

9

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9

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Institutions can also be used to propagate one specific norm. In this chapter, Greg Rasmussen and Arthur A. Stein look at how two different institutions, the Non-Proliferation Treaty and the Missile Technology Control Regime, have approached the problem of inculcating the non-proliferation norm. Although different in their structure and timing, and although neither has been completely successful, they have both helped slow the pace of proliferation by altering the incentives of potential buyer states and the domestic political interests of supplier states.

During the half-century since the end of World War II, halting the spread of weapons of mass destruction has been an objective of the United States and the other Great Powers. Although having a commercial interest in selling advanced weapons technology, the Great Powers have also wanted to avoid the spread of weapons that might threaten them, as well as to maintain their status to Great Power status. Non-proliferation became the focus of such extensive Great Power efforts and the basis of different international regimes. The Non-Proliferation Treaty (NPT) and the Missile Technology Control Regime (MTCR) came into being at different times and focused on different parts of the proliferation problem. The former was signed in 1968 and centered on preventing the spread of nuclear weapons. But the military implications of nuclear weapons were only fully felt when these were combined with ballistic missile technology, and in the 1980s the United States focused on this aspect of the non-proliferation problem, hoping to stem the spread of ballistic missile technology through the MTCR. This chapter deals with these two regimes: their similarities, differences, and relative success. (Since more is known about the NPT, greater emphasis is placed below on the MTCR.) The core conclusion is that, despite their differences, these regimes have had comparable success stemming from their similar economic.

incentive of exchanging civilian access to technology for promises to forgo proliferating.

The Clubs and Their Operation

NPT

The NPT involved a bargain between two groups of states: those with and those without nuclear weapons. In essence, the have-nots agreed to forgo nuclear weapons in exchange for the haves providing access to technology and materials for peaceful nuclear energy development (and to negotiate in good faith toward reducing vertical proliferation).¹ The treaty entered into force in March 1970, by which time forty-two nations had signed and ratified. By the end of 1970, sixty-two nations had signed and one had acceded.² By 1997, the NPT had 187 members and had been renewed indefinitely.

MTCR

The MTCR began when the leading industrial countries agreed among themselves to coordinate their policies to restrict the export of ballistic missiles and related technology to other countries. In November 1982, the United States began secret negotiations, first with Britain and later with France, West Germany, Italy, Canada, and Japan. The first multilateral meeting was held in 1983. The Soviet Union, a major missile technology producer and exporter, was not invited. In 1985, a group of countries—coincidentally the G-7—agreed to adopt a common set of export controls. Eventually, the G-7 countries formally established the MTCR with a series of diplomatic notes on April 16, 1987.³ Essentially, they made simultaneous statements that they would follow the specified set of guidelines in their own export control policies.⁴

The guidelines for MTCR export controls seek to control “transfers that could make a contribution to nuclear weapons delivery systems other than manned aircraft.”⁵ The MTCR focuses on missiles “capable of delivering at least a 500 kg payload to a range of at least 300 km.”⁶ Five hundred kilograms is the minimum for a rudimentary militarily useful nuclear warhead,⁷ and 300 kilometers hovers near the range of Scud missiles but exceeds the range of many cruise missiles and unimproved Scud-Bs.⁸ In 1993, members expanded the control guidelines to include missiles *intended* to deliver weapons of mass destruction (WMDs, which includes chemical, biological, and nuclear weapons), regardless of range and load. While the MTCR guidelines claim not to include missiles for space development, they probably actually do so. After all, any ballistic missile which could put a 500-kg satellite into space orbit *could* put a

500-kg nuclear warhead on a trajectory toward an earth target. Kathleen Bailey reaches an unequivocal conclusion: “The technologies used to launch and guide SLVs [space launch vehicles] are virtually indistinguishable from those of ballistic missiles.”⁹ SLVs can help a country with a variety of civilian applications such as communications, weather forecasting, land use monitoring, research, and so forth. The regime exempts missile delivery transfers under way among Western allies because of existing treaties (such as the Trident II missiles the United States is transferring to the United Kingdom). Perhaps most importantly, the regime specifically excludes any regulation of manned aircraft delivery systems, a technology which can be quite useful for nuclear weapons delivery but in which the United States and its allies are likely to have a sizable advantage in times of war.

The MTCR is voluntary and informal, though it operates in formal fashion with yearly plenaries and occasional technical special sessions.¹⁰ As Deborah Ozga notes, “Decisions taken by members—such as approval of membership applications and annex changes—require a consensus vote.”¹¹ We should also note here that the MTCR has something akin to the NPT’s on-site inspection by the International Atomic Energy Agency (IAEA). Sometimes, before they can secure membership, applicant nations must agree to on-site inspections by existing members of their nationally legislated export control apparatus.¹² For example in 1990, South Korea agreed to American inspections of some of its missiles to verify their limited range.¹³

Descriptive Comparisons

The NPT and the MTCR have a number of important similarities and differences. Both regimes seek to restrict the spread of weapon technology, not to reduce ownership of the technology, though the NPT vaguely obliges nuclear weapon states to seek nuclear disarmament. Both regimes control exports and seek to constrain the flow of WMD-relevant technology from potential supplier nations to potential recipient nations. Both regimes rely on a technology embargo against nonmembers, while seeking to allow related civilian technologies. Both regimes prohibit members from exporting the sensitive technology without adequate assurances of peaceful end-use to potential recipients. Both have some procedures for judging end-use intentions, have monitoring of transfers and end-use by national intelligence, and limit enforcement measures to denial of civilian technology.

NPT members use IAEA inspections to certify whether the potential recipient’s declared facilities comply, giving potential sellers additional resources for judging likely end-use. Having no such formal mechanism, MTCR members pool the data from their standard national intelligence measures.

Potential buyers do not have to permit on-site inspections but applicants for MTCR membership sometimes do so to certify the adequacy of their national export control apparatus.¹⁴ For example, American teams inspected Argentina's transfer of the Condor missile program's technology from its air force to civilian agencies.¹⁵ The NPT does not require this.¹⁶ To detect clandestine transfer of the technology to military purposes, neither regime has explicit procedures that can be used without the consent of the suspect government.

Both regimes are premised on a voluntary, mutually beneficial exchange between countries. Neither regime has third-party enforcement or cross-issue linkages, although the NPT does have the status of international law.¹⁷ For monitoring and coordination, the NPT has a bureaucracy (the IAEA) while the MTCR has only a simple coordinating office inside the French Foreign Ministry.

A key difference rests on the degree of inclusion. The MTCR represents a seller's club, while the NPT includes both sellers and buyers. The have-nots have joined the NPT, are bound by its rules, and have pledged not to acquire the forbidden military technology, whether indigenously produced or not. In the MTCR, the have-nots are not members and make no such promise.¹⁸ While the MTCR began with just seven members and now counts twenty-nine, the NPT initially had more than sixty-three members and now has an almost universal 187. For reasons made clear below, we should not expect the MTCR to grow much beyond forty-five to fifty members or roughly about a fourth of the nationstates. The NPT is a much more inclusive club.

The NPT and the MTCR also differ in the pattern of governmental acceptance.¹⁹ The NPT had a much larger first-year membership than the MTCR (88 vs. 7). The number of NPT members grew more slowly in the organization's first decade than did the number of MTCR members (16 percent vs. 76 percent). While the NPT has had a slower average annual growth rate in membership (1.8 percent vs. 7.6 percent), it has grown to include more members (187 vs. 29, as of 1997).

The MTCR's rapid expansion represents a greater accomplishment than the NPT's initial breadth of membership. First, the NPT had much lower membership standards: states had only to ratify the treaty. With MTCR, applicants had to adopt legislation implementing export controls and get the approval of existing members. Many countries were initially denied entry. It seems likely, then, that the smaller membership levels of the MTCR stem from its higher membership standards. Second, since building or purchasing nuclear weaponry requires a higher level of economic and technological development, a smaller portion of the world's countries could have expected to import, produce, or export the weaponry proscribed by the NPT. Hence there was less opportunity cost to joining.

Note that the NPT grew faster in the post-Cold War decade than it did in its initial decade. Some of this was due to a speed-up in nation-state formations due to the Soviet collapse, but some of it may have been due to the higher priority

placed by the United States and its allies upon non-proliferation with the end of the Cold War and the threats perceived from Iraqi missiles during the 1991 Gulf War. These helped the MTCR as well. There may also have been synergism, in that having the two regimes together helped both acquire more members than either would have had alone.

The only significant difference in Great Power membership across the two regimes has been in the timing of accession. Germany and Japan joined the NPT in its second year but were founders of the MTCR. Russia joined the NPT in its first year but took eight years to join the MTCR. While China joined the NPT in the mid-1990s (after a series of nuclear tests), it has yet to join the MTCR. France somewhat offsets this, being a founding member of the MTCR but taking a quarter-century to join the NPT (and then only after a controversial series of nuclear tests).

Another facet of regime progress is expansion in scope. In 1992, the MTCR members agreed upon an expansion of the MTCR guidelines, which was implemented in 1993. In effect, they prohibited the export of any missile *intended* to deliver WMDs, even if the missile was below the 300-km/500-kg threshold.²⁰ Also, the MTCR raised its entry requirements so that new members had to destroy their existing missiles, which Hungary, South Africa, and Argentina did.²¹ Whether India, Pakistan, and Israel will be required to abandon their existing nuclear weapons stockpiles before joining the NPT remains to be negotiated.

The Costs and Benefits of Membership

For both regimes, the cost of membership is export restraint, while the advantage is import access. Although members cannot export proscribed technology, they can usually have better access to related technology for civilian purposes.

NPT

Signatories of the NPT agree not to acquire nuclear weapons (unless they already had them as of January 1967) and agree to IAEA safeguards for any fissionable material received. Those with nuclear weapons as of January 1967 agree not to help any non-nuclear weapons state develop nuclear energy unless that state agrees to IAEA safeguards, agree not to stifle the spread of nuclear technology for peaceful purposes, and agree to seek an early negotiated end to the arms race and a verifiable nuclear disarmament.²²

MTCR

Membership in the MTCR involves an implicit expectation of access to technology for peaceful purposes. While the MTCR export guidelines do not specifically state that members will receive different treatment, they do contain a number of provisions which operate in practice to allow better access among members, such as end-use assurances and appropriate multilateral agreements.²³ For example, now that Brazil has become an MTCR member, it has resumed its SLV program (which had come to a virtual standstill because of the MTCR technology embargo) using technology transfers from MTCR members.²⁴ Ukraine and Russia joined the MTCR partly to get better access to Western space-related technology.²⁵

While the MTCR lacks international enforcement, it does have a degree of domestic enforcement in that the guidelines must be embedded in domestic law. To become a member, countries must implement national export control legislation in accord with the guidelines. Some applications for membership have been refused or delayed after export controls were adopted because existing members did not find the legislation sufficient.

MTCR members have adopted new national export controls that restrict sensitive technologies in line with MTCR guidelines. Of course, in most member states, including France, Germany, Italy, Japan, Russia, and the United States, companies or individuals have committed violations involving “entire systems, components, materials, or technical information.”²⁶ As a result, some governments, including those of Germany, Japan, Australia, Ukraine, and Russia, have tightened both their policies and their enforcement.²⁷

In addition, the United States has adopted sanctions legislation to support both regimes and the non-proliferation agenda in general, especially with several laws passed in the early 1990s. The sanctions law supporting the MTCR was an amendment of the Arms Export Control Act and the Export Administration Act, signed reluctantly by President Bush in November 1990. It requires “the President to impose sanctions on U.S. and foreign individuals and entities that improperly conduct trade in controlled missile technology.”²⁸ If the president determines that someone (an agency, firm, or individual) in a non-MTCR country transfers to another non-MTCR country any of those items regulated by the regime, sanctions must be imposed on the individuals or entities involved.

The legislation exempts transfers to or from MTCR adherents and defines an adherent as a country that Participates in the MTCR or that has reached an international understanding which includes the United States that it will control MTCR equipment and technology “in accordance with the criteria and standards set forth in the MTCR.”²⁹ Sanctions apply to those individuals and entities which buy, sell, or facilitate the transaction, unless the country is a non-market country, in which case the sanctions apply to all government activities relating to the development or production not only of missiles but also of “electronics, space

systems or equipment, and military aircraft.”³⁰ If the transfer involves an item in MTCR’s Category I (complete weapons systems and subsystems), the sanctions entail “denial of certain U.S. export licenses and prohibitions on U.S. Government contracts for 2 to 5 years.”³¹ In the case of items in MTCR’s Category II (technology and components that could be used in ballistic missile production), the sanctions last for two years and relate to missile-related export licenses and contracts.³² If the transfer has “substantially contributed” to a missile program, the transferring entities are subject to a two-year ban on imports of any of their goods into the United States. The president can waive the sanctions only if doing so is “essential to the national security.”³³

The United States invoked its MTCR sanctions law twelve times between 1991 and 1997. Most were targeted against a particular office or agency within the government of an exporting country. In about half the cases the sanctions lasted the full two years. In other cases, they were waived for national security reasons, lifted because the targeted country changed its policies, or did not have their details publicly released.³⁴

Although other states have also pursued the anti-proliferation agenda, none have gone as far as the United States; no other state has adopted similar sanctions legislation.³⁵ Moreover, the United States has occasionally implicitly linked overall bilateral relations to missile non-proliferation efforts, as judged by the MTCR.³⁶ Other members of the MTCR have used a variety of tactics to obtain informal compliance. For example, Japan has on occasion used quiet diplomacy to persuade North Korea not to transfer missile technology to Iran.

Limited Pursuit of the Non-Proliferation Norm

If we consider a norm as a general principle governing how states should behave, we would expect that if states had truly internalized the non-proliferation norm, they would have adopted policies which go beyond those strictly required by regime rules. Beyond technology embargoes, however, countries have generally failed to uphold the non-proliferation norm. Most importantly, the MTCR’s current design does not address reductions in the missile stocks of existing owners and producers, and the members have sought no such expansion in the MTCR’s purposes. Dinshaw Mistry attributes this to “institutional and political inertia,” leading members “to remain content with the MTCR’s short-term successes, and to therefore continue to rely largely on their initial and existing supply-side approach rather than to seek broadening the regime.”³⁷ This reflects a view of the regime’s origin and expansion as a functional response to a shared threat of missile proliferation. However, the regime was not designed to reduce missile proliferation, but rather to regulate it. The proliferation of missile technology among the United States and its allies, relative to outsiders, was

allowed to flourish. While a variety of incentives shaped the regime,³⁸ it has emerged in a fashion consistent with the primary objective not of slowing proliferation but of maintaining the United States-led coalition's military advantage in missile technology.

Moreover, in some interstate relationships, non-proliferation seems not to be the main source of concern. One example involves the U.S.-Israeli relationship. Israel continues to receive sensitive technologies from the United States, France, and others in the West.³⁹ For example, despite Israel's 650-km-range Jericho missile and its testing of the Jericho II, the United States supplied Israel in 1988 with the Arrow anti-tactical ballistic missile system.⁴⁰ Although this did not technically violate the MTCR at the time, it clearly contravened the norm of ballistic missile non-proliferation. Leonard Spector, of the Carnegie Endowment for International Peace, seems correct in saying that general American policy toward Israel's secret nuclear program "implies a U.S. stamp of approval for it," weakening the non-proliferation norm.⁴¹

Countries fail to live up to the missile non-proliferation norm in another important respect: they have failed to address demand-side issues and have only dealt with one aspect of supply-side issues. For example, the advanced industrial countries have not taken steps to vitiate the nonmilitary incentives for ballistic missiles by offering *reliable* access to space launches and satellite information. Other demand-reduction policies include nuclear-weapons-free zones, security guarantees, conventional arms supplies, and policies of no first use. Most declared and undeclared nuclear weapons states strongly resist these policies. Signing the Comprehensive Test Ban Treaty (CTBT) and indefinitely renewing the NPT were steps toward reassuring threshold states. Of course, the United States's ratification of the CTBT and further moves toward strategic arms control would be much better. If regional disputes could be resolved for the Great Powers, the demand for missiles would be reduced. Policymakers, however, do not usually link this approach to non-proliferation.

The late 1980s and 1990s witnessed a moderate strengthening of the norms surrounding missile non-proliferation. Dual-use technology control has acquired greater legitimacy, proliferation has become a more salient issue and missile proliferation is now seen as part and parcel of the WMD proliferation problem. A large number of countries have accepted the norm and its associated principles. Yet, most countries still fail to pursue actively the wide variety of available non-proliferation measures suggested by the broader norm of WMD non-proliferation.

Regime Effectiveness

NPT

The NPT has been surprisingly effective. In the 1960s, many believed we stood on the verge of having twenty to thirty nuclear weapons states. Today we have seven. Several states have explicitly abandoned their nuclear weapons programs—South Africa, Argentina, and Brazil, for example. Many countries which might have gone nuclear did not do so, including Canada, Sweden, Switzerland, Taiwan, South Korea, Japan, and Germany. The early and mid-1990s witnessed a number of successes in the field of nuclear non-proliferation: the substantial strengthening of the IAEA's powers and personnel; the accession to the NPT (after almost three decades) by France and China; the 1995 agreement of 172 nations to renew the NPT indefinitely and unconditionally; and considerable progress toward a CTBT. Of course, the recent testing decisions by Pakistan and India generated new fears and hypotheses of the NPT regime's imminent collapse. On balance, though, the NPT seems to have been a success.

MTCR

What remains less recognized—given the long-standing and recently intensified attention given to China's and Russia's missile transfer practices—is the equal success of the MTCR. In the 1980s, the problem of missile proliferation appeared to be increasing, with disturbing developments in Argentina, Egypt, Iraq, Iran, Pakistan, South Africa, Iraq, Saudi Arabia, Israel, Syria, India, and other states.⁴² It appeared the MTCR was both too little and too late. Generally, however, nations throughout the world now have policies more in keeping with the norms of missile non-proliferation or missile export control.

Most people agree that a determined proliferator cannot be stopped from indigenously producing a ballistic missile—if it pursues a single missile design in a determined, step-by-step fashion over a considerable period of time. The MTCR, “like all other supply-side non-proliferation regimes,” cannot prevent acquisition of critical components by “a politically determined threshold state.”⁴³ In modern capitalism, it would be truly remarkable for one group of countries to preserve a lead of several decades in some category of military technology, let alone to freeze outsiders' development. With this standard of judgment in mind, we can conclude that the MTCR has substantially impeded though not prevented ballistic missile proliferation.⁴⁴

The MTCR has slowed exports. In Mistry's words, “The MTCR has been successful in creating nonns against missile technology sales, and as a result

missile sales and missile technology exports by the primary suppliers have been largely halted.⁴⁵ One important indicator of changed government policy is the number of missiles delivered to other governments. Based on estimates from the U.S. Arms Control and Disarmament Agency (ACDA), the number of major surface-to-surface missiles delivered in the world fell about 69 percent from the late 1980s to the early 1990s.⁴⁶ This includes reductions in deliveries by the Soviet Union/Russia. And, while Russia and China supplied missile systems in the early 1990s, neither supplied any in the mid-1990s. In general, these trends are consistent with a significant decline in the availability of finished missile systems which is roughly correlated with establishment and early expansion of the MTCR.

In addition, a number of joint missile projects and transfers have been scrapped or delayed since the mid-1980s. The Condor II program of Argentina, Iraq, and Egypt, which was “completely dependent on foreign support, collapsed in 1989 after this assistance was lost.”⁴⁷ Among the project’s many difficulties was “the inability to import technology and equipment, which is primarily due to the effects of the MTCR.”⁴⁸ In 1989, France succumbed to American pressure and stopped or suspended transfers of cryogenic and liquid-fuel rockets and related technology to the space programs of India and Brazil.⁴⁹ In 1993, Russia abandoned a long-standing commitment to support India’s development of cryogenic missile rockets and agreed to supply India only with completed engines.⁵⁰

This interstate cooperation had slowed or stopped the growth of indigenous missile production capabilities. The declining supply of ballistic missiles, parts, equipment, and related technology makes the acquisition and construction of missiles much more time-consuming and costly. Aaron Karp studied a database covering more than six hundred rocket, missile, and space launch projects over the last six decades and reached the conclusion that the number of countries capable of indigenously developing medium-range ballistic missiles has stopped growing:

Despite the enormous wealth of technical expertise, ballistic missile development is getting harder with time. This is largely due to the success of the MTCR, which went into effect in 1987. . . . Systematic foreign assistance, the basis of every missile power’s first few projects, no longer is readily available. After 1987, even countries like Brazil, India and Israel would have been unable to start their major indigenous rocketry projects.⁵¹

Since the mid-1980s, “the number of countries capable of creating weapons with ranges over 1,000 kilometers has shrunk considerably.”⁵² Seven states have scaled back their missile production ambitions: Argentina, Brazil, Egypt, Kazakhstan, South Africa, South Korea, and Taiwan.⁵³ For medium- and longrange missiles, the capability for indigenous missile production has stopped spreading.⁵⁴

Of course, this progress has limits. It has not halted missile production among developing nations, particularly the continuing production programs in India, Israel, Pakistan, North Korea, and Iran.⁵⁵ These states had neared self-sufficiency prior to 1987. Though few express interest in missile exports, this could change. Another problem is the continued wide availability of low-end missiles and their production technology. Suppliers of cruise missiles, which fall below the MTCR threshold, abound. China's C-802 sales to Iran opened a can of worms. Karp argues that there may also be future transfers of North Korean Scuds, Chinese M-11s, Russian SS-21s, and the U.S. Army Tactical Missile System (ATACMS), all of which also generally fall below the MTCR threshold.⁵⁶ Moreover, one can imagine a determined recipient using these weapons' components to build missiles with extended range, as did North Korea, which completely reverse-engineered Soviet technology to independently produce the Scuds and enhance their range.

Yet the low-end missile problem may actually show the effectiveness of the missile control regime. Perhaps producers, exporters, and importers have diverted their efforts into these missiles precisely because of the MTCR. Cruise missiles and the low-end missiles mentioned earlier fall below the MTCR's original 500-kg/300-lb threshold. Generally, the more-advanced technology has yet to spread. "If not for the 1950s-vintage Scud, much of today's ballistic missile problem would not exist."⁵⁷ And regime members have already tried to close off this proliferation loophole by expanding the control guidelines with a more elastic standard in 1993: the intent to deliver WMDs.

Not surprisingly, expert opinion attributes the considerable slowing in the proliferation of ballistic missiles since the 1980s in part to the MTCR. Karp and Mistry agree on modest MTCR success. In addition, a survey of the NPT and the MTCR, as well as the Nuclear Suppliers Group and the Australia Group, concludes that despite their drawbacks, these regimes "provide the most effective and efficient mechanisms for curbing the spread of non-conventional weapons and ballistic missiles. Security guarantees, a CTBT, and other 'high politics' measures will have little impact on the actual proliferation of non-conventional weapons without these regimes."⁵⁸ Some analysts say reduced missile aspirations arise from alternative causes. However, the regime has some influence on these other causes as well. Programs can be dropped for financial reasons. Yet the regime generates significant economic incentives, both directly through conditioning access to space technology and indirectly by stimulating MTCR-related sanctions legislation in the U.S. Congress. Missile programs can also be dropped due to a decision to abandon nuclear weapons. Yet the MTCR can influence the WMD decision by influencing the cost and the availability of delivery systems. A rise in the net cost of missile acquisition reduces the net benefit of nuclear weapon acquisition.

So the evidence points to a degree of MTCR effectiveness. The regime has dried up the availability of missiles and related technology in the range of 1,000 km or greater. The rate of growth in the number of ballistic missile producers has slowed since the mid-1980s. Other than for low-end missiles, the capability for indigenous missile production has stopped spreading. Further proliferation of ballistic missiles in the 300- to 1,000-km range depends on the willingness of producers such as North Korea, Russia, China, Israel, and India to transfer finished or ready-to-assemble missile systems. The sluice gate out of which advanced missile technology flows to less-advanced countries is steadily closing. The MTCR, like the NPT, seems inherently incapable of closing the gate completely and forever, but it has definitely reduced the rate and size of the flow.

Problems in Attributing Effectiveness

Preliminary evidence of effectiveness for both regimes seems persuasive. Governments increasingly accept both regimes' rules, norms, and associated principles. They have adopted more cooperative policies. The NPT's general effectiveness is widely known. With the MTCR, there has been a slowdown in the spread of missile and missile-production capabilities and experts link this slowdown to the MTCR. It appears that the MTCR and the NPT have both had some significant impact in reducing the proliferation of nuclear weapons and ballistic missiles.

However, determining causality is difficult. Judging the effectiveness of an international regime requires more than comparing it to another regime, comparing the periods before and after its origin or growth, comparing members to nonmembers, or comparing countries before and after membership. These comparisons fail to account for the causal interdependence of regime impacts (especially when they share essentially the same objective), fail to account for other factors influencing regime success, and fail to consider that regime advances may reflect rather than cause policies of non-proliferation. We need more specific comparative investigation of particular decisions, such as that provided below.

Prospects for Great Power Cooperation: South Asia

To assess the prospects for Great Power cooperation on non-proliferation, this section contrasts cases of American efforts to obtain Russian and Chinese acquiescence in controlling the proliferation of missile technology. The two instances provide a puzzling comparison. In the early 1990s, the United States persuaded Russia to scale back a missile technology transfer to India and to join the MTCR. Throughout the 1990s, however, the United States failed to persuade

China to scale back a missile transfer to Pakistan and to join the MTCR. Why did the United States succeed with Russia but not with China?⁵⁹

The United States, Russia, and India's Cryogenic Rockets

In general, there was a dramatic change in Russian missile export policy between the 1980s and the late 1990s.

Before 1990, the Soviet Union had been an active exporter of MTCR-controlled military missiles to allied states, exporting thousands during the 1980s. After Scud exports to Afghanistan ended with a September 1991 Soviet-U.S. agreement halting military assistance to the parties in the civil war, Moscow is not known to have made further transfers of this system or any other MTCR-regulated missile.⁶⁰

Although this overlooks the transfer of technology and parts, it does indicate an important change in Moscow's policies. A critical development in this change in policy was the episode of the proposed sale of cryogenic engines and technology by Glavkosmos (the Soviet space industry's marketing organization) to ISRO (the Indian space research agency), which generated an intense dispute between the United States and Russia.

Alexander Pikayev and his colleagues, describe and explain the origin and settlement of the dispute from 1990 to 1993 between the United States and Russia regarding the transfer of Russian missile engines and related technology to India. Using documents and interviews with American and Russian officials, they place the controversy, and the agreement in summer 1993, in the contexts of both U.S.-Soviet relations and Soviet and Russian domestic developments, particularly the collapse of the Soviet Union and the subsequent struggles among agencies within the Russian government. In essence, they suggest three factors were critical to the settlement of the dispute: compromise, incentives, and threats. The United States accepted a portion of the cryogenic rocket exports and made it profitable for the Russian bureaucracies involved to cancel the remainder by threatening expanded sanctions and, more importantly, by offering issuespecific economic benefits in future commercial cooperation. The United States conceded much, offered much and threatened much, and in the end secured a mutually beneficial settlement.⁶¹

The MTCR played several roles in this case. It raised the salience and the intensity of the Russo-American dispute. At a time when the Bush and Clinton administrations wanted to improve relations with Russia, the MTCR issue stood in their way. Congressional critics of Russia used the MTCR as a device to get in the way of improved trade relations. The MTCR also enabled the United States

to magnify the stakes of the cryogenics issue and to threaten broad sanctions more credibly.

The United States, China, and Pakistan's M-11 Missiles

China's assistance to Pakistan has more than theoretical relevance. As Zachary Davis argues, "Progress on nearly every major arms control and nonproliferation issue facing the world today hinges on Sino-U.S. cooperation."⁶² In many ways, China's proliferation policy is the "frontier" case in efforts to build a Great Power concert against proliferation. That the U.S.-China dispute in the 1990s centered around the transfer of M-11 missiles and related technology to Pakistan suggests that a certain degree of progress had been made. The M-11 carries 800 kg 280 km and thus does not technically meet the MTCR threshold. The M-11 transfer, by itself, does not represent such a dangerous development. It is shortrange and probably based on 1950s technology. Far more dangerous would be a transfer of some of China's more advanced missiles, with higher accuracy, MIRVs, longer ranges, and so on. Nevertheless, published reports of Chinese nuclear and missile assistance to Pakistan aggravated the South Asian arms race.

Pakistan's test launchings of the Ghauri missile have been cited as a proximate cause of India's May 1998 nuclear test.⁶³ Indian media claimed in April 1998 that Pakistan had received eighty-four M-11s with twelve to twenty launchers from China. Indian sources also claimed the Ghauri itself is a Chinese missile, but China denied any support for the Pakistani Ghauri program.⁶⁴ Even if the missile originated in Pakistani cooperation with North Korea, China probably supplied guidance technology for the missile, magnifying the destabilizing counterforce threat.⁶⁵ The Ghauri's accuracy at a range of 1,500 km—a 50-percent CEP (circular error probable) of 250 m—would enable a nuclear explosion to destroy any but the most hardened military targets.⁶⁶

Such transfers of guidance technology could be highly destabilizing during a South Asian crisis situation. Counterforce accuracy generates the most intense form of the security dilemma and aggravates crisis instability. The United States and China might have delayed the nuclearization of the South Asian arms race if they had succeeded in the early 1990s in building a more effective Great Power coalition to prevent missile proliferation.

To a degree, the MTCR did succeed in slowing down and limiting Chinese transfers to Pakistan. China would have sold the M-11s much sooner and with much greater tolerance by the Bush and Clinton administrations had it not been for the MTCR and the related sanctions legislation. The MTCR helped bring together defense hawks and arms control proponents in the U.S. Congress to support stronger sanctions legislation.⁶⁷ The sanctions made further progress in Sino-American rapprochement partly contingent on progress in China's restraint with regard to missile proliferation. The United States insisted on, and received

from China, a policy more in line with non-proliferation goals than would have been the case without the MTCR.

On the other hand, MTCR-related efforts also met with failure. China has resisted changing its behavior and export control legislation sufficiently to get U.S. approval of its membership. Although American media and intelligence probably exaggerated the degree to which China's policy was in violation of its partial promises to abide by the MTCR, it is nonetheless true that the MTCR did not entice China's membership and did not prevent China's transfer of M-II ballistic missile technology to Pakistan.

The United States failed to bring China into the MTCR largely because Washington placed a higher priority on improved relations with Beijing (and access to China's huge and growing market) than on changing China's proliferation policies. The Bush administration failed because it allowed and probably encouraged an exaggerated view of the concessions which China did make on missile technology control, especially in 1992.⁶⁸ This worsened relations when China continued transfers that met their promises but arguably violated the letter or spirit of the MTCR. The United States also failed to assist China in bolstering its national export control apparatus. Both the Bush and Clinton administrations failed to target their sanctions in a way expected to isolate a particular Chinese bureaucracy and failed to strictly condition the incentives for altered policies, while asking for policy shifts of too broad a character. They did not insist on the canceling of the M-IIs, but rather used China's vague assurances about the MTCR to reassure domestic American audiences sufficiently to lift sanctions. They allowed the M-II transfer to appear as a litmus of the MTCR approach, rather than as a domestic struggle within China. They did not allow the M-II dispute to escalate and they allowed the transfer of American nuclear and missile guidance technology to China before China had changed its policies sufficiently. China also contended that its MTCR obligations were partly cancelled by the United States's willingness to supply unconventional weapons to Taiwan.

Comparing the Russia-India and China-Pakistan Sales

The two cases offer interesting similarities and contrasts. Both conflicts occurred in the context of American attempts to improve overall bilateral relations with another Great Power and while the United States was attempting to forge Great Power cooperation on WMD non-proliferation. Neither Russia nor China was a member of the MTCR when the deals began nor when the deals were finished, though the United States was seeking to entice them into a non-proliferation coalition. The Russia-India and China-Pakistan deals were both already under contract and under way. Both recipients were diplomatically important to the

supplier and on the threshold of acquiring nuclear weapons. However, the India deal involved a stronger purchasing country, was more profitable for the organizations involved, was more important for the purchaser's and seller's economies, and was more legitimate in terms of expected civilian end-use and thus more arguably outside the MTCR's strictures. Yet the United States was successful in the India case and not in the Pakistan case.

Clearly, then, the most important variable was the United States's relationship to the supplying power: China was in a much stronger position overall than weakened, post-Soviet Russia, and the Bush and Clinton administrations had a much greater interest in preserving and expanding their relationship with China and its growing economy. These two cases thus suggest that American policymakers can better achieve at least piecemeal Great Power cooperation on proliferation by doing the following:

- Context of overall relations: the United States should reassure the other country that it sincerely seeks to improve relations and that its goal is inclusion and engagement, not containment, isolation, or balancing.
- Transgovernmental export control contacts: the United States should encourage cooperation and joint training among officials involved in implementing national export controls. If sensitive military technology is at stake, the United States should begin with export controls on nonsensitive military technology.
- Symbolic sanctions: Upon learning of a specific proliferatory transfer, the United States should implement sanctions, even if only symbolic and narrow. If the country agrees to pare back these specific sales, Washington should then lift the sanctions in a timely fashion.
- Targeted intra-issue incentives: the United States should identify the component of the industrial-bureaucratic organization which stands to benefit most from, and which has the most influence over, the targeted technology transfer. Washington should then find some aspect of the American economy, access to which would benefit this organization more than the specified technology exports (and which holds a prospect for larger gains for other organizations within the same industry). If necessary, the United States should make a sizable concession in terms of the demanded non-proliferation behavior. Through threats and promises, Washington should make access to the American economy contingent on establishing solid regulations that prevent the technology from being exported.
- Escalation: if the dispute persists (and if non-proliferation is a sufficiently high priority), Washington should allow the dispute to escalate by privately threatening to reevaluate many larger aspects of the overall relationship if the specific dispute is not resolved.

Clearly, cooperation occurs best in a context of improving relations when both sides have the bureaucratic capability to implement the cooperative policies. The most effective strategy is one which combines cooperation, promises, incentives, and sanctions: begin with intergovernmental cooperation on export control, make small specific demands, offer compromise in terms of the demanded policy changes, target particular domestic actors, isolate targeted domestic offices by offering intra-issue economic incentives, and—only if these initiatives fail—threaten a downgrading of overall relations.

Conclusion

The NPT and the MTCR have both served as useful instruments for inculcating the norm of non-proliferation. Although they have failed to stop proliferation completely, they have slowed it considerably. The success of these two very different regimes depends on a variety of factors, including overall power relations and specific influence strategies. The NPT, as an inclusive club, served early and broader non-proliferation purposes. The MTCR, a more exclusive club, served later and more ambitious non-proliferation purposes.

The MTCR has served to highlight the missile proliferation issue and reinforce the norm of non-proliferation. It has led the U.S. Congress to adopt legislation imposing sanctions on countries and firms for violating international non-proliferation standards. While an effective step in achieving nonproliferation, however, such domestic political moves have made the establishment of an encompassing Great Power coalition more difficult. In the case of China, for example, the United States would like to improve economic ties but without appearing to domestic audiences to be soft on the proliferation issue. This has led some American administrations to oversell Chinese promises and Congress to overstate Chinese violations. Occasionally, these dilemmas have led to policy vacillations and generated Sino-American crises. In general, however, there has been gradual movement toward Great Power cooperation to restrict the diffusion of WMD technology.

However, in assessing the effectiveness of the MTCR, we must remember that this movement toward preventing proliferation has also been shaped by U.S. government incentives to slow the diffusion of high technology. Three facets of the regime illustrate this. First, non-proliferation regimes focus on supply-side efforts to restrict technology flows rather than demand-side efforts. Second, the standards for acceptance into and compliance with export control regimes gradually increase. And third, regimes enable selective technology transfers, aggravating the gaps between haves and have-nots in terms of commercial technology. Thus, the MTCR's designs and practices seem tilted away from their

purported aim and toward the goal of preserving the technological lead of a particular bloc of countries.

The Great Power club strategy has had mixed results in furthering the non-proliferation. It has had successes in helping prevent further breakdown of Great Power relations and in slowing the proliferation of WMDs. The United States, Russia, and China still cooperate on proliferation issues, attempting to calm the worst threats. The spread of nuclear weapons, missile delivery systems, and the capabilities to produce them indigenously have all slowed considerably since the implementation of non-proliferation regimes (in the 1970s for nuclear weapons and in the 1980s for missile delivery systems). For example, Brazil, Argentina, and South Africa have moved away from indigenous production of WMDs and their delivery systems. However, not surprisingly, the club hierarchy strategy has failed to stop proliferation. For example, Israel, Pakistan, and India have acquired nuclear weapons, while North Korea and Iran have made important progress in doing so; all five are progressing in their missile delivery capabilities.

The club strategy succeeded as much as it did through two mechanisms. First, it reshaped the incentives facing countries seeking advanced technology. Membership in the NPT and the MTCR entitles countries to much easier access to important purportedly civilian technologies. As membership grows, nonmembers face increasingly restricted access to the targeted technology. Although nuclear energy and space launch technology spreads, it occurs within an institutional framework that makes military diversion much less likely. Second, it reshaped the political agenda of the leading Great Power. The international regimes gave more salience to the non-proliferation objective, making it harder for the leading Great Power's state elites to resist legislative non-proliferation restrictions on foreign policy. Leaders were thus more careful about nonproliferation than they otherwise would have been. Of course, important factors condition this success. The policy succeeded because the Great Powers (especially the leading Great Power) and their publics shared the non proliferation objective and because the leading Great Power had important capabilities (a large market, advanced technology, etc.) to use in influencing other Great Powers to bear sacrifices for the objective.

Yet the strategy was also limited in its success for a number of reasons. First, slowing the proliferation of technology is an inherently difficult task. Technological innovations just tend to spread, given the nature of human societies. Second, the strategy did not effectively deal with reducing the demand for WMDs and their delivery systems. And this central problem of reducing the demand is complicated not just by states' quest for security in regional conflicts but also by the status incentive inherent in possessing WMDs. Many small- to medium-size states believe that the quickest way for them to gain status in the international arena is to develop WMDs. Clearly, a crucial part of further success in non-proliferation will be imbuing the norm of non-proliferation with greater

status than that attributed to WMD capability. The nuclear-free zones in Africa and South America are important steps in this direction. Third, regional disputes which foster proliferation also foster collective action dilemmas for the Great powers. The South Asian nuclear arms race illustrates a type of challenge that has faced Great Power concert frequently in the modern international system. Failing to resolve a difficult regional dispute, the Great Powers get drawn in, supporting opposing sides in the dispute, to the detriment of all concerned. Many of the Great Powers have helped India and Pakistan with nuclear equipment, materials, and delivery systems. Whether this type of entrapment will continue, bringing down a decade of efforts to maintain a Great Power concert and thirty years of non-proliferation efforts, depends on the policy choices of the next few years.

The NPT and MTCR demonstrate that there are different institutional arrangements capable of fulfilling similar functions. A smaller informal arrangement among a set of Great Power supplier states can work as effectively as a more universal arrangement of all states backed by international law and including an international organization. Great Power inducements and sanctions, the keys to sustaining concerted non-proliferation efforts, can also be effective in smaller non-institutionalized clubs.

Notes

1. On the NPT, see Rachel Schmidt, "U.S. Export Control Policy and the Missile Technology Control Regime," RAND Paper P-7615-RGS, January 1990, 22; Peter Van Ham, *Managing Non-Proliferation Regimes in the 1990s: Power, Politics, and Policies* (New York: Council on Foreign Relations, 1994), 13; Treaty on the Non-Proliferation of Nuclear Weapons, signed at London, Moscow, and Washington July 1, 1968 (entered into force on March 5, 1970). *Vertical proliferation* refers to nuclear arms races among Great Powers.
2. <http://www.acda.gov/treaties/npt3.txt> (last viewed May 1998).
3. Deborah A. Ozga, "A Chronology of the Missile Technology Control Regime," *Non-proliferation Review* 1:2 (Winter 1994).
4. See, for example, U.S. Department of State, "State Department Fact Sheet and Summary Annex on the Missile Technology Control Regime, April 16, 1987," reprinted in Brahma Chellaney, *Nuclear Proliferation: The U.S.-Indian Conflict* (New Delhi: Orient Longman, 1993). France, Italy, and West Germany did not issue a formal statement regarding their participation but agreed privately to comply with the specified guidelines; Ozga.
5. U.S. Department of State, April 16, 1987, 401.
6. U. S. Department of State, April 16, 1987, 401.
7. Van Ham, 101; Aaron Karp, "The New Politics of Missile Proliferation," *Arms*

Control Today 26, no. 8 (October 1996): 12.

8. Their range is 280 km; Schmidt, 17. In 1988, Iraq showed that Scuds with reduced payloads and increased fuel could be launched to twice their nominal range. See Alexander A. Pikayev, Leonard S. Spector, Elina V. Kirichenko, and Ryan Gibson, *Russia, the U.S., and the Missile Technology Control Regime*, Adelphi Paper 317 (New York: Oxford University Press for the International Institute of Strategic Studies, 1998), 12.

9. Kathleen C. Bailey, *Doomsday Weapons in the Hands of Many: The Arms Control Challenge of the '90s* (Urbana: University of Illinois Press, 1991), 96-97.

10. Ozga; Wyn Bowen and Holly Porteous, "Overview of Ballistic, Cruise Missile, and Missile Defense Systems: Trade and Significant Developments," *Nonproliferation Review* 3, no. 2 (Winter 1996); U.S. General Accounting Office, "Export Controls over Missile-Related Technology Exports to China Are Weak," (GAO/INSAID-95-82), April 1995.

11. Ozga.

12. Ibid.

13. Dinshaw Mistry, "Ballistic Missile Proliferation and the MTCR: A Ten Year Review," paper presented at the International Studies Association Annual Conference, March 19-23, 1998. <http://www.cc.columbia.edu/sec/dlc/ciao/conffrm.html>.

14. Ozga.

15. Ibid.

16. Treaty on the Non-Proliferation of Nuclear Weapons.

17. Each links civilian access of a technology to its military nonuse. We consider that to be intra-issue linkage.

18. While both regimes seem susceptible to the charge of technological apartheid, the NPT garners some legitimacy from the formal consent of most of the world's have-nots.

19. The text uses 1997 information in Pikayev et al. and <http://www.acda.gov/treaties/npt3.txt> (last viewed May 1998). See also U.S. Department of State, "Missile Technology Control Regime (MTCR): Fact Sheet Released by the Bureau of Nonproliferation," February 8, 2000, <http://www.state.gov/www/globalarms/np/mtr/mtr99.html> (last viewed March 2000); U.S. Department of State "Signatories and Parties to the Treaty on the Non-Proliferation of Nuclear Weapons," December 3, 1998, <http://www.state.gov/www/global/arms/treaties/npt3.html> (last viewed March 2000).

These show 29 MTCR members and 185 NPT members.

20. China, incidentally, never accepted this intent-based standard.

21. Ukraine received an exemption from this requirement and the United States finagled the issue with Russia.

22. Treaty on the Non-Proliferation of Nuclear Weapons.

23. U.S. Department of State, April 16, 1987, 400.

24. Mistry. The United States would like to change this but France argues that since Brazil is not a proliferation threat, transfers are acceptable. 25. South Korea, by contrast, agreed in 1990 not to pursue an SL V, probably in a bid to get MTCR membership. 26. Robert Shuey, "The Missile Nonproliferation Regime," in Congressional Research Service, *Nonproliferation Regimes: Policies to Control the Spread of Nuclear, Chemical,*

and Biological Weapons and Missiles (Washington, D.C.: Government Printing Office, 1993), 46.

27. Shuey, 46.

28. U.S. General Accounting Office; Shuey, 49-50; Ozga; Pikayev et al., 12.

29. Pikayev et al., 73.

30. Pikayev et al., 73.

31. Shuey, 49-50. There are specific criteria for presidential waiver of the sanctions; see Ozga; Pikayev et al., 74-75.

32. Pikayev et al., 73-74.

33. Ibid., 74-75.

34. Ibid., 74-79.

35. Ibid., 12.

36. Ibid., 53.

37. Mistry.

38. Indeed, many who supported and shaped the regime clearly sought to reduce the likelihood that weapons of mass destruction would be used in warfare.

39. Chellaney, 258.

40. Chellaney, 259.

41. Evan S. Medeiros, "Pentagon Releases Annual Report on Global Proliferation Threats," *Arms Control Today* 26, no. 3 (April 1996): 24.

42. Pikayev et al., 12.

43. Van Ham, 26.

44. This does not absolve us of at some point comparing MTCR to demand-side approaches, which the NPT is not.

45. Mistry.

46. U.S. Arms Control and Disarmament Agency, *World Military Expenditures and Arms Transfers* (Washington, D.C.: Government Printing Office, 1997), 168.

47. Karp, 12; Bailey, 113.

48. Bailey, 126.

49. Chellaney, 255-57; Pikayev et al., 11.

50. Ozga; Pikayev et al.

51. Karp, 11.

52. Karp, 14.

53. Mistry; Karp, 11.

54. The CIA's National Intelligence Estimate 95-19, released in November 1995, concluded that it would be fifteen years before a country other than the declared nuclear states could develop a ballistic missile that could reach the continental United States. Craig Cerniello, "Panel Upholds NIE Assessment of Ballistic Missile Threat to U.S.," *Arms Control Today* 26, no. 10 (January-February 1997), 22.

55. Mistry.

56. Karp, 12.

57. Mistry.

58. Van Ham, 95.

59. While there have been complaints about Russian and Chinese nuclear proliferation as well, on balance, a thorough accounting would probably reveal a larger number of protests, violations, and sanctions centering around the transfer of ballistic missiles and related technology than around the transfer of nuclear weapons and related technology. The focus here then is on efforts to achieve informal compliance with the MTCR by Russia and China.
60. Pikayev et al., 69.
61. Pikayev et al.
62. Zachary S. Davis, "China's Nonproliferation and Export Control Policies: Boom or Bust for the NPT Regime?" *Asian Survey* 35:6 (last viewed June 1995).
63. This paragraph draws upon Center for Defense and International Security Studies, <http://www.cdiss.org/98may5.htm> (last viewed May 1998).
64. Other reports link the missile to North Korea. American media in April reported that United States government sources believe the Ghauri stems from North Korean technology and that North Korea may actually have sold Pakistan up to twelve Nodong missiles. Similarities in the payload and range capabilities suggest this might be the case. A Japanese newspaper also reported a North Korea link to the Ghauri but North Korea denies having "provided nuclear and missile technology" to Pakistan. The best evidence seems to suggest that North Korea and Pakistan cooperated in developing and testing the Ghauri and the Nodong-1.
65. Even the Pakistani director of the nuclear and missile programs, Dr. A. Q. Khan, conceded that they consulted foreigners on guidance technology.
66. Center for Defense and International Security Studies, May 5, 1998; <http://www.cdiss.org/98may5.htm>, [98may5a.htm](http://www.cdiss.org/98may5a.htm), and [bmaccur.html](http://www.cdiss.org/bmaccur.html).
67. On the other hand, it is hard to discern the independent effect of the MTCR given the events in Tiananmen Square.
68. The Clinton administration did this to a lesser degree in 1994.