princeton, NJ: Princeton University Press, 1957).

²⁶ See the discussion of cooperation in a self-help setting in Jonathan Mercer, "Anarchy and Identity," *International Organization* 49 (Spring 1995), pp. 229-252.

²⁷ For example, see the findings and statements made by national delegations

at the International Conference on Export Controls, *Proceedings*, St. Hugh's College, Oxford, England, September 28-30, 1999 (Washington, D.C.: U.S. Department of Commerce).

²⁸On the latter point, members of the liberal security community—which constitutes the bulk of the membership of the export control arrangements—for example, are less likely to be sanctioned for violations of nuclear nonproliferation norms than non-members. See Glenn Chafetz, "The Political Psychology of the Nuclear Nonproliferation Regime," *Journal of Politics* 37 (August 1995), pp. 743-775.

²⁹See the draft of the U.S. Senate bill at <www.senate.gov/~enzi/cra99769.pdf>.

³⁰National Security Council (NSC) and Department of Energy officials, interviews with one author, April and May 1998. The timing of Chinese policy initiatives, however, does not necessarily match this explanation.

³¹Bertsch and Grillot, *Arms on the Market*.

³²Toshio Watanabe and Fumihiko Adachi, *Zusetsu Axia Keizai* (Tokyo: Nihon Hyoronsha, 1992), p. 57; and Kikakucho Keizai, *Azia Keizai 1995* (Tokyo: Okurasho Insatsukyoku, 1995), p. 25.

³³See Bertsch and Grillot, *Arms on the Market*. Many former Soviet states (particularly in the southern tier of the former Soviet Union) might fall into this category of states that make some limited attempt to develop national systems of export control despite their relative economic weaknesses.

³⁴Sunstein, *Free Markets and Social Justice*, p. 38; Finnemore and Sikkink, "International Norm Dynamics and Political Change," p. 901.

³⁵See Bertsch and Grillot, *Arms on the Market*.

³⁶For additional information on the methodology, see *Ibid*.

³⁷*Ibid*.

³⁸U.S. Central Intelligence Agency, Office of the Director, *The World Factbook 1999* (Washington, D.C.: CIA, 1999).

³⁹See the index of economic freedom in Bryan T. Johnson, Kim R. Holmes, and Melanie Kirkpatrick, *1999 Index of Economic Freedom* (New York: Heritage Foundation, 1999), <www.heritage.org/index/countries/maps&charts/list1.gif-list5.gif>. The trade data are derived from the U.S. Central Intelligence Agency, *The World Factbook*, 1999.

⁴⁰See Freedomhouse, *Political Rights Index 1998* and *Civil Rights Index 1998*, <www.freedomhouse.org>.

⁴¹We recoded the index so that the highest score was the most liberal, to match the higher scores for log GDP per capita as the most prosperous. Higher scores on the interaction term would imply more incentive to adopt compatible export controls.

⁴²Finnemore and Sikkink, "International Norm Dynamics and Political Change."

⁴³*Ibid*, p. 903.

⁴⁴Jeffrey W. Legro, "Which Norms Matter? Revisiting the 'Failure' of Internationalism," *International Organization* 51 (Winter 1997), pp. 31-63.

⁴⁵For a recent review of the sanctions debate, see Kimberly Ann Elliott, "The Sanctions Glass: Half Full or Completely Empty?" *International Security* 23 (Summer 1998), pp. 50-65; and Robert A. Pape, "Why Economic Sanctions Still Do Not Work," *International Security* 23 (Summer 1998), pp. 66-77.