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Symposium: Applied game theory

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Article

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Aims and scope

This journal raises and debates all issues related to the political economy of personal, communal, national, international, and global peace and security. The scope includes implications and ramifications of conventional and nonconventional conflict for all human and nonhuman life and for our common habitat. Special attention is paid to constructive proposals for conflict resolution and peacemaking. While open to noneconomic approaches, most contributions emphasize economic analysis of causes, consequences, and possible solutions to mitigate conflict.

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Abstracts

Fungisai Nota. "Theory of regional stability as a public good: examples from Southern Africa." The article examines the interaction of countries in the same region when making efforts to achieve stability. The leader in regional initiatives that foster stability is likely to be the most vulnerable member of the region because in the event of regional instability, the leader member will experience the most detrimental effects. The analysis identifies a key factor — cost comparison — that determines counter-regional instability cost allocations. It is shown that market failures associated with crisis prevention and solving regional instability may be jointly reduced by a vulnerable member. Nevertheless, the subgame perfect equilibrium will still be suboptimal due to leaders who do not internalize the full externalities. Because of the high costs associated with a leader member, she is likely to be the first mover in the game of providing stability, the regional public good, giving its neighbors the opportunity to free-ride. [Keywords: regional public goods; stability; Zimbabwe. JEL codes: D62, D74, H41, H87]

Lisa J. Carlson and **Raymond Dacey**. "The assassin and the donor as third players in the traditional deterrence game." We develop two extensions of the traditional deterrence game to examine the influence of third players, called Assassin and Donor, upon the behavior of a Challenger. The results present the optimal behavior of Challenger when Assassin and Donor are included in the traditional deterrence game. The key result is that Challengers who back down, and thereby activate Assassin or Donor, are more prone to initiate conflict in the first place than are Challengers who escalate, and thereby avoid Assassin or Donor. [Keywords: deterrence game; game theory. JEL code: D74]

Partha Gangopadhyay. "Economics of intolerance and social conflict." An important consensus today is that intolerance and social conflict have a substantial economic dimension. This article models a person's "returns" to acts of intolerance in terms of social approval or disapproval that this person's peer-group may offer. It is found that high levels of intolerance may persist, that is, society is "in equilibrium," even as this imposes economic costs. [Keywords: intolerance; social conflict; game theory. JEL code: D74]

Richard A. Bitzinger. "A new arms race? The political economy of maritime military modernization in the Asia-Pacific." During the 2000s, navies in the Asia-Pacific region have experienced a significant, if not unprecedented, bout of naval expansion. This buildup has been quantitative, but more importantly, qualitative as well, and in many cases goes beyond mere modernization. It has been driven by both rising regional defense spending and by an increasingly competitive arms business, which is resulting in the export of some of the most advanced types of weaponry. Regional military modernization activities are intended to increase national deterrent and defensive capabilities, but the process of mutual, reciprocated arming with increasingly advanced conventional weapons can also lead to costly arms competitions, perhaps draining resources from other, more pressing social needs. It also contains the kernel of a classic security dilemma, whereby such arming can actually undermine that very security it was intended to improve. [Keywords: navies; military modernization; defense spending; arms suppliers; arms races; arms dynamic; security dilemma. JEL codes: F52, H56, L64, O53]

James Manicom. "The Sino-Japanese energy dispute in the East China Sea: strategic policy, economic opportunities, and cooperation." On 18 June 2008, Chinese and Japanese authorities announced that they had reached a new consensus in their maritime territorial dispute in the East China Sea. This article explores the sustainability of this agreement in light of past Sino-Japanese cooperation on energy issues, both generally and in the maritime realm. Specifically, it explores the impact of strategic and economic prerogatives on the cooperative track record in light of the consensus in the literature that Sino-Japanese energy relations, particularly the territorial dimension, are increasingly competitive. The article argues that the June 2008 agreement can be reinforced despite poor market conditions for offshore exploration. [Keywords: territorial dispute; China; Japan; cooperation. JEL codes: Q34, Q38]

Sam Bateman. "Regime building in the Malacca and Singapore straits: two steps forward, one step back." This article reviews progress toward an effective regime for maritime safety, security, and environmental protection in the Malacca and Singapore straits. Recent steps forward comprise enhanced arrangements for cooperative surveillance and patrols by the littoral states, and the introduction of the Cooperative Mechanism for Safety and Environmental Protection in the straits sponsored by the International Maritime Organization. The latter mechanism provides a framework for cooperation and burden-sharing between littoral states, user states, and other stakeholders. A step back arises when difficulties are encountered with implementing new measures, or these measures are inhibited by the strong sovereignty concerns of the littoral states. This review of regime-building in the Malacca and Singapore straits provides an insight into the role of transnational institutions and governance structures aimed at ensuring regional peace and stability. Despite lingering difficulties, the institutions and structures being introduced in the straits are having some success at enhancing security and safety along one of the most strategically and economically significant waterways in the world. [Keywords: regime building; maritime security; conflict resolution; national security. JEL codes: K00.]

Brendan Howe. "European analogies for a liberal peace in Northeast Asia." The efficacy of the triangle of economic interdependence, international organization, and

democracy in constructing a zone of perpetual peace in Europe has led many commentators and practitioners to consider the viability of a similar liberal internationalist project in Northeast Asia. In contrast, this article contends that far from Northeast Asia being ripe for resolution in accordance with the liberal principles which brought peace to Europe in the second half of the twentieth century, the underlying strategic and security structures bear closer resemblance to those of Europe in the first half of the last century when liberal internationalism experienced a twenty-year crisis and the region was wracked by great power competition and confrontation. Nevertheless, there remains hope for the evolution of a zone of peace in Northeast Asia, but one based on rational and socially constructed pragmatic instruments rather than those of the liberal paradigm. [Keywords: Europe; Northeast Asia; integration; interdependence; crisis. JEL codes: F52, F53, F59]

Theory of regional stability as a public good: examples from southern Africa

Fungisai Nota

Most regions in the world have been or are currently confronted with some form of regional instability. The dream of a stable world has not materialized as intrastate conflicts have replaced interstate conflicts, especially in Africa. Examples of these intrastate conflicts include the genocide in Rwanda and the political upheaval and economic meltdown of Zimbabwe in southern Africa. Such intrastate instability occurred in many developing countries during the 1990s and may have stemmed from ethnic hatreds that manifest themselves in terms of nationalism, separatism, or fight for an ethnic identity.[1] In other situations, such as in Zimbabwe, instability may be rooted in greed as opposing interests vie for resource wealth and power. Regardless of whether these conflicts are grievance or greed-based, they have profound consequences on economic growth, not only at home but also in neighbors as FDI is diverted, social overhead capital destroyed, resources reallocated to less productive resources, trade disrupted, and human capital lost.

State borders are porous to pollutants, diseases, terrorism, knowledge, political upheavals, financial crisis, culture, and conflict. This gives rise to the issue of whether the consequence of intrastate instability and their spatial diffusion are region specific. For example, a study on regional spillover effects for 1960-1995 found that civil war's externalities on growth could be found up to 950 kilometers (km) away. The same study found that the effects of civil war reaches well beyond immediate neighbors, as far as 800 km away for a worldwide sample and 300 km for an African subsample. Generally, this dispersion is more localized in the short run than in the long run, particularly for the African subsample.[2]

Some of the flows that cross state borders are driven by market globalization and technology, indicating that collective action, orchestrated by regional and international organizations, is needed beyond the state to control an expanding number of regional public goods, including stability. In contrast to national public goods, regional public goods provide benefit or cost-spillovers regionally. For example, efforts to maintain stability in a region by one country benefit the entire region. When the public good's benefits are confined to two or more countries in a given location, then the good is a regional public good. Regional public goods, regional stability in particular, is the subject matter of this article.

Recent studies focus on regional public goods and their associated collective action problem.[3] A primary concern is to distinguish regional public goods for which states have proper incentives to contribute from those where incentives are perverse. An additional concern relates to identifying the role of diverse agents and regional or global organizations and charitable foundations in bolstering regional public good provision in developing countries. In recent years, increased foreign assistance has been channeled bilaterally and multilaterally to finance regional and transnational public goods in developing countries. Based on OECD data, aid-funded public goods more than doubled from 16 percent of assistance in 1980-1982 to 38 percent in 1996-1998.[4]

This article has three objectives. First, it provides knowledge of regional public goods. Second, it offers a framework for modeling the financing of regional stability. Third, the results from the second objective are used to justify the need for regional and international institutions in the provision of regional public goods. Moreover, the article identifies incentives that can be used by a region's dominant state to give impetus to other states to contribute toward regional public goods.

This article has three objectives. First, it provides knowledge of regional public goods and how regional stability matches the definition of a public good. Second, it offers a theoretical framework for modeling the financing of regional stability mainly through the contributions from developing countries in a region and from donors. All the properties of publicness — nonrivalry of benefits, nonexcludability of nonpayers, and the agglomeration technology (i.e., how individual contributions add to the level for consumption) — indicate where to direct efforts in providing regional public goods and will be analyzed. And third, the results from the second objective are used to justify the need for regional and international institutions in the provision of regional public goods. Moreover, the article identifies incentives that can be used by a dominant regional state to give impetus to other states in the region to contribute toward regional public goods.

Stability in a public good framework

This section explores the properties of stability as a regional public good in regards to developing countries in order to derive the optimal contributions by regional states. This section also identifies the need for regional institutions to bolster the provision of stability as a regional public good. In some instances, intervention may not be needed, but when required, the form of intervention and the requisite institutional arrangement hinge on the publicness properties of stability as a regional public good.

A regional public good provides benefits to two or more nations in a well-defined region. A region is a territorial subsystem of the global system whose basis may be geological (based on earth formations such as plain or coastline), geographical, political, cultural, or geoclimatic. Regional characteristics can influence the extent of spillovers from stability or instability. For instance, the Limpopo river, the Zambezi river, and the language barrier between Zimbabwe and its neighbors limit the

Table 1: Sources of public regional goods funding

I. Public sources
1. National
1.1 Developed country sources
1.2 Developing country sources
2. Regional/International
2.1 Regional and international financing institutions
2.2 International organizations and agencies.

II. Private sources
1. Corporations (for profit)
2. Corporations (not for profit)

III. Partnerships
1. Combination of the above

spillovers of instability in Zimbabwe. The rivers limit the migration of affected populations in Zimbabwe into neighboring countries.

Two classic properties of public goods give rise to market failures that may require either donor provision or some form of cooperation among the benefit recipients. First, nonexclusion results in market failure because once one state invests in regional stability, it cannot keep noncontributors from enjoying the benefits of whatever regional stability results. Once stability in a region is provided, other states have no incentive to contribute because their money can purchase other goods whose benefits are not freely available. Thus, regional stability is likely to be undersupplied, or not supplied at all. Second, nonrivalry means that extending the consumption to an additional user occurs at zero additional (or marginal) cost to the system. Exclusion-based fees are inefficient because some potential users, who could derive benefits, are denied access even though it costs society nothing extra to include these users. Regional stability as a public good meets these characteristics.

Financing regional stability

The provision of regional stability can be financed through public sources or private sources, e.g., contributions by regional states that benefit from stability, and by public-private partnerships. The article focuses on contributions from developing countries and donors. The theoretical framework generates results that substantiate the need for some of the other sources listed in Table 1.

Theoretical framework for national and donor contributions

A so-called Stackelberg (or sequential, leader-follower) model is used to describe how states and donors may choose contribution levels toward regional stability. The model is appropriate if it is believed that states in a region will not contribute simultaneously toward regional stability and may need a leader to get things going. The leader can either be a state in the region or a donor. The general setup of the Stackelberg model is as follows:

- Assume 2 countries in the region (more will be added later)
- The follower state plays the best response to the leader's contribution
- The leader state chooses a contribution level that maximizes her own welfare, taking into account the follower's reaction function

Formally, this is described as

$$Game = [I, (g_i, u_i)]_{i=1,2} ,$$

where capital I is the total number of states in a region; g_i is a particular government i's consumption of regional stability (that is, the benefits that flow from regional stability); and u_i is government i's value function. The follower state solves its welfare maximization problem by taking the actions of the leader state as given. Thus, the follower develops a reaction function based on the actions of the leader. The leader will have to consider what the reaction from the follower would be before choosing an action or set of actions that induces the follower to follow.

The decision to be a leader is influenced by many factors among which are the cost of contributing, personal or "national" benefits from contribution, and the probability that other countries will contribute. Here the so-called Bayesian approach is used to determine the leader in a region of many states. The possibility that more than one leader emerges is allowed for as well.

A model with uniformly symmetric states in the region

Assumptions:
- n = number of states in the region (all uniform)
- c = uniform cost of contribution (both monetary and nonmonetary, e.g., political)
- α = uniform benefit from regional stability (the regional public good)
- v = uniform reservation wealth, welfare, and utility

One can then represent the welfare A of a specific state i as follows:

$$(1) \qquad A_i = \begin{cases} v - c + \alpha & \text{if state i contributes} \\ v + \alpha & \text{if another state contributes} \\ v & \text{if no one contributes} \end{cases},$$

where for example the first line means that state i's new level of well-being or welfare A is the result of its present well-being (v), minus the cost contributed to "purchase" the regional stability good (c), plus the benefits derived from having such a good (α), if state i is the only state contributing to the purchase of the good. The second line means that if another state purchases the good, state i benefits (α) without needing to

subtract a contribution to the cost (c). The third line represents the status quo when no one contributes.

Further, assume that the probabilities of states contributing may be written as follows:

(2) $Pr(\theta)^{n-1}$ = probability that some state j contributes
$1-Pr(\theta)^{n-1}$ = probability that no one contributes .

One may then represent these conditions in a decision tree diagram as in Figure 1. If a state contributes on its own, follow the left arm of the diagram. The state receives its status quo value (v) minus the cost contribution (c) plus the benefit (α). If it does not contribute, follow the right arm to another node. Here, the state receives benefits depending on the probability that another state makes a contribution. In this setup, where there are uniform states in the region, one can derive the following condition which determines when a state would contribute to the provision of the regional stability good. A state will contribute toward regional stability if and only if:

(3) $v - c + \alpha \geq [Pr(\theta)^{n-1}] (v+\alpha) + [1-Pr(\theta)^{n-1}] (v)$.

In words, the net benefit to a state, given on the left-hand side of expression (3), must be greater than or equal to the sum of the probability-weighted benefits on the right-hand side of the expression. To simplify, one can solve for the critical cost for a state to contribute. It is

(4) $c = [1-Pr(\theta)^{n-1}] \alpha$.

This result is called lemma 1. In words, it states:

> **Lemma 1**: Given a region with uniform states and uniform benefits from contributions, each state will contribute if and only if the loss in expected benefits if no one contributes is equal to or greater than the cost of contributing.

A model for heterogeneous regions

Although the conditions that give rise to lemma 1 are not realistic, it does provide one with a baseline setup. The assumption of uniform states will now be relaxed to allow for asymmetries among states in a region. The asymmetry applies to the cost of contribution, to the benefits that accrue from stability when provided, and to the reservation wealth or welfare of a state.

By introducing heterogeneity we have the following indexed variables:

- c_i = costs of contributions differ across states

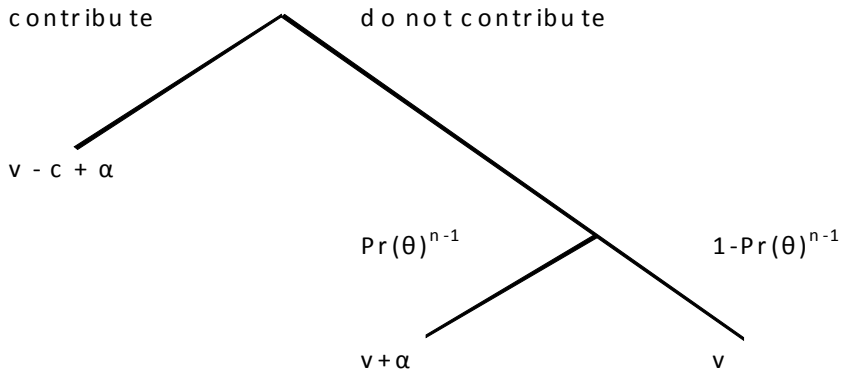

Figure 1: Uniform states with the probabilities that one or another state contributes to the regional stability public good

- α_{ij} = benefits from contributions differ depending on who has contributed
- v_i = each state has different reservation wealth, welfare, or utility

One can then express the welfare of a specific state i as follows:

(5) $$A_i = \begin{cases} v_i - c_i + \alpha_{ii} & \text{if state i contributes} \\ v + \alpha_{ij} & \text{if another state contributes} \\ v_i & \text{if no one contributes} \end{cases},$$

with the decision tree visualized in Figure 2. Clarifying the definitions:

- c_i = cost to state i of contributing
- α_{ij} = benefits from contribution to state i if state j contributes
- α_{ii} = own benefit from contribution for state i

As before, one can derive the critical cost that gives the impetus for a state to contribute. It is

(6) $c_i = \alpha_{ii} - [1-Pr(\theta)^{n-1}] \alpha_{ij}$.

Called lemma 2, this result states:

> **Lemma 2**: In a region with heterogeneous states and the possibility that at least one other state will contribute toward the regional public good, the critical cost is

the difference between a state's own contribution benefit and the expected benefit from a contribution by another state.

Lemma 2 is more realistic than lemma 1 as most regions, including African regions, have at least one country that is likely to contribute, for instance, South Africa in southern Africa and Nigeria in western Africa. The lemmas are discussed in detail in the next section. Meanwhile, one more case is derived, namely that for at least two other states contributing toward regional stability. This is to illustrate the intuition that the more potentially contributory states there are in a region, the less the incentive for any one other state to contribute. The decision tree is pictured in Figure 3.

Under this setup, state i will contribute if and only if the following condition holds:

$$(7) \quad v_i - c_i + \alpha_{ii} \geq [Pr(\theta)_j^{n-2}] (v_i+\alpha_{ij}) + [Pr(\theta)_k^{n-2}] (v_i+\alpha_{ik}) + [1-Pr(\theta)_j^{n-2} - Pr(\theta)_k^{n-2}] (v_i).$$

After some manipulation, the critical cost to induce contribution is:

$$(8) \quad c_i = \alpha_{ii} - [Pr(\theta)_j^{n-2}] (\alpha_{ij}) - [Pr(\theta)_k^{n-2}] (\alpha_{ik}).$$

This is lemma 3. Note the minus signs on the right-hand side of the expression: the larger these terms, the smaller the required cost contribution on the left-hand side. Thus, lemma 3 says, in words,

> **Lemma 3**: In a heterogeneous region with the possibility of two or more states contributing, the critical cost of contribution required decreases with the number of states. (This also applies to the influence of region size in terms of the number of states: the larger the number of states, the lower the incentive to contribute, ceteris paribus.)

When a state benefits from regional instability then its own benefit from contribution (α_{ii}) will be smaller, thereby reducing its incentive to contribute toward regional stability.

The next section discusses the implications of these lemmas and how the summation method for regional stability as a public good influences the results. It is important to note that states' decisions to contribute based on the critical cost do not change as the region gets unstable.[5]

The wild card effect

For most regions there is at least one outside state with political or economic interests

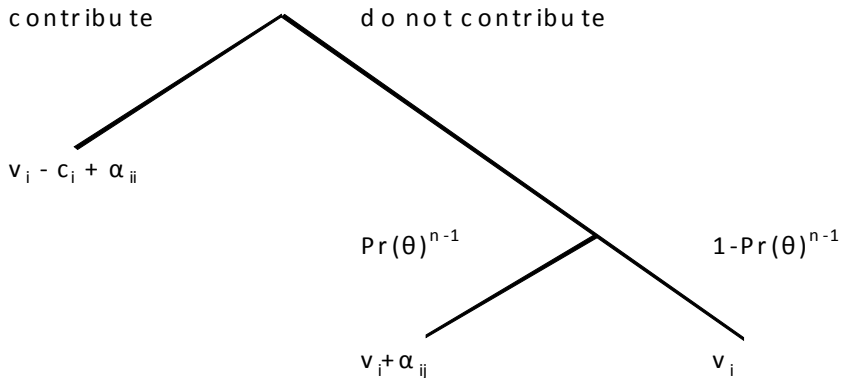

Figure 2: Heterogeneous states with the probabilities that one or another state contributes to the regional stability good

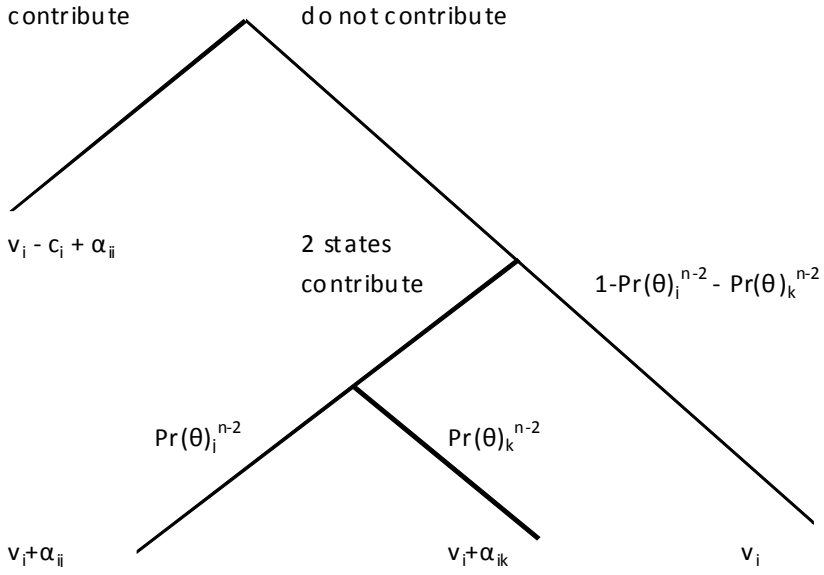

Figure 3: Heterogeneous region with the probabilities that two (or more) states contribute

in the region. To preserve these interests, the outside ("wild card") state intervenes on certain issues in the region. Knowing that there is a wild card, regional states adjust their probabilities of contributing toward a regional public good in order to increase

the chances of free-riding on the outsider's contribution. In almost all cases, the wild card country has a GDP larger than those of the regional states. The United States, for example, is a wild card in the Middle East. Likewise, the United Kingdom, a former colonial power in many parts of Africa, plays the role of the wild card with many issues that arise in Africa.

Discussing the results: examples from southern Africa

Having set out conditions under which a state will be the leader in the provision of regional stability, certain results, known as lemmas, were derived. These and their implications are now discussed.

> **Lemma 1**: Given a region with uniform states and uniform benefits from contributions, each state will contribute if and only if the loss in expected benefits if no one contributes is equal to or greater than the cost of contributing.

This lemma was derived under the assumption that all states in a region are uniform in terms of their GDP, cost of contributing, benefits from regional stability, and other factors. Although this assumption is unrealistic of course, the result provides the generic form, or baseline, of the cost structure that influences decisionmaking. Nonetheless, even this result is applicable in those regions that are very poor and have GDPs within the same low range. States in some sub-Saharan African regions may fit this situation well. In such cases, lemma 1 says that either all the countries contribute simultaneously or else no one contributes at all.

> **Lemma 2**: In a region with heterogeneous states and the possibility that at least one other state will contribute toward the regional public good, the critical cost is the difference between a state's own contribution benefit and the expected benefit from a contribution by another state.

Most regions have at least one state that is economically more advanced than the rest and thus most regional states expect the most advanced state in the region to take the lead. In southern Africa, South Africa has a larger GDP than its neighbors, possesses a more robust economy, and hence is expected by its neighbors and by the global community to take action to stop for example the instability in Zimbabwe. With more than three million Zimbabweans reported to be living in South Africa illegally as the tension in Zimbabwean politics and economic collapse increases, CNN wrote:

> "Zimbabwe's neighbors are under increasing pressure to do something about its chaos — in part because it is already spilling over in the form of migrants fleeing economic collapse and political clampdown. The South African Cabinet was expected to discuss Zimbabwe at a regular meeting Tuesday after sustained criticism that the quiet diplomacy advocated by President Thabo Mbeki isn't working. South Africa, with the strongest economy in the region and the highest international profile, has been pressed to take the lead on Zimbabwe."[6]

Nevertheless, it took South Africa a long time to make a significant contribution to help Zimbabwe and regain regional stability. There are three main reasons that explain this inaction. First, it is possible that South Africa is gaining from instability within the region through redirected FDI, through trade as the starving population of the state in conflict (Zimbabwe) imports food and other goods from South Africa, and as tourists choose South Africa over its unstable neighbor. All these reduce South Africa's own benefit (α_{ii}) from contributing toward ending the regional stability. Second, the minimum cost of contribution (both monetary and nonmonetary, that is, political) required to make an impact is exorbitantly high, and the probability that other neighbors will join in contributions is very low. Hence South Africa chooses not to contribute. Third, South Africa might be of the view that an outside state such as the United Kingdom, with its long-standing connections to Zimbabwe, will intervene and contribute. This introduces the wild card effect. In that case South Africa would free-ride on U.K. contributions. Lemma 2 says that the state that is most likely to contribute might be an outside state with an interest in the region. As tension have risen in Zimbabwe, the U.K. has seen a high influx of Zimbabwean refugees. Pressure mounted on South Africa as well, and in February 2009 it succeeded in helping to create a government of national unity in Zimbabwe. This was a step toward creating stability in the region.

Before this breakthrough, however, the possibility that the U.K or Botswana might contribute led to a long stalemate among state actors, and this leads to lemma 3:

> **Lemma 3**: In a heterogeneous region with the possibility of two or more states contributing, the critical cost of contribution required decreases with the number of states. (This also applies to the influence of region size in terms of the number of states: the larger the number of states, the lower the incentive to contribute, ceteris paribus.)[7]

This general result suggests that the larger the number of states considered, the higher the probability that at least one of them will lead the contribution toward the public good. However, if each country bases its action on some other state contributing, then there might be no provision of the public good at all. With the addition of the United Kingdom as the wild card in alleviating the instability in southern Africa, some regional states might be hoping to free ride.

The political tensions and economic meltdown of Zimbabwe started in 2001. Almost the entire region, and beyond, has endured some of the negative spillovers. The major problem thus far has been the migration of Zimbabweans to neighboring states as they flee the harsh economic and political climate. In 2007, the International

Organization for Migration estimated that about 2.8 million Zimbabweans had migrated to South Africa illegally.[8] Some organizations now estimate over 3 million Zimbabweans to be living in South Africa, and thousands more in Botswana and the United Kingdom. Desperate Zimbabweans have cut border fences and crossed rivers to get into South Africa and Botswana. South Africa has devoted hundreds of police officers to capture and deport illegal Zimbabwean immigrants. It is estimated that there are over 700,000 homeless people in South Africa, and the majority of them are illegal Zimbabweans. The government of Botswana has raised a high border fence to prevent illegal Zimbabwean migration. In the United Kingdom, the number of Zimbabwean refugees has increased to the extent that the U.K. government established a £3,000 reward for Zimbabwean refugees who are not granted asylum and want to return to Zimbabwe.[9] To exacerbate the situation, a 2004 news report cites a study that found that a quarter of HIV/AIDS cases reported in the U.K. are Zimbabwean immigrants.[10]

One must ask why the spillover-affected states did not take action to stop the instability in Zimbabwe and mitigate the costs of the negative externalities they are facing. Lemma 2 provides some insight. South Africa is hoping that the United Kingdom or Botswana will take the lead, and the U.K. is putting pressure on South Africa and Botswana to take lead action. This is a typical public goods-case which results in underprovision or no provision at all, thus making it clear that there is a need for regional and international organizations to help in the provision of stability in a region.

Apart from costs, some states or donors might opt to contribute for any one of three other reasons:

- Pure altruism: $U_i = v_i + \tau v_j$, where $0 \leq \tau \leq 1$
- Duty: $U_i = v_i + \tau$, where $\tau \geq 0$
- Reciprocal: $U_i = v_i + \tau$, where $\tau > 0$,

where U_i = overall utility for state/donor i; v_i = state/donor i's wealth; v_j = state j's wealth; and τ = benefit from contribution.

Pure altruism is the case where state i cares directly about the region. In this scenario, it will contribute no matter what other states in the region or foreign donors do. The second case, duty, occurs when a state feels obligated to contribute. For instance, with increasing pressure from the international community, South Africa might eventually contribute to stabilize the region, thus $\tau > 0$. In the third case, $\tau \geq 0$ if and only if the countries in agreement contribute. This corresponds to public goods that require a minimum contribution level before benefits can be accrued. If only one state contributes, the amount will be less than the minimum required amount and thus no benefits are accrued.

For the case of very poor regions, one may hope there is a pure altruistic country somewhere willing to provide the public good. This is common for a variety of both regional and international public goods: wealthy nations have been called upon to provide influenza vaccination, malaria medication, and antiviral HIV/AIDS drugs. Through pure altruism or duty, most wealthy countries have embraced this responsibility and continue to provide regional and international public goods to the poor.

Conclusion

This article has provided a framework to highlight the conditions under which states make decisions whether to contribute toward a public good with regional spillovers. It is clear from the results that regional public goods will be underprovided or, as in southern Africa, not provided at all. People continue to die without rescue. Even when a leader state contributes, the private (or "national") marginal benefit that would accrue to another state if it, too, contributes might still be less than the required cost contribution, resulting in a lack of followers. In such situations, the market failure associated with the provision of a good with spillovers will be reduced by the leader state but the overall provision will be suboptimal. (But this result depends on the summation technology of the regional public good.) This might also be the case in the Middle East where the United States is seeing little or no help from Iraq's neighbors, who might regard their contributions as too minor to warrant significant involvement.

Suggested measures

Alternative instruments that can be used to achieve optimal provision of goods with regional spillovers. Appropriate instruments will depend on the nature of the public good. In the case of regional stability, this might be disrupted by political unrest, economic meltdown, and sometimes devastating health issues. The instruments should target the causes of regional instability.

Large international organizations that should monitor and mitigate regional instability exist and are numerous (e.g., the United Nations, the African Union, the African Development Bank). Nevertheless, continuing instability calls for more effort. Regional institutions that oversee and control some of the factors that lead to instability are crucial. In order for these institutions to be effective they need to be locally oriented to sustain interest and drive contributions. Regions should set up a peacekeeping entity that mitigates and responds to political unrest in the region; an economic entity, such as a regional development bank, that monitors macroeconomic factors and offers services in monetary and fiscal policies to member countries; or a health service provision center that provides vaccination and health education.

There are several ways these regional organizations could be financed. First, since they are small counterparts of large international organizations they could benefit from the resources and expertise of the larger organizations. To give an impetus to member countries to contribute toward the financing of these institutions, membership

may be tied to trade agreement organizations. In southern Africa for example, all regional states have joined the Southern African Development Community (SADC) to enjoy the trading benefits. Under SADC, branches of trade, peacekeeping, and health can be formed. Subscriptions of member countries will be determined by the states's characteristics. Tying private benefits from trade to the provision of a regional public good might be an incentive for contributions to come forth. Additionally, wild cards and donors can help fund regional institutions. Regional lotteries can also be used to supplement funding.[11]

The large regions covered by larger organizations make it difficult for them to stay abreast with the need for stability and economic sustainability. Much smaller regional institutions that link states and that foresee significant spillovers from each other might be more appropriate. These organizations should work closely together, sharing intelligence and capital. The combination of international, continental, and regional institutions can mitigate market failure in the provision of regional public goods.

Notes

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1. 1990s: Wallensteen and Sollenberg (2001). Hatreds: James and Goetze (2001).

2. Murdoch and Sandler (2001).

3. Arce and Sandler (2002); Cook and Sachs (1999); Estevadeordal, Frantz, and Nguyen (2004); Sandler (1998; 2002); Stalgren (2000).

4. Based on OECD data; see Mascarenhas and Sandler (2005) and te Velde, Morrisey and Hewitt (2002).

5. See Appendix, Proof 1.

6. "Southern African Nations feel pressure to act on Zimbabw." 20 March 2007. http://www.bookrags.com/news/southern-african-nations-feel-pressure-moc/.

7. See Appendix, Proof 2, involving n states in a region.

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Appendix

Proof 1: The decision to contribute based on the critical cost does not change as the region gets unstable. See decision tree in Figure A1. The state in conflict is denoted as m. Negative spillovers from the conflict are indexed by δ_{im}. Under this setup, state i will contribute of and only if the following condition holds:

(A1) $$v_i - c_i - \delta_{im} + \alpha_{ii} \geq [Pr(\theta)_j^{n-2}] (v_i - \delta_{im} + \alpha_{ij}) + [Pr(\theta)_k^{n-2}] (v_i - \delta_{im} + \alpha_{ik}) + [1-Pr(\theta)_j^{n-2} - Pr(\theta)_k^{n-2}] (v_i - \delta_{im}),$$

and the critical cost of contribution is:

(A2) $$c_i = \alpha_{ii} - [Pr(\theta)_j^{n-2}] (\alpha_{ij}) - [Pr(\theta)_k^{n-2}] (\alpha_{ik}) \quad [Q.E.D.],$$

which is the same as derived for lemma 3.

Proof 2: The larger the number of states in a region, the less likely it is for some state i to contribute. The decision tree is depicted in Figure A2. In this example, P_1 and P_2 are the probabilities that one and two states contribute, respectively.

Solving for the critical cost required to contribute by state i yields the following result:

(A3) $$v_i - c_i + \alpha_{ii} \geq P_1 v_i + P_1\alpha_{ij} + P_2 v_i + P_2\alpha_{ij} + P_2\alpha_{ik} + ... + P_{n-1} v_i + P_{n-1} [\alpha_{ij} + \alpha_{ik} + ... + \alpha_{n-1}] + v_i - P_1 v_i - ... - P_{n-1} v_i.$$

Thus

(A4) $$c_i \leq \alpha_{ii} - [P_1\alpha_{ij} + P_2(\alpha_{ij} + \alpha_{ik}) + P_3 (\alpha_{ij} + \alpha_{ik} + \alpha_{il}) + ... + P_{n-1} (\alpha_{ij} + ... + \alpha_{n-1}),$$

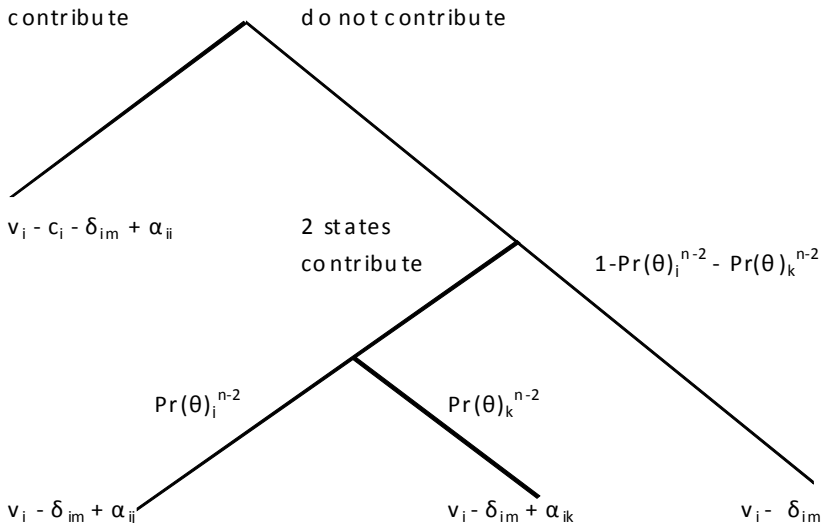

Figure A1: Heterogeneous region with negative conflict spillovers and the probabilities that two (or more) states contribute

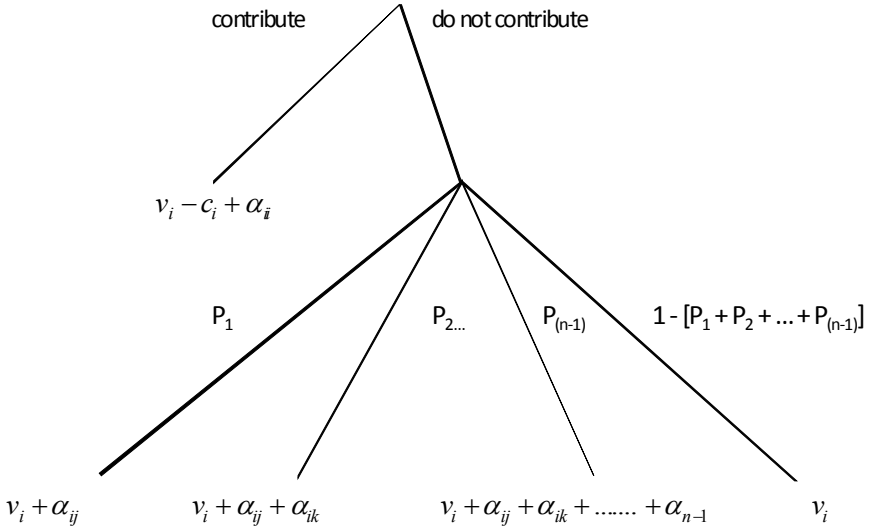

Figure A2: Heterogeneous region with many states with the potential to contribute

where $P_1 \succ P_2 \succ P_3 \succ ... \succ P_{n-1}$ [Q.E.D.].

In words, the larger is the number of states in a region with a positive probability of contributing, the smaller is the required critical cost to some state i to contribute.

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The assassin and the donor as third players in the traditional deterrence game

Lisa J. Carlson and *Raymond Dacey*

We develop two extensions of the traditional deterrence game (TDG), played between two players, to examine the influence of third players, called Assassin and Donor, respectively, upon the behavior of a Challenger toward a Defender. The results present the optimal behavior of Challenger when Assassin and Donor are included in the TDG. The results from the Assassin extension for example can account for the assassinations of leaders such as Anwar Sadat and Yitzhak Rabin and, just as importantly, can also account for the non-assassinations of leaders such as Yasser Arafat. We also show that the Assassin extension generates a very interesting tradeoff between domestic and international conflict.

The key result from both extensions is that Challengers who eventually back down when facing a Defender, and who thereby activate an (internal) Assassin or assistance from an (outside) Donor, are more prone to initiate conflict in the first place than are Challengers who escalate against Defender, and thereby avoid Assassin or Donor. As will be discussed, this finding is remarkably counterintuitive with respect to Assassin but is very intuitive with respect to Donor. Even so, the Donor extension reveals cases where Challenger operates as a blackmailer of Donor by initiating a crisis with Defender so as to be offered a reward by Donor in order to end the crisis peacefully. The Donor extension, then, may be employed to understand the behavior of countries such as North Korea and Libya.

The results from the extensions of the traditional bilateral deterrence game can for example account for assassinations of leaders such as Anwar Sadat and Yitzhak Rabin and non-assassinations of leaders such as Yasser Arafat. A key counterintuitive finding is that Challengers who eventually back down when facing a Defender are more prone to initiate conflict in the first place than are Challengers who eventually escalate against a Defender.

The traditional deterrence game

The traditional deterrence game (TDG) involves two players, Challenger and Defender.[1] Challenger moves first and can choose from two strategies, Threaten or Not Threaten (see the decision tree in Figure 1). If Challenger chooses Not Threaten, then the game terminates and the outcome is the status quo (SQ). If Challenger chooses Threaten, then Defender can choose either Resist or Give In. If Defender chooses Give In, then the game terminates in Defender's acquiescence (ACQ). If Defender chooses Resist, then Challenger can choose either Escalate or Back Down. If Challenger chooses Escalate, then the game terminates in conflict (WAR); if Challenger chooses Back Down, then the game terminates in Challenger's capitulation (CAP).

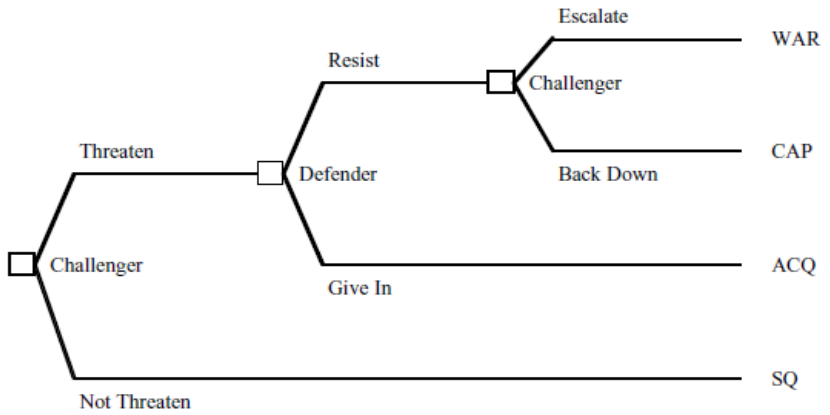

Figure 1: The traditional deterrence game (TDG)

The TDG posits that Challenger and Defender each can be one of two types — soft or hard — specified by their preference orderings. These are as follows:

- soft Challenger ACQ ≻ SQ ≻ CAP ≻ WAR
- hard Challenger ACQ ≻ SQ ≻ WAR ≻ CAP
- soft Defender CAP ≻ SQ ≻ ACQ ≻ WAR
- hard Defender CAP ≻ SQ ≻ WAR ≻ ACQ

where the symbol ≻ means that the outcome to the left of the symbol is preferred to the outcome on its right. Thus, soft and hard Challengers both prefer acquiescence to status quo but a soft Challenger prefers capitulation to war whereas a hard Challenger prefers war to capitulation.

Third player: Assassin

In what follows, the TDG is extended by adding a third player named Assassin. It is presumed that Assassin is part of Challenger's domestic constituency, i.e., Assassin

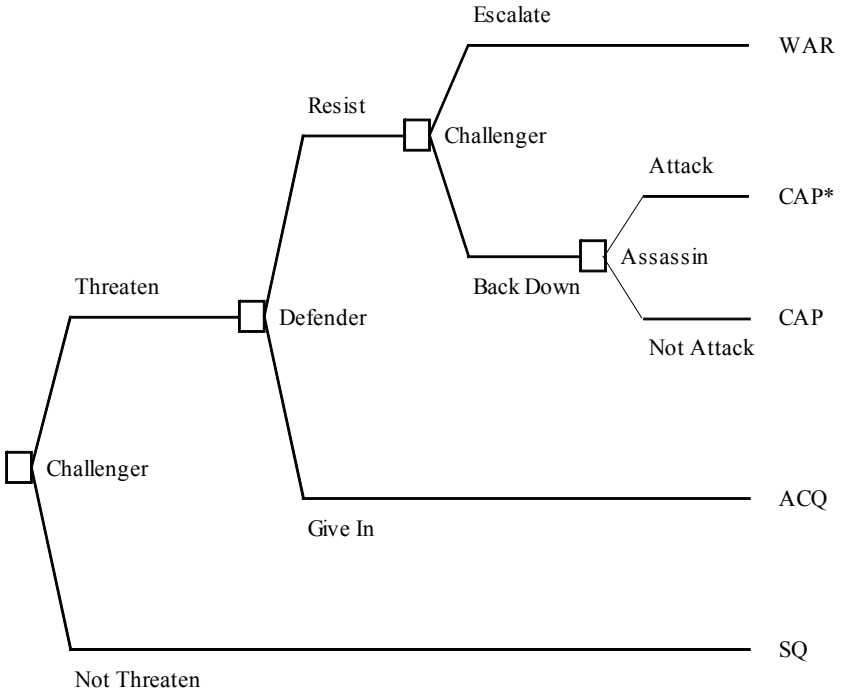

Figure 2: The TDG with Assassin

is one of Challenger's "own people."

Assassin reacts only to Challenger's choice of Back Down, or capitulation (CAP), in which case Assassin's reaction then involves a choice between Attack and Not Attack (see Figure 2). The behavior modeled here has been observed in international relations.[2] If Challenger chooses Back Down and Assassin chooses Not Attack, then the game terminates in CAP, just as if Assassin did not exist. But if Challenger chooses Back Down and Assassin chooses Attack, then the game terminates in a new payoff, CAP*. Importantly, the payoff CAP* can represent an extreme or non-extreme outcome. For example, in the non-extreme case, CAP* can be the embarrassment of backing down perhaps coupled with the cost associated with a peaceful removal from office. Contrariwise, in the extreme case, CAP* can represent Challenger's death by assassination. The term Assassin thus describes a range of possible behaviors by internal opposition, only the most extreme of which is associated with assassination in its literal sense.

We presume that Challenger, regardless of type soft or hard, prefers CAP to CAP* and that Defender, also regardless of type, is indifferent between CAP and CAP*.[3] The assumption that CAP is preferred to CAP* for both hard and soft Challengers yields a three-part specification of Challenger's possible preference orderings, as follows:

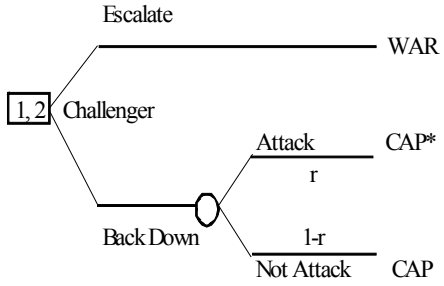

Figure 3: Challenger's view of the endgame

- hard Challenger ACQ ≻ SQ ≻ WAR ≻ CAP ≻ CAP*
- soft-1 Challenger ACQ ≻ SQ ≻ CAP ≻ CAP* ≻ WAR
- soft-2 Challenger ACQ ≻ SQ ≻ CAP ≻ WAR ≻ CAP*

Since Challenger is uncertain about the choice Assassin may make, Challenger sees Assassin as a lottery where the payoff is CAP* (i.e., Assassin attacks) with probability r and CAP (i.e., Assassin does not attack) with probability (1-r). The two-sided incomplete information version of the TDG is employed because this is the only version of the game wherein Challenger chooses Back Down and Assassin is involved in the play of the game. This is presented in Figure A1 which, because of its size, is placed in the Appendix.

Challenger, regardless of type, sees the decisions at nodes 1 and 2 of Figure A1 as shown in the "zoomed-in" version in Figure 3. Here, Challenger chooses Escalate over Back Down if and only if the valuation of WAR is greater than the expected value of Back Down, i.e., if and only if

(1) $v(WAR) > rv(CAP^*) + (1-r)v(CAP)$,

where v stands for the Challenger's valuation function.

Hard Challenger

If Challenger is hard, so that WAR ≻ CAP ≻ CAP*, then the foregoing inequality, i.e., $v(WAR) > rv(CAP^*) + (1-r)v(CAP)$, holds for all values of r. For example, if r=1 then Challenger chooses WAR because the value attributed to WAR exceeds that of CAP*. Likewise, if r=0, WAR is chosen because its valuation exceeds that of CAP also. Put differently, a hard Challenger always chooses Escalate, and thereby always avoids Assassin.

A hard Challenger sees the decision problem over whether to choose Threaten or

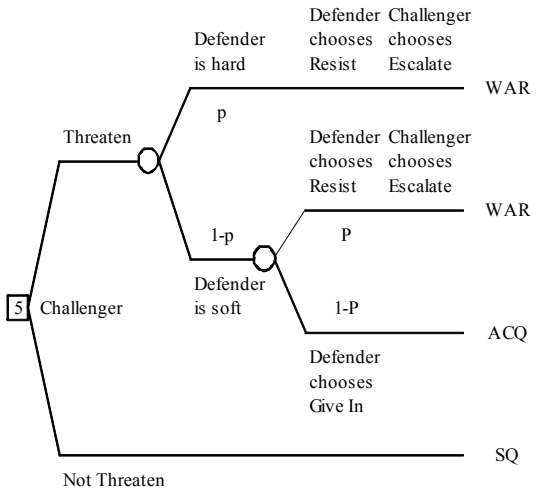

Figure 4: Hard Challenger's view of the first move

Not Threaten at node 5 of Figure A1 as shown in the zoomed-in version in Figure 4. Here, small p stands for the probability that the hard Challenger faces a hard Defender, i.e., one who prefers WAR over ACQ, and of (1-p) of facing a soft Defender. Capital P signifies the probability that the soft Defender chooses Resist. (Note that a hard Defender always chooses Resist, so Challenger's conditional probability that Defender chooses Resist given that Defender is hard equals one.) The hard Challenger chooses Threaten over Not Threaten if and only if the expected valuation of Threaten is greater than the valuation of SQ, i.e., if and only if

(2) $(p+(1-p)P)v(WAR) + ((1-p)(1-P))v(ACQ) > v(SQ)$.

In words, if Challenger is hard, then Challenger chooses Threaten over Not Threaten if and only if the probability Defender chooses Resist is less than a ratio determined by Challenger's valuations of the payoffs. Rearranging the terms in the foregoing inequality thus yields a ratio condition, as follows: hard Challenger chooses Threaten over Not Threaten if and only if

$$(3) \qquad p + (1-p)P < \frac{v(ACQ) - v(SQ)}{v(ACQ) - v(WAR)} \ .$$

The ratio following the inequality sign is referred to as the first threshold.

Soft Challengers

A soft Challenger chooses Back Down over Escalate if and only if

(4) $rv(CAP^*) + (1-r)v(CAP) > v(WAR)$.

As noted, a soft Challenger can be either a soft-1 Challenger or a soft-2 Challenger. If Challenger is soft-1, so that CAP $\succ$ CAP* $\succ$ WAR, then the foregoing inequality holds for all values of r. Thus, a soft-1 Challenger always chooses Back Down. If Challenger is soft-2, so that CAP $\succ$ WAR $\succ$ CAP*, then the foregoing inequality holds for some but not all values of r. Thus, a soft-2 Challenger chooses Back Down if and only if

(5) $rv(CAP^*) + (1-r)v(CAP) > v(WAR)$,

which rearranges to

$$(6) \qquad r < \frac{v(CAP) - v(WAR)}{v(CAP) - v(CAP^*)} \ .$$

If this inequality holds, r is "low"; otherwise, r is "high". Thus, a soft-2 Challenger facing a low r chooses Back Down and sees the decision problem at node 5 of Figure A1 as shown in the zoomed-in version in Figure 5 (overleaf). A soft-2 Challenger facing a low r chooses Threaten over Not Threaten if and only if the expected valuation of Threaten is greater than the valuation of Not Threaten, i.e., if and only if

(7) $(p+(1-p)P)[rv(CAP^*) + (1-r)v(CAP)] + ((1-p)(1-P))v(ACQ) > v(SQ)$.

In words, a soft-2 Challenger facing a low r chooses Threaten over Not Threaten if and only if the probability that Defender chooses Resist is less than a ratio determined by the valuations of the payoffs and the probability r. Rearranging the terms in the foregoing inequality yields another ratio condition, as follows: a soft-2 Challenger facing a low r chooses Threaten if and only if

$$(8) \qquad p + (1-p)P < \frac{v(ACQ) - v(SQ)}{v(ACQ) - [rv(CAP^*) + (1-r)v(CAP)]} \ .$$

The ratio on the right-hand side of (8) is referred to as the second threshold.

Now consider a soft-2 Challenger facing a high r. Here the interesting result is that this Challenger behaves in exactly the same way as a hard Challenger. First, a soft-2 Challenger facing a high r chooses Escalate over Back Down and thereby plays contrary to the soft-player type. Second, a soft-2 Challenger facing a high r sees the decision problem over whether to choose Threaten at node 5 of Figure A1 in the same way that a hard Challenger sees the problem, i.e., as in Figure 5. Therefore, a soft-2 Challenger facing a high r chooses Threaten at node 5 in Figure A1 if and only if

$$(9) \qquad p + (1-p)P < \frac{v(ACQ) - v(SQ)}{v(ACQ) - v(WAR)} \ ,$$

i.e., in accordance with the first threshold. Thus, one obtains the striking result that a soft-2 Challenger facing a high r behaves exactly like a hard Challenger with respect to both the decision whether to choose Escalate and the decision whether to choose Threaten. Therefore, both the hard Challenger and the soft-2 Challenger facing a high r avoid Assassin.

This behavior is in distinction to that of a soft-1 Challenger and a soft-2 Challenger facing a low r, where Challenger chooses Threaten over Not Threaten if and only if Challenger's probability that Defender chooses Resist is in accordance with the second threshold, i.e., if and only if

$$(10) \qquad p + (1-p)P < \frac{v(ACQ) - v(SQ)}{v(ACQ) - [rv(CAP^*) + (1-r)v(CAP)]}.$$

A second, and particularly counterintuitive, result involves the difference between the first and second thresholds. Since

$$(11) \qquad rv(CAP^*) + (1-r)v(CAP) > v(WAR)$$

for both a soft-1 Challenger and a soft-2 Challenger facing a low r, we have

$$(12) \qquad \frac{v(ACQ) - v(SQ)}{v(ACQ) - [rv(CAP^*) + (1-r)v(CAP)]} > \frac{v(ACQ) - v(SQ)}{v(ACQ) - v(WAR)}.$$

Thus, the set of points <p,P> for which

$$(13) \qquad p + (1-p)P < \frac{v(ACQ) - v(SQ)}{v(ACQ) - v(WAR)}$$

is a proper subset of the set of points <p,P> for which

$$(14) \qquad p + (1-p)P < \frac{v(ACQ) - v(SQ)}{v(ACQ) - [rv(CAP^*) + (1-r)v(CAP)]}.$$

The significance of this result is that the Challengers who choose Back Down, and thereby may encounter Assassin, are more prone to initiate a crisis with Defender in the first place than are the Challengers who choose Escalate and thereby avoid Assassin.

Third player: Donor

The foregoing analytic structure can be employed to examine the role played by a

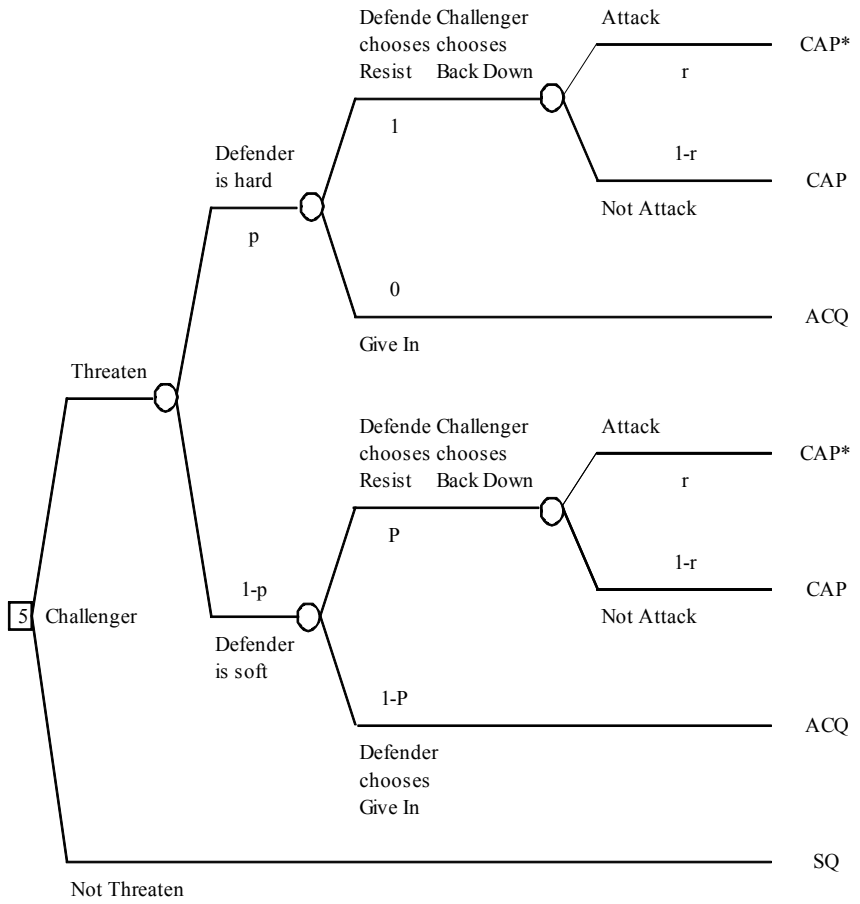

Figure 5: Challenger's view of the first move when Challenger chooses to Back Down

Donor. We presume that Donor is an actor who, as a third player, is independent of both Challenger and Defender and reacts to Challenger's choice of Back Down. In particular, if Challenger chooses Back Down, then Donor's reaction involves a choice between Donate and Not Donate.

The analysis of the TDG with Donor is quite similar, albeit mirror imaged, to the analysis of the game with Assassin. If Challenger chooses Back Down and Donor chooses Not Donate, then the game terminates in the usual capitulation payoff, CAP. If Challenger chooses Back Down and Donor chooses Donate, then the game terminates in a new payoff, CAP**. Whereas Assassin attempts to influence

Challenger's behavior via a downside payoff, CAP*, Donor attempts to influence Challenger's behavior via an upside payoff, CAP**. Examples of the upside payoff CAP** include financial or military aid, debt relief, or a security guarantee.

It is presumed that Challenger, regardless of type soft or hard, prefers CAP** to CAP, and that Defender, also regardless of type, is indifferent between CAP** and CAP.[4] Furthermore, only the cases where CAP** is reasonably better than CAP are examined, and thus we do not examine the cases where CAP** is the most preferred payoff or the second-most preferred payoff. Finally, we again examine the two-sided incomplete information version of the game.

The assumption that CAP** is preferred to CAP for both hard and soft Challengers yields a three-part specification of Challenger's possible preference orderings, as follows:

- soft Challenger ACQ ≻ SQ ≻ CAP** ≻ CAP ≻ WAR
- hard-1 Challenger ACQ ≻ SQ ≻ WAR ≻ CAP** ≻ CAP
- hard-2 Challenger ACQ ≻ SQ ≻ CAP** ≻ WAR ≻ CAP

As before, Challenger is uncertain about Donor and thus sees Donor as a lottery where the payoff is CAP** with probability R and CAP with probability (1-R). Thus, Challenger chooses Back Down over Escalate if and only if

(15) $Rv(CAP^{**}) + (1-R)v(CAP) > v(WAR)$.

Soft Challenger

If Challenger is a soft Challenger, so that both CAP** and CAP are preferred to WAR, then the foregoing inequality holds for all values of R. Thus, a soft Challenger plays true to type and always chooses Back Down over Escalate, and thereby may encounter Donor.

A soft Challenger chooses Threaten over Not Threaten if and only if

(16) $(p+(1-p)P)[Rv(CAP^{*}) + (1-R)v(CAP)] + (1-p)(1-P)v(ACQ) > v(SQ)$.

This inequality condition rearranges to the following: a soft Challenger chooses Threaten over Not Threaten if and only if

(17) $$p + (1-p)P < \frac{v(ACQ) - v(SQ)}{v(ACQ) - [Rv(CAP^{**}) + (1-R)v(CAP)]}.$$

Hard Challengers

If Challenger is a hard-1 Challenger, so that WAR is preferred to both CAP** and CAP, then v(WAR) is greater than any convex combination of v(CAP**) and v(CAP). Thus, the inequality

(18) $v(WAR) > Rv(CAP^{**}) + (1-R)v(CAP)$

holds for all values of R, and a hard-1 Challenger always chooses Escalate over Back Down, and thereby plays true to type. Hence, a hard-1 Challenger never encounters Donor.

Since a hard-1 Challenger chooses Escalate, a hard-1 Challenger chooses Threaten over Not Threaten if and only if

(19) $(p+(1-p)P)v(WAR) + (1-p)(1-P)v(ACQ) > v(SQ)$.

This inequality condition rearranges to the following: a hard-1 Challenger chooses Threaten over Not Threaten if and only if

(20) $$p + (1-p)P < \frac{v(ACQ) - v(SQ)}{v(ACQ) - v(WAR)}.$$

Now consider a hard-2 Challenger. Given the preference ordering CAP** ≻ WAR ≻ CAP, a hard-2 Challenger chooses Escalate over Back Down only for some but not all values of R, specifically those values of R for which

(21) $v(WAR) > Rv(CAP^{**}) + (1-R)v(CAP)$.

Thus, by rearrangement, a hard-2 Challenger chooses Escalate over Back Down if and only if

(22) $$R < \frac{v(WAR) - v(CAP)}{v(CAP^{**}) - v(CAP)}.$$

R is "low" if the foregoing inequality holds; otherwise, R is "high". Thus, a hard-2 Challenger facing a low R behaves true to type and chooses Escalate, whereas a hard-2 Challenger facing a high R behaves against type and chooses Back Down.

Now consider the decision whether to choose Threaten or Not Threaten. Both a soft Challenger and a hard-2 Challenger facing a high R choose Back Down over Escalate and, therefore, both choose Threaten over Not Threaten if and only if

(23) $$p + (1-p)P < \frac{v(ACQ) - v(SQ)}{v(ACQ) - [Rv(CAP^{**}) + (1-R)v(CAP)]}.$$

Contrariwise, both a hard-1 Challenger and a hard-2 Challenger facing a low R choose Escalate over Back Down and, therefore, both choose Threaten over Not Threaten if and only if

$$(24) \qquad p + (1-p)P < \frac{v(ACQ) - v(SQ)}{v(ACQ) - v(WAR)} .$$

Note that for the Challengers who choose Back Down,

$$(25) \qquad Rv(CAP^{**}) + (1-R)v(CAP) > v(WAR)$$

and thereby

$$(26) \qquad \frac{v(ACQ) - v(SQ)}{v(ACQ) - [Rv(CAP^{**}) + (1-R)v(CAP)]} > \frac{v(ACQ) - v(SQ)}{v(ACQ) - v(CAP)} .$$

Therefore, the not very surprising result obtains that those Challengers who choose Back Down, and thereby encounter Donor, are more prone to initiate a crisis than are those Challengers who choose Escalate, and thereby avoid Donor. This result is not surprising exactly because the upside payoff CAP** can be gotten only by choosing Threaten in the first place.

Discussion and conclusion

The inclusion of third players generates new results that cannot be obtained via the two-player traditional deterrence game.[5] The results presented here involve cases where the probabilities that Assassin chooses Attack or that Donor chooses Donate are either high or low, and the conditions under which Challengers choose to initiate a crisis via the decision to Threaten Defender in the first place.

If the probability that Assassin chooses Attack is high, then a soft-2 Challenger behaves contrary to type and, like a hard Challenger, chooses Escalate. Thus, via the decision to choose Escalate, a soft-2 Challenger facing a high r avoids Assassin. If the probability that Donor chooses Donate is high, then a hard-2 Challenger, via the decision to choose Back Down, behaves contrary to type.

The results show a different set of behaviors when the probabilities that Assassin chooses Attack or that Donor chooses Donate are low. If the probability that Assassin chooses Attack is low, then a soft-2 Challenger behaves true to type and chooses Back Down. In so doing, a soft-2 Challenger may encounter Assassin. If the probability that Donor chooses Donate is low, then a hard-2 Challenger behaves true to type and chooses Escalate. In so doing, a hard-2 Challenger cannot encounter Donor.

The foregoing result for Assassin, regarding the probability of Attack, reveals an interesting nexus, indeed a tradeoff, between domestic and international conflict. Challengers are confronted with domestic conflict with the presence of Assassin in the game. In the case of a soft-2 Challenger facing a high r, domestic conflict with Assassin is avoided via the choice of Escalate, but this avoidance comes at the expense of generating international conflict with all hard, and some soft, Defenders. The link between domestic and international conflict also occurs in the reverse direction for a soft-1 Challenger and a soft-2 Challenger facing a low r. These Challengers avoid international conflict with Defender by choosing Back Down. However, in avoiding international conflict, the behavior of a soft-1 Challenger, and that of a soft-2 Challenger facing a low r, generates the risk of domestic conflict with Assassin.

The key result derived from both extensions of the TDG pertains to the conditions under which a Challenger chooses Threaten in the first place. Specifically, Challengers who choose Back Down, in both the Assassin and Donor extensions, are more prone to initiate a crisis with Defender than are Challengers who choose Escalate. This result is remarkably counterintuitive in the case of Assassin since only the choice of Back Down will activate Assassin. Furthermore, the Challengers who choose Back Down are the very same Challengers who are more prone to initiate the crisis that activates domestic conflict. On the other hand, in the Donor extension it is not particularly surprising that the Challengers who are more prone to initiate a crisis do so in order to realize the upside payoff, CAP**. This result from the Donor extension reveals cases where a Challenger functions as a blackmailer of Donor, i.e., cases where Challenger uses Defender as a means for Challenger to benefit from Donor.

Possible examples of Challengers choosing Back Down, and thereby encountering Assassin, are Anwar Sadat of Egypt and Yitzhak Rabin of Israel. Sadat was assassinated in 1981 for signing the 1979 Israel-Egypt Peace Treaty, and Rabin was assassinated in 1995 for signing the 1993 Oslo Accords. A possible example of a soft Challenger playing like a hard Challenger, and thereby avoiding Assassin, is Yasser Arafat. He chose not to enter into an agreement with Ehud Barak at the 2000 Middle East Peace Summit at Camp David, and thereby avoided assassination. An example of a hard Challenger playing like a soft Challenger, and thereby encountering Donor, is Libya terminating its nuclear weapons program in December 2003 in exchange for membership into the World Trade Organization and an end to the European Union arms embargo. Another example is North Korea who in agreeing to "terminate" its nuclear weapons program received $4 billion in assistance from the United States in the mid-1990s.[6]

Notes

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1. See, e.g., Zagare and Kilgour (1993); Morrow (1994).

2. Öberg, Möller, and Wallensteen (2008).

3. Defender's indifference is a simplifying assumption that is employed to derive a general set of results. This assumption can be relaxed but then the points we wish to make here become lost in the details of the various special cases that obtain and these cases are not considered here.

4. As before, Defender's indifference is a simplifying assumption and is made for the reasons given earlier.

5. Other third-player variations of the deterrence game are treated in Zagare and Kilgour (2003).

6. Sadat: Heikal (1983); Hatina (2005). Rabin: Peri (2000); Sasson and Kelner (2008). Libya: Bahgat (2005). North Korea: Bueno de Mesquita (2006, p. 343).

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Appendix

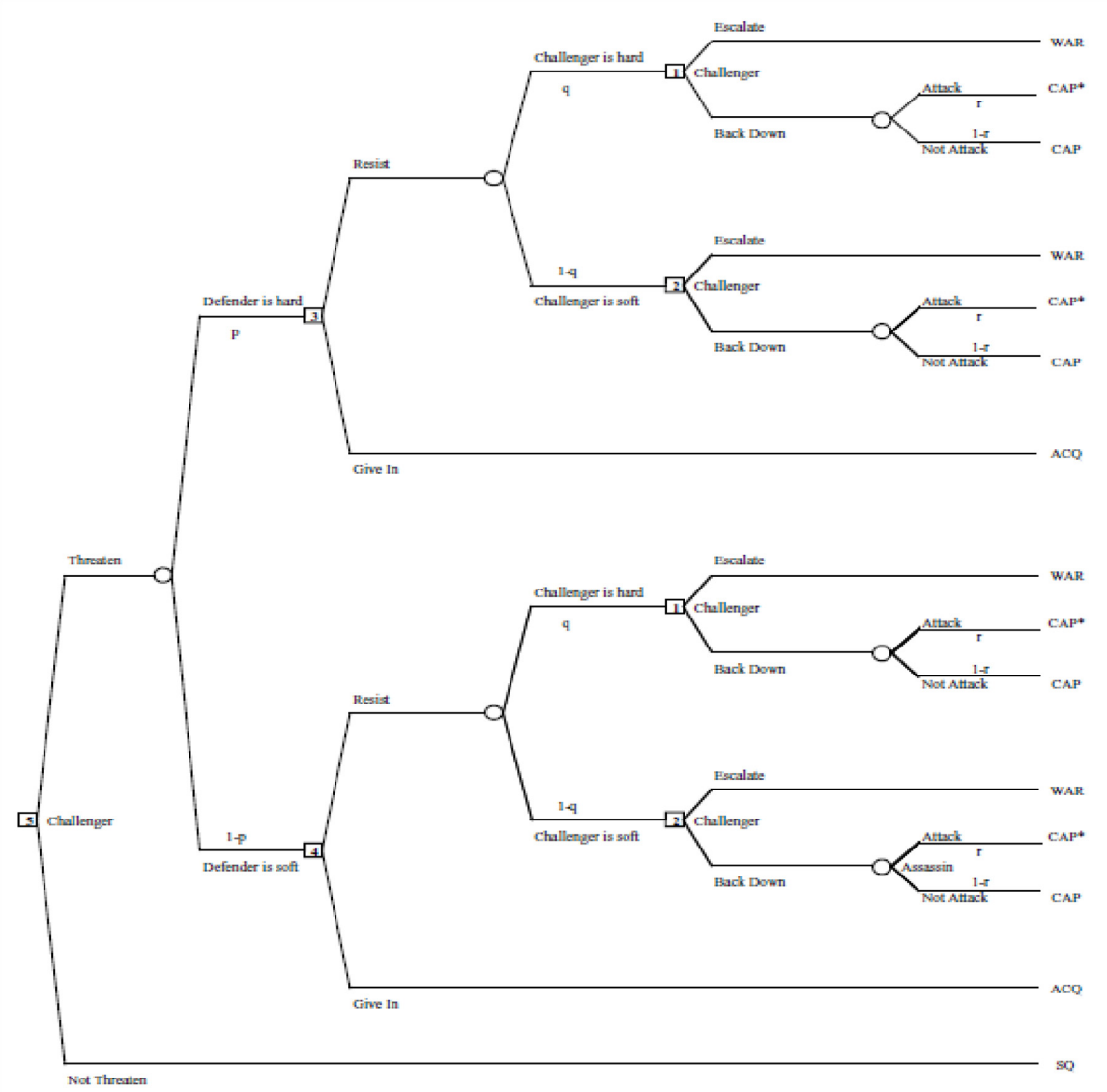

Figure A1: The two-sided incomplete information version of the TDG with Assassin

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Economics of intolerance and social conflict

Partha Gangopadhyay

Why do people display intolerance, and why do they sometimes get trapped in cycles of violent and costly conflict? Why are some societies more (in)tolerant than others? These questions are neither well understood nor fully addressed by social scientists. Although some degree of intolerance is universal, serious violent, and commensurably costly, conflict occurs disproportionately in low-income states and pushes them further down the poverty trap. This article defines conflict by the level of intolerance displayed by one social group toward another such that non-negligible costs are imposed on at least one of the involved parties. An important consensus today is that intolerance and social conflict have a substantial economic dimension. One therefore expects economists to proffer a contribution to the collective bid to analyze intolerance and social conflict (for simplicity, hereafter simply referred to as conflict).

The starting point of the analysis here is that an act of intolerance by a person (called an agent) may beget either social approval or social disapproval. Approval brings a positive "return" to the agent whereas disapproval causes a welfare loss to the agent and hence a negative return. By imposing reasonable restrictions on these returns (costs or benefits to the agent), the article shows that several equilibria — ranging from low to severe-intolerance equilibria — emerge from the static version of the model of a simplified society employed here. History, culture, and social beliefs and expectations play a decisive role in selecting one of these equilibria while even a momentary departure from an established equilibrium beyond a threshold level can engender sustained conflict.

Social norms and social contracts

Intolerance assumes a special and paramount importance in the context of globalization. Globalization has shrunk relative distances and has put heterogeneous stocks of people, that is, of diverse races and backgrounds, in increasingly close proximity. In the absence of an international arbiter and mediator, the progress and prosperity of globalization have been accompanied by heightened risks of conflict between and within states. People from different stocks of religion, ethnicity, and culture live as minorities among majorities and are thereby exposed to potential intolerance of varying degrees.[1] If people are quarrelsome by nature, as Thomas Hobbes asserts in chapter 13 of *The Leviathan*, then globalization has given majorities unprecedented opportunity to commit acts of intolerance aimed at minorities, for example through diaspora financing of civil war.[2]

Hobbes suggests that there are three main causes of intolerance and conflict. First, the underlying theme of competition for limited resources motivates people to invade the physical space of others. Second, mutual distrust induces people to invade others' territory in the pursuit of (a perception of) safety. Third, people lock horns over achieving glory: invasion for reputation. It is the social contract and its enforcement that are believed to banish conflict from organized societies. However, if there is a problem with enforcing the social contract at a reasonably low cost, it is not possible to keep these causes of conflicts at bay.

An important consensus today is that intolerance and social conflict have a substantial economic dimension. This article models a person's "returns" to acts of intolerance in terms of social approval or disapproval that this person's peer-group may offer. It is found that high levels of intolerance may persist (that is, society is "in equilibrium"), even as this imposes economic costs.

In economics, theorizing about costly, violent conflict largely has been avoided by two powerful assumptions: first, all agents are construed as instrumentally rational and, second, all relevant information is made common knowledge. Indeed, Harsanyi's doctrine then posits that rational agents can correctly predict predictions of "equally informed and equally rational" others and thereby reach an equilibrium point at which, if conflict is costly, intelligent agents will stay away from conflict.[3] (This is akin to chess players who at some stage of a game predict the end game as a dull draw and decide to declare it so — and thereby avoid the tedium of actually playing an infinite end game.[4]) The social contract is to prevent the vulnerable from molestation by the powerful. Rousseau popularized the idea of the social contract, now recognized as a major difference between the worlds of human and nonhuman animals.[5]

Enforceability

Here lurks Rousseau's famous paradox: in entering society, a person sacrifices all rights yet gives up nothing.[6] Rousseau's solution is that each person be both legislator and subject and undertake his civil burden most diligently to express the true interests of his society by helping to voice its "general will." This solution does not necessitate an enforcement of the social contract by an omnipotent and omniscient state because agents, driven by their civil duties, ensure its enforcement on their own. But Thomas Hobbes realizes — also in chapter 13 of *The Leviathan* — that it is not an easy task to protect the vulnerable from the powerful in any society because the latter will willfully take on his civil burden. His suggestion is to create a "common power" through a social contract "to keep all in the awe." The need to enforce the social contract by legislative mandate is widely recognized. Wherever such a mandate is impossible, a society strives to resolve the contract enforcement problem by creating and articulating other customs and social norms that influence individual behavior in

the social context. Thus what action a person chooses can be seriously influenced by existing social customs and norms.

An example may be helpful. Consider a wage bargaining problem in which union leaders are bound by members' normative expectations to hold out against a management whose social position makes concessions equally unacceptable to their stake-holders.[7] This is akin to the market for gifts which is usually governed by unwritten norms of gift giving: what is appropriate to give and to whom and on which occasion. Typically, these norms are iron-cast and uniquely determine individual behavior wherefrom a social outcome evolves, given a well-defined and enforceable penalty mechanism.

Social interpretation of ethnic intolerance

Interethnic intolerance is a complex phenomenon. The same action can have different social interpretations: a suicide bomber may appear as a martyr for one group and a criminal for the other. Such a clear separation of interpretations does not pose a problem. However, a problem arises when an action and its social reception and subsequent consequences are not clearly defined. The major innovation in this article is model how social customs and norms may allow for multiple possible social interpretations of an action an agent takes. As a result, an action can lead to multiple possible outcomes and it thus entails an intrinsic uncertainty that, in turn, can impinge on the social outcome. Put differently, in the model the social contract is not fully enforceable and its rules are subject to interpretations by the majority group. The model also entertains the idea that social norms and customs, which fill out the gaps in the social contract, themselves are subject to interpretations by the majority.

Social interpretation and antisocial capital in ethnic intolerance

The incompleteness of the social contract and a malleability of customs and social norms can give rise to an uncertainty that can profoundly influence individual decisionmaking which, in turn, shapes the outcome in the context of intolerance. We proffer a new name for this kind of behavior: antisocial capital. Social capital typically highlights those attributes or virtues in a society that forge a people into a community.[8] These attributes dictate the relations among people wherefrom a course of actions gets chosen. The term antisocial capital in the context of intolerance means that a social agent displays vices (a type of attribute that influences the choice of action) that splits society into groups.

More specifically, an agent from the majority group metes out lack of trust and commitment, hostility, and/or economic harm to members of the minority so long as his reference or peer group (the majority) allows, tolerates, and possibly rewards his efforts. This is referred as antisocial capital because typically it opens up chinks in the social order and creates an insider-outsider kind of conflict. To benefit the insiders, antisocial capital is instrumentally used against the outsiders. If a minority group of people and a majority group of people make up a common total society, then antisocial capital disrupts the functioning of society at large. The syntactic import of antisocial capital is similar to the term antihero, a person who has superficial qualities of a hero.

Intolerance as a form of preference interactions

Consider an agent who derives some benefit from an economic transaction. This benefit is a called a normal return, or R^N. To highlight intolerance, the model generally hides this transaction-related benefit from the analysis and instead focuses on the agent's ability to also commit an act of intolerance, T_i. The return to intolerance is uncertain: if it receives social approval, the overall reward from the transaction is greater than R^N. Conversely, if the act of intolerance receives social censure, the overall reward is less than R^N. This construction allows for multiple social evaluations or interpretations of action T_i. In other words, preference interaction is assumed. Preference interaction takes place when an agent's preference ordering over alternatives in a choice set depends on actions or preferences of other agents.[9]

Intolerance can take fairly minor forms. Suppose an agent is in a shopping center to buy the weekend newspaper and a member of a minority group enters the store. An act of intolerance, T_i, can be a simple verbal slight: go back to your country. The return from this act of intolerance depends on how others respond to it. For example, social approval is typically communicated to the actor as well as to the victim by body language, snide comments, and the post-action treatment of the agent and the victim. Social approval is a positive feedback loop in preference interaction between the intolerant agent and the approving others. With social approval the return of the agent increases above R^N.

Conversely, others in the store may send the message of disapproval through body language, comments, confrontation, and post-action treatment of the agent and the victim. Social disapproval lowers the return below R^N. The agent thus faces a gamble when engaging in an act of intolerance: will intolerance beget approval or censure? This gamble may occur in many different kinds of situations. Imagine, for instance, a university where a minority member is refused tenure on account of racial intolerance. The chair of the tenure committee may face opposition from other committee members, in which case the chair may suffer loss of welfare. Alternatively, the chair may enjoy the warmth and cooperation of colleagues who support the refusal of tenure. Depending on how colleagues react, the act of intolerance may bring scorn or glory to the chair. As Schelling says, how the preferences interact determines the consequences that follow from the action. In the model presented here, the nature of the preference interaction is uncertain, that is, an agent does not know a priori how others will react.[10]

Nash equilibrium outcomes with intolerance

Economic models seek to describe how agents interact given a certain decision to be taken, such as one concerning intolerant behavior toward others. To do this, models rely on equilibrium analysis. Equilibrium analysis depends on the specification of agents' behaviors, expectations, utility functions, constraints, and the precise formulation of preference interactions. Given this, a so-called Nash equilibrium can then characterize the possible outcome(s) of the interaction process. There are two variants. The first postulates an outcome to occur when agents' actions are mutually consistent; the second occurs when agents have no incentive to unilaterally deviate from the outcome once they reach it. The model employed in this articles revolves around the first variant.

A model of intolerance and social conflict

In game theory, a Nash equilibrium implies a prediction of behavior for all agents such that, if every agent believes that the others will behave as predicted, it is then rational for each agent to behave according to this prediction. Thus, any belief, or prediction, which is not a Nash equilibrium cannot be rationally accepted by agents as an accurate prediction of what will happen because at least one agent will deviate from the prediction since it is not true. When a game with a unique equilibrium is developed, this equilibrium must be the only rational and correct prediction of how the agents will behave. But a problem arises in that the model develop here results in a multiplicity of possible predictions and hence multiple (equilibrium) outcomes.

In order to be able to display findings in terms of a two-dimensional diagram, some assumptions are made. The modeled society consists of only two agents and of a fringe group of minorities. The agents can commit acts of intolerance against minorities. As noted before, the behavior of the minorities themselves is not modeled. The reaction function of an agent is defined as the best response of one agent, in terms of intolerance toward minorities, given the level of intolerance chosen by the other agent. The Nash equilibrium is a combination of mutual best responses so that none has an incentive to unilaterally deviate from the outcome. The focus is placed upon the symmetric Nash equilibrium in which two agents choose an identical level of intolerance. Note that the model has several non-symmetric equilibria but these are not explicitly developed in the text (but see the Appendix).

An act of intolerance is akin to a gamble and can be formalized as follows:

ASSUMPTION 1: Agent i expects two possible returns from an act of intolerance, T_i. He expects a possible return of $R^N + \Delta$ such that this sum is greater than R^N alone. In other words, Δ is a positive return due to social approval of T_i. In contrast, agent i expects the return to be $R^N - \Delta$ if there is a social disapproval of T_i. Agent i further expects that social disapproval will materialize with a probability λ, and social approval with probability $1 - \lambda$. The agent thus faces a gamble as s/he either receives $R^N + \Delta$ with a probability $1 - \lambda$ or receives $R^N - \Delta$ with probability λ.

OBSERVATION 1: The expected value of the gamble is E(.).

(1a) $E(.) = R^N + \Delta(1 - 2\lambda)$.

PROOF: By definition, E(.) is:

(1b) $E(.) = (1 - \lambda)(R^N + \Delta) + \lambda(R^N - \Delta)$.

Simplification of (1b) yields (1a). Q.E.D.

ASSUMPTION 2: Agent i assumes that the probability of social disapproval (λ) is positively related to the benefits (Δ) from intolerance T_i:

(1c) $\lambda = \eta\Delta / 2$, where $\eta > 0$.

OBSERVATION 2: The expected value of the gamble is reduced to the following:

(1d) $E(.) = R^N + \Delta - \eta\Delta^2$.

PROOF: Substituting (1c) in (1b) yields (1d). Q.E.D.

ASSUMPTION 3: The benefit from social approval is an increasing function of the average intolerance level, $T^* = (T_1 + T_2) / 2$:

(1e) $\Delta = T^{*2} / 2$.

ASSUMPTION 4: If, exclusive of the minority, there are N agents in society, the average resource cost to produce intolerance for each agent is C, written as:

(2a) $C = C_0 - C_1 (\Sigma T_i)$.

For a two-agent society, C reduces to the following:

(2a') $C = C_0 - C_1 (T_1 + T_2)$.

Note that Assumption 2 and Assumption 3, respectively, introduce preference and cost interactions wherefrom agents' welfare interdependency arises. Assumption 2 says that the likelihood of social disapproval is an increasing function of the potential benefit from intolerance. Assumption 3 says that the individual benefit of intolerance

for an agent exhibits increasing returns from the average level of intolerance, T*. Assumption 4 posits an interaction between cost functions of agents in producing intolerance.

CLAIM 1: The return from intolerance T_i to agent i in a two-agent society is reduced to the following:

(2b) $R_i = R^N + [(T^*)^2/2] - [\eta(T^*)^4/4] - (C_0\, T_i) + (C_1\, T_i^2) + (C_1\, T_i\, T_j)$,

where T* is the average level of intolerance shown by agent i and agent j.

PROOF: (2b) is derived after substituting (1e), (2a), and (2a') into (1d).

CLAIM 2: For a symmetric Nash equilibrium with two identical agents the reaction function of each agent is identical, and the (Nash) equilibrium condition is given in terms of the average level of intolerance T* as follows:

(2c) $T^*\,(3C_1 + 0.5) - \eta(T^*)^3 - C_0 = 0$.

PROOF: See Appendix. Q.E.D.

From (2c) we can express the equilibrium condition as

(2c') $M(T^*) = T^*(3C_1 + 0.5) - \eta(T^*)^3 = C_0$.

The function M(T*) is drawn in Figure 1. Note that there is a critical value of average intolerance T* — $A = [C_1 + 0.16) / \eta\,]^{½}$ — such that:

(2d) $dM(T^*)/dT^* > 0$ for $T^* < A$ [the rising part of M(T*) in Figure 1] and
(2d') $dM(T^*)/dT^* < 0$ for $T^* > A$ [the falling part of M(T*) in Figure 1].

The two intersection points between M(T*) and the horizontal line given by the value of C_0 determine the symmetric equilibria, E_1 — the point at which KK', C_0, and M(T*) cross each other — and E_2 — where C_0, and M(T*) cross again — in Figure 1. The horizontal axis measures the average level of intolerance, T*. The vertical axis measures the average cost of being an intolerant person. Thus, up to the average intolerance level of A (indicated by the vertical line at point A), the average cost of being intolerant rises as measured on the vertical axis. But beyond A, the average cost of being intolerant falls as the average level of intolerance against minorities in the society increases.

The first equilibrium, E_1, at an average intolerance level of K is unstable. For example, between points K and A, the direction of the arrows in the Figure all point away from E_1. In contrast, the second equilibrium, E_2, is stable. Whenever there is a movement away from E_2, the direction of the arrows indicates a return to E_2.[11]

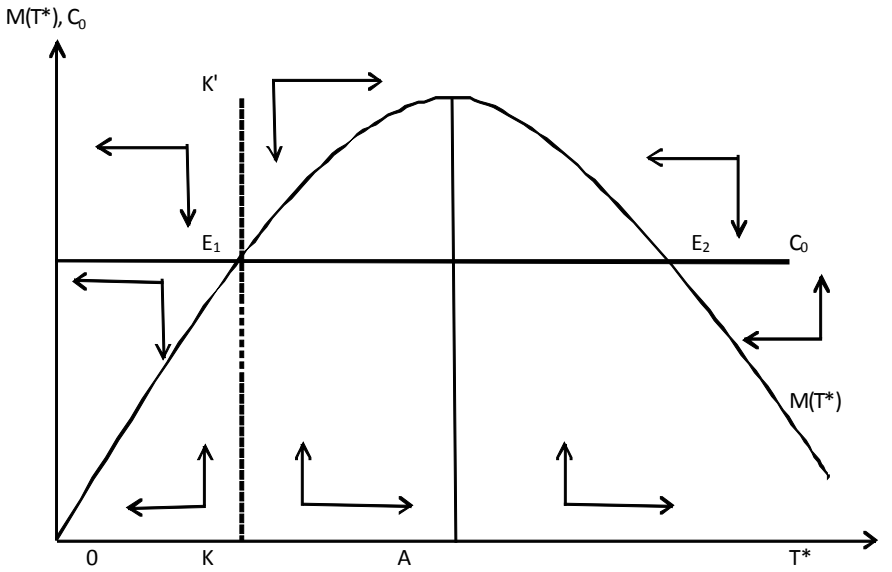

Figure 1: Equilibria for intolerance game.

In the presence of multiple equilibria (symmetric and non-symmetric), the model fails to offer a single prediction. (Nash was aware of this problem as he tried to resolve it by offering sufficient conditions to characterize a unique equilibrium outcome out of several equilibria.[12]) The model employed here yields the following results:

RESULT 1: By construction, there are several possible solutions to the polynomial reaction functions (3b) and (3b') given in the Appendix. In Figure 1, only the symmetric equilibria E_1 and E_2 are considered. From the Appendix we know that E_1 is unstable and E_2 is stable which creates the vertical, dotted boundary line KK' in Figure 1. If the historical profile of average intolerance, that is, people's expectations or beliefs about average intolerance, are contained along the stretch 0 to K on the T* axis, then the system gradually converges from relatively low intolerance states to zero intolerance states, an ideal outcome.

RESULT 2: If history, or beliefs or expectations, about average intolerance have initial values of $T^* > K$, then the system moves toward the high-intolerance — and stable — symmetric equilibrium, E_2.

RESULT 3: If history, or beliefs or expectations, about average intolerance goes beyond certain limits, the system will gravitate toward non-symmetric equilibria. Given the nature of the polynomials, one cannot explicitly derive the boundaries for non-symmetric equilibria. (To recall, symmetric means that intolerant agents harbor equal levels of intolerance; non-symmetric agents display unequal levels of intolerance.)

The tyranny of multiple of equilibria and the culture of violence

The analytic problem with multiple equilibria is well-recognized in economics when one considers games with several agents. The upshot is that many different variants, or types, of behavior among these agents can be rationally sustained as combinations of mutual best responses.

To bring out the main message of the model, violence in the context of intolerance is introduced because the more serious forms of intolerance are carried out by means of violent methods. Every culture and society has a code of behavior with regard to violence. One can thus think of the boundary KK' in Figure 1 as a critical threshold of violence. Violent intolerance up to level K can flare up but eventually will dissipate toward zero again because equilibrium E_1 is not stable. In contrast, violent intolerance beyond level K will become ingrained and sustained. Note that while the degree — or even culture — of violent intolerance is exogenous to the model, the boundary KK' is determined by the mathematics of the model, i.e., the threshold level is endogenously determined.

Low average intolerance levels of up to KK' are feasible if agents come to share a common prediction that others will not cross the boundary KK'. If all agents believe that KK' is the social limit, then all will choose as an optimal behavior intolerance levels that decline toward zero. In contrast, if agents believe that other agents will cross the boundary KK', the reward from expected social approval of intolerance can ratchet up and society can be ravaged by high levels of continuous violent intolerance. Whether (other) agents will cross the boundary KK' is usually a matter of culture. If the "culture of violence" is low and if the boundary KK' is exceeds this culturally acceptable limit, then society will engage in relatively peaceful resolution of potential conflict. In the opposite case, violent intolerance can become a continuous and stable, equilibrium phenomenon. What one expects about others' behavior determines one's own behavior and, thereby, the consequent equilibrium levels of intolerance and conflict in the model. Social expectations and the culture of violence are thus important factors in shaping individual predictions about the behavior of others regarding an "acceptable" level of violence.

Although not demonstrated in this article, it turns out that the discussion regarding the boundary KK' also applies to the non-symmetric equilibria of the reaction functions. An intermediate equilibrium of intolerance can get established in an analogous manner when agents use the relevant shared beliefs, or predictions, about others' behavior. For the first time, we thus have a model that explains variations across societies in the incidence of intolerance and costly conflict as a consequence of multiple equilibria. The selection of a specific equilibrium cannot be dissociated from the cultural views of any society toward violence. Criteria regarding what counts as an "acceptable" level of violence become crucial determinants of each agent's prediction and subsequent behavior because s/he expects everyone else's behavior to be influenced by the same cultural norm of violence. In a word, the model makes clear why peer and herd-effects are so important.[13]

Many different variants, or types, of behavior among agents can be rationally sustained as combinations of mutual best responses to other agents' behavior. Sadly, this implies that under certain circumstances an initially fairly innocuous level of average intolerance toward others can ratchet up to a high and dangerous level of average intolerance and be "locked in" at that high level.

Models of conflict

Standard economic models of conflict are usually cast as general equilibrium models, with presumed perfectly competitive markets, and involve a trade-off between unproductive and productive ("guns versus butter") activity. Hirshleifer put forward several models to explain conflict in terms of three economic variables: (1) preferences, (2) opportunities within constraints, and (3) prevailing perceptions, and he explained an equilibrium conflict as a Nash equilibrium of a contest such that agents' efforts (i.e., gun acquisition) and the corresponding levels of defense spending are chosen by rivals as mutual best responses. Grossman expanded the basic Hirshleifer model of optimal defense spending to more intricate situations. Conflicts are a product of rebellion akin to an industry that creates profit-making opportunities from an act of piracy, or of looting. Here, a state's optimal defense spending is a Nash equilibrium of a noncooperative game played between a government and a rebel group. Skaperdas introduced the possibility of cooperation, as opposed to conflict, in a game that repeats over time, and Garfinkel extended the analysis to the international arena by introducing domestic politics as a determinant of a state's defense spending.[14]

Against this backdrop of economic theory, political scientists traditionally argue that conflict and rebellion are actuated by political protests that are driven by deep-rooted grievances of people. These are precipitated by a host of social banes like inequality and racial, ethnic, or religious intolerance. This literature has highlighted two elements in exacerbating conflict. First, the type of political regime has been isolated as a determinant of conflicts. For example, there is some evidence to believe that more democratic countries have a lower risk of war. Second, economic inequality

is believed to be an important determinant of intrastate conflict, although recent economic studies have not found any systematic relation between inequality and conflict.[15] However, Collier and Hoeffler have noted that low per capita income and low growth rates are contributing factors to conflict.

In contrast to the extant literature, the model presented in this article posits violent, costly conflict as a form of intolerance by one social group toward another. The act of intolerance is carried out by individual agents who are members of a social group, and this lays down the foundation for the rational decisionmaking assumption in the model. The model understands and predicts the behavior of an agent by assuming that s/he is motivated by the expected consequence of his/her action. Up to this point the model mirrors standard economic models of conflict. But it then departs as the standard models rely on a specific form of conflict technology to characterize the Nash equilibrium.[16] In contrast, the model used here treats conflict in the form of an average level of intolerance, and the return from intolerance to an agent is modeled as a gamble: depending on the nature of preference interactions between the agent and his/her peers, there follows either a gain or a loss from an act of intolerance. The interactive framework of the model is predicated upon two assumptions that characterize the social dimensions of intolerance and conflict. First, it is assumed that the likelihood of social disapproaval of intolerance is an increasing function of the size of the gain that an agent makes from the gamble, which may be viewed as "built-in" social justice in the model.[17] Second, it is assumed that the size of the gain to an agent, or the return from the gain, from an act of intolerance is an increasing function of the average intolerance in a society. This is the specific form of preference interaction the model works with. From these assumptions and postulated functional forms derive the results of the model, in particular that history, culture, and social beliefs or expectations can play an important role in fueling, abetting, or arresting intolerance and violent conflict in a society.

Conclusion

It is well-documented in economics that fully rational and well-informed agents may display intolerance and engage in costly and violent conflict because they prefer conflict to peace, provided the potential penalties are not too high at the margin. It is well-recognized that intolerance and conflict can also arise from the desire to build reputation and also because of imperfect information. It has also been anticipated by the game-theoretic literature that multiple equilibria can be a source of conflict. In this article a model has been developed to show just how multiple equilibria can be "a fact of life to be appreciated," as Myerson articulated the role of multiple equilibria in the context of social justice.[18]

The model stresses the role of uncertainty that can accompany intolerance and conflict. An act of intolerance by an agent may beget social censure or social approval. Approval brings a positive return; censure causes a welfare loss and hence a negative (or at any rate, low) return. In a static model, by imposing reasonable restrictions on these costs and benefits, a multiplicity of equilibrium intolerance states, ranging from low to severe-intolerance equilibria, can be derived. The role of cultures of violence assumes importance in selecting the ultimate equilibrium a society arrives at. History and social expectations can play a significant role in selecting one of them, and even a momentary departure beyond a threshold level of intolerance can engender sustained violent and costly social conflict.

Appendix: Proof of Claim 2

The optimization problem of agent i is to maximize the net return function (2b) by choosing T_i holding T_j constant, a case commonly known as zero-conjectural variation. That is:

(3a) $\underset{\{Ti\}}{\text{Maximize}}\ R_i = R^N + [(T^*)^2/2] - [\eta(T^*)^4/4] - (C_0\, T_i) + (C_i\, T_i^2) + (C_i\, T_i\, T_j)$

The first-order condition for maximizing the net return by agent i gives us the (implicit) reaction function of agent i as:

(3b) $dR_i / dT_i = (T^*/2) - [\eta(T^*)^3/2] - C_0 + 2C_1T_i + C_1T_j = 0$

because $dT^* / dT_i = d\,[(T_i + T_j)/2] / dT_i = 1/2$.

In an analogous manner the reaction function, in the implicit form, for agent j is given as

(3b') $T^*/2 - [\eta(T^*)^3/2] - C_0 + 2C_1T_j + C_1T_i = 0.$

Note that equations (3b) and (3b') must be solved simultaneously to arrive at the Nash equilibrium after substituting $T^*=[(T_i + T_j)]/2]$ into (3b) and (3b'). Although there are six possible solutions, or equilibria, as we know from their powers, these polynomials cannot be explicitly solved. The second-order condition eliminates 2 of them as being unstable and we can give qualitative results. The second-order condition requires that

(3c) $d^2R_i / dT_i^2 < 0.$

In order to provide the qualitative results, we consider only symmetric Nash equilibria that call forth

(3d) $T_i = T_j = T^*.$

Substituting (3d) into (3b) or (3b') yields the condition for a symmetric Nash equilibrium as:

(4a) $T^*/2 - [\eta(T^*)^3/2] - C_0 + 3C_1T^* = 0.$

That is,

(4b) $T^*/2 - [\eta(T^*)^3/2] + 3C_1T^* = C_0.$

(4c) $M(T^*) = C_0,$

where

(4d) $M(T^*) = T^*/2 - [\eta(T^*)^3/2] + 3C_1T^*.$

In Figure 1, (4d) is plotted along with C_0 as a horizontal line. The shape of (4d) is arrived at after differentiating (4c) with respect to T*:

(4e) $dM(T^*)/dT^* = (3C_1 + 0.5) - 3\eta T^{*2}.$

Note that there is a critical value of T* — $A = [C_1 + 0.16)/\eta]^{1/2}$ — for which $dM(T^*)/dT^* = 0$. For $T^* < A$, $dM(T^*)/dT^* > 0$ and for $T^* > A$, $dM(T^*)/dT^* < 0$. As a result, M(T*) is drawn as a hump-shaped function in Figure 1 and the points of intersection between the hump-shaped function and the horizontal line C_0 yield the symmetric equilibria E_1 and E_2. The second-order condition requires that $d^2R_i / dT^{*2} < 0$ and hence

(4f) $T^{*2} > [4(0.25 + 2C_1)/3\eta].$

E_2 is the stable, symmetric equilibrium that satisfies (4f) while E_1 fails to satisfy (4f). Besides these symmetric equilibria there are several non-symmetric equilibria that are not explicitly derivable from the polynomial reaction functions. Q.E.D.

Notes

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1. One may wonder why the logic does not apply to old societies with villages that border on each other. Alternatively, one may like to reduce the problem into the usual insider-outsider dynamics. It is important to note that both old societies and insider-outsider models have prior behavioral norms that usually guide and dictate individual behavior. In contrast, the model in this article deals with the case of when such prior norms do not exist. The current phase of globalization is an important point in history in that it juxtaposes heterogeneous people living in close proximity without the benefit of preexisting social norms that can guide optimal responses of individuals or social groups to each other. The goal of the model is to explain potential problems of this historical epoch. The problems at hand have already surfaced in the form of the London subway bombing, Madrid train attack, and Mumbai mayhem and the continuous cycle of ethnic "cleansing" in various parts of the world today. The model is sufficiently robust to be applicable to any other setting for which members of a social group display intolerance and hostility toward other social groups.

2. Note that a minority group also can be intolerant, but this is not modeled here.

3. Harsanyi (1961).

4. As opposed to the work of J. Hirshleifer (1989, 1995, 2000) who argued that the conflict technology employed can give rise to economic benefits, traditional economic models presuppose conflict as welfare-reducing for all parties.

5. Rousseau (1964). In the nonhuman animal world, competition for food, mating opportunities, and living space is intense yet we hardly come across serious organized conflict. On the individual level, size asymmetry often resolves conflict nonviolently and within a short span of time: the smaller organism recognizes, assesses, and submits to the larger one, leaving the latter with the prize. When the asymmetry is sufficiently small, protracted violent conflict can occur. Organized mass intraspecies violence is rare, although chimpanzees, wolves, and other species hunt in packs with violence directed against other species. Among humans, the social contract can be a written code of behavior and, if enforceable, can resolve problems. Among nonhuman social species, such as dolphins, bees, termites, and ants, social norms or rules can be neurally wired and influence or dictate the behavior of individual animals. See D. Hirshleifer (2008).

6. See Cobban (1934).

7. See, e.g., Akerlof (1980).

8. See, e.g., Putnam (1993); Bowles (1999); Durlauf (1999).

9. See Schelling (1971). Future research work may explore a specific form of preference interaction to explain intolerance and conflict. Consider two types of agents with different attitudes toward intolerance: namely an "intolerance leader" and an "intolerance follower." One could posit that an intolerance leader is risk-loving while an intolerance follower is risk averse and model preference reversals and interactions to explain the trigger factors to ethnic conflict.

10. This is similar to Mark Twain's story of *The Connecticut Yankee* (1917) wherein a Yankee sought to bring education, modern technology, and a higher standard of living to King Arthur's realm. Initially supported by a band of young converts, he was subsequently drowned by a despotic church and its noble beneficiary who opposed his actions due to "deep-rutted habits." The Yankee failed because he could not change the outlook of a large enough number of King Arthur's subjects. Ultimately, his actions met up with overwhelming social disapproval.

11. Apart from the two symmetric equilibria, several non-symmetric equilibria exist, as shown in the Appendix. In the text, emphasis is placed upon the symmetric Nash equilibria in Figure 1.

12. Nash (1953).

13. There are many settings in which the multiplicity of equilibria can be a source of problems, for example, in implementation theory (Palfrey, 1992), principal-agent theory (Mookherjee, 1984), differential-information economies (Postlewaite and Schmeidler, 1986), and mechanism design (Demski and Sappington, 1984). There also exists an extensive literature on mechanism design exploring mechanisms that can uniquely implement an outcome (Ma, 1988; Ma, Moore, and Turnbull, 1988).

14. Hirshleifer (1988; 1989; 1995; 2000); Grossman (1991; 1998; 2004); Skaperdas (1992); Garfinkel (1994).

15. Regime type: e.g., Hegre, *et al*. (2001). Lower risk of war: e.g., Collier and Hoeffler (1998; 2002). No systematic relation: see Collier and Hoeffler (2002).

16. The standard models posit conflicts as a contest over winning a prize, similar in spirit to a football match. The likelihood of winning the contest is introduced via a contest success function (CSF) that J. Hirshleifer (1989) called a conflict technology. This is assumed to be a function of (war) efforts of all agents involved in the contest. The CSF motivates each agent to anticipate that the consequences of one's action will depend on others' actions. Each agent's incentive to undertake war efforts will depend on others' behavior, which in turn depend on their incentives to arm themselves. The model thus becomes interactive, and the Nash equilibrium concept then becomes important in explaining the outcome.

17. I would concur with one who likes to think that this is rather envy and not social justice.

18. Reputation: Bowles and Gintis (1988); Crampton (1984); Crawford, (1982). Multiple equilibria as source of conflict: Hollis (1987). Myerson: Myerson (2004).

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A new arms race? The political economy of maritime military modernization in the Asia-Pacific

Richard A. Bitzinger

During the 2000s, navies in the Asia-Pacific region have experienced a significant, if not unprecedented, bout of naval expansion. This buildup has been quantitative, but more importantly, qualitative as well, and in many cases goes beyond mere modernization. From Japan to Southeast Asia to India, regional maritime forces have been adding new capabilities that they did not possess earlier, and therefore the capacity for new roles and missions, to their inventories. In particular, these navies have acquired new types of ships (both surface and undersea) and aircraft that have given them capabilities for force projection and expeditionary operations that they previously lacked. In addition, they have bought new missiles and other types of munitions that have greatly increased the lethality and accuracy of their forces. And they are gaining both the hardware and the software to improve their surveillance, reconnaissance, target acquisition, and command and control. For example, most countries in the Asia-Pacific are in the process of greatly expanding their open ocean-capable navies with modern surface warships. China's People's Liberation Army Navy (PLAN) has acquired four Russian-made Sovremennyy-class destroyers, armed with supersonic SS-N-22 antiship cruise missiles; in addition, the PLAN has constructed six destroyers of three different types, and at least six frigates since 2000. Japan will soon field six Aegis-class destroyers, as well as four 13,500-ton Hyuga-class helicopter destroyers (DDH). Australia is planning to acquire and construct three Hobart-class air warfare destroyers (AWD), which will be based on the U.S. Aegis combat system and the SM-2 Standard surface-to-air missile. These AWDs will provide protection to amphibious, sealift, and support ships from aircraft and antiship cruise missiles. South Korea is constructing a series of indigenous KDX destroyers; the current third-generation KDX-III is equipped with the U.S.-supplied Aegis air-defense radar and fire-control system, and is armed with the Standard SM-2 Block IIIB air-defense missile and the indigenous Hae Sung (Sea Star) antiship cruise missile (ASCM). Singapore acquiring six Formidable-class frigates, which are based on the French-designed Lafayette-class "stealth" frigates, armed with Harpoon ASCM and the French Aster-15 air-defense missile, which is capable of providing anti-ballistic missile defense.

At the same time, many of these navies are also building up their submarine fleets. China has acquired 12 Russian Kilo-class diesel-electric submarines, and since the turn of the century, it has also constructed up to 16 indigenously built diesel-electric and at least three nuclear-powered submarines (including one nuclear-powered ballistic missile submarine [SSBN]). Japan is currently building a new class of diesel-electric submarines (the Soryu), outfitted with the Swedish-developed Stirling engine for air-independent propulsion (AIP). South Korea during the 1990s constructed, under license, a fleet of nine German Type-209 submarines. It is currently replacing these with the German Type-214, which is equipped with hydrogen fuel cells for AIP; three boats were ordered in 2000 and three more in 2009. South Korea eventually hopes to design its own (possibly nuclear-powered) submarine. India is acquiring six Franco-Spanish Scorpène-class submarines, which will be constructed under license. India also wants to build its own nuclear-powered submarines, and its navy hopes to launch its first indigenous nuclear boat by 2009 and ultimately deploy a fleet of three SSBNs by 2015, armed with the indigenously developed Sagarika submarine-launched ballistic missile.

During the 2000s, navies in the Asia-Pacific region have experienced a significant, if not unprecedented, bout of naval expansion. This buildup has been quantitative, but more importantly, qualitative as well, and in many cases goes beyond mere modernization.

Additionally, Southeast Asia has witness an explosion in submarine-acquisition activity over the past decade. Singapore has acquired six second-hand submarines from Sweden, and may later acquire or retrofit submarines for AIP. Malaysia is buying two Scorpène-class submarines, and Indonesia plans to acquire four Kilo-class and two Lada-class submarines from Russia.

Many Asian-Pacific navies are also increasing their capacities for expeditionary and amphibious warfare. The PLAN has recently launched the Type-071 17,000 to 20,000-ton LPD (landing platform dock) amphibious warfare ship, equipped with two helicopters and two air-cushioned landing craft (LCAC), and capable of carrying up to 800 troops; up to eight Type-071s could eventually be built, and it could be complemented by a new larger LHD-type amphibious assault ship. In addition, rumors persist that the PLAN will add at least one aircraft carrier (and perhaps as many as six) to its fleet by 2015-2020. Japan's Maritime Self Defense Force (MSDF) has acquired three 13,000-ton Osumi-class amphibious warships, while the the Hyuga DDH, with its "through-deck" design and below-deck hangars, closely resembles a small aircraft carrier. Conceivably, this ship could be retrofitted with a "ski-jump" deck for fixed-wing aircraft or outfitted with vertical-lift combat jets, such as the F-35 Joint Strike Fighter (JSF). The Royal Australian Navy (RAN) plans to acquire two new 28,000-ton Canberra-class amphibious power projection (LHD-type) ships, each capable of transporting 1,000 troops and 150 vehicles (including the Australian Army's new M1A1 Abrams tanks), and carrying both landing craft and a mix of transport and battlefield support helicopters. The ROK Navy (ROKN) is acquiring the Dokdo-class amphibious assault ship, which displaces 14,000 tons and is capable of carrying 700 troops, ten tanks, 15 helicopters, and two LCACs. At least two

Dokdo-class vessels have been ordered, and the ROKN may eventually deploy up to four such ships. India is in the process of acquiring two large-deck aircraft carriers — one a former Soviet Navy vessel, the former Admiral Gorshkov, which is being extensively refitted and upgraded, and which operate navalized MiG-29 fighters, and the other an ambitious project to design and build an indigenous carrier, outfitted with either the MiG-29 or India's Tejas Light Combat Aircraft. Finally, Thailand has acquired a small aircraft carrier from Spain, while Singapore has constructed its own fleet of four small amphibious assault ships.

In terms of airpower — which can support maritime power projection — nearly every Asia-Pacific country currently possesses or is acquiring at least some fourth-generation fighter aircraft such as the Russian Su-27/Su-30 (China, India, Malaysia, Indonesia), the Russian MiG-29 (Myanmar, Vietnam), the U.S. F-16 (Indonesia, South Korea, Singapore), the U.S. F-15 (Japan, South Korea, Singapore), the U.S. F/A-18 (Malaysia), and the Swedish Gripen (Thailand). In addition, these fighter aircraft are capable of firing stand-off active radar-guided air-to-air missiles, such as the U.S. AMRAAM or the Russian AA-12, or dropping precision-guided weapons, such as the Joint Direct Attack Munition (JDAM).

In terms of air-based power projection, China, India, Japan, South Korea, Malaysia, and Singapore have all received or else will soon acquire tanker aircraft for air-to-air refueling, while Australia, China, Japan, and Malaysia are acquiring long-range transport aircraft. Both Japan and India plan as well to expand their fleet of maritime patrol aircraft with modern state-of-the-art systems.

Some Asian-Pacific militaries are acquiring the capabilities for long-range precision-strike. India, for example, is developing the Brahmos supersonic cruise missile in cooperation with Russia; the Brahmos can attack both land and sea-based targets. China has put particular stress on building up, both quantitatively and qualitatively, its arsenal of conventional ballistic missile systems, including reportedly developing a medium-range missile with an antiship capability, most likely for use against large warships such as aircraft carriers. South Korea, meanwhile, has developed its own land-attack cruise missile, the Hyunmoo IIIC. Finally, most countries in the region by now also equip their navies with sophisticated antiship cruise missiles.

Several countries in the region, including India, Japan, Korea, and Singapore, have plans to acquire missile defenses. In particular, Japan, in cooperation with the U.S. Navy (USN), is upgrading its Aegis-class destroyers with new software and a new interceptor missile, so as to be able to search, detect, track, and engage incoming ballistic threats. The MSDF and the USN successfully tested this system off the coast of Hawaii in June 2006, and Japan performed a solo missile intercept test in late 2007. Finally, most Asia-Pacific militaries are engaged in greatly expanding and upgrading their C4ISR capabilities. China, Japan, Singapore, and Taiwan all currently possess airborne early warning and command (AEW&C) aircraft, while Australia, India, and South Korea intend to acquire AEW&C aircraft in the near future. Both Japan and South Korea have or will soon have the Aegis naval sensor and combat system deployed on their largest surface combatants, while Taiwan is buying long-range early warning radar. Nearly every major military in the region is acquiring unmanned aerial vehicles (UAVs) and increasingly using outer space for military purposes, including satellites for surveillance, communications, and navigation/target acquisition. Several countries in the region, particularly Australia, China, Japan, Singapore, South Korea, and Taiwan, have also made or are presently making considerable investments in new types of information processing and data fusion, command and control, and the digitization of their armed forces.

Enabling the maritime buildup #1: rising military expenditure

Rising military budgets have underwritten the arms buildup in the Asia-Pacific over the past decade. The Chinese military, for example, has long been the beneficiary of a long-term expansion in military expenditure. Between 1997 and 2005, Beijing increased defense spending by double-digit doses every year: 13.7 percent per annum, in real, i.e., after inflation, terms, according to the Chinese's own statistics.[1] China's official 2009 budget of US$70.2 billion, for example, constitutes a 14.9 percent rise over the previous year. Consequently, Chinese military expenditure has more than quintupled in real terms since 1997, permitting China to put considerable additional resources into the hardware and software of military modernization. China now outspends Japan (US$48.8 billion), France (US$58.9 billion), and the United Kingdom (US$66.8 billion) on national defense, and likely Russia as well (estimated 2009 defense budget, US$37.7 billion).[2]

Other Asian-Pacific nations have not stood still. Indian defense spending rose 37 percent (in real terms) between 2000 and 2007, according to data provided by the Stockholm International Peace Research Institute (SIPRI); in 2008, New Delhi announced that it would raise its military budget by 10 percent over the previous year. Moreover, India plans to spend at least US$30 billion on new arms by 2012. Australia has increased defense spending by 42 percent over the same 2000-2007 period, while South Korea's has increased by 35 percent. Of all the larger countries in the Asia-Pacific, only Japan and Taiwan have had relatively static military budgets (but in 2008, Taiwan announced a 15 percent increase in defense spending over 2007, to US$10.3 billion).[3]

Military expenditure in Southeast Asia has also recovered from its depths during reached the Asian financial crisis of the late 1990s. Malaysia's military budget has more than doubled between 2000 and 2007, from US$1.7 billion to US$3.5 billion (as measured in constant 2005 dollars). Indonesian defense spending over the same period went from US$2.2 billion to US$4.2 billion, a 90 percent increase, a figure that does not include weapons purchases using export credits. And Singapore's defense budget rose 33 percent, from US$4.6 billion in 2000, to US$6.1 billion in 2007; in 2008, Singapore's military budget totaled US$7.5 billion.[4]

After the 2006 coup the Thai military junta approved a 34 percent increase in the 2007 defense budget, and a further 24 percent rise in 2008. In November 2007, the military proposed a new ten-year, 317 billion baht (US$9.8 billion) modernization program, starting in 2009, which would push military expenditure from 1.58 percent of GDP to 2 percent by 2014.

Enabling the maritime buildup #2: the global buyer's market in armaments

Along with rising regional military expenditure, the highly competitive nature of the current global arms market has meant that there are many motivated sellers on the supply side of the arms business. In the post-cold war era, almost every major arms-manufacturing country has come to depend heavily on overseas sales to bulk up their business. As domestic arms markets have shrunk, the overseas business sector has correspondingly grown in importance. For their part, European defense firms have come to be highly dependent upon foreign sales. In 2007, for example, BAE Systems did only 22 percent of its business in the United Kingdom; the rest was overseas. Thales generated roughly 75 percent of its 2008 revenues from outside France, while Dassault exported 70 percent of its output, and Saab, 68 percent. This trend corresponds with experiences of arms-producing countries elsewhere in the world. Israel's defense industry, for example, typically exports more than three-quarters of its output. The Russian defense industry also has a "substantial dependence" on arms exports; the collapse of the home market for arms sales, following the breakup of the Soviet Union, has resulted in a situation whereby Russian defense companies have come to rely on oversea business for between 80 to 90 percent of their total sales.[5]

The U.S defense industry, with its huge captive domestic arms market, is typically not as dependent upon overseas sales as its European, Russian, and Israeli counterparts. The major U.S. defense companies garner only a small percentage of their revenues, typically around 5 to 15 percent, from non-U.S. markets. Nevertheless, by the turn of the century, several major American weapons systems, such as the F-15 and F-16 fighters and the M1A1 main battle tank, were being produced solely for export. Additionally, one current U.S. weapons program, the F-35 Joint Strike Fighter (JSF), depends heavily upon foreign funding, foreign industrial participation, and anticipated foreign sales.[6]

Overall, for many defense firms, therefore, overseas sales are no longer a supplemental form of income; they are increasingly critical to the health of the affected firm and that of the defense industrial base. At the same time, the global arms market has become more complex and competitive. The large numbers of motivated sellers in the West created a buyer's market in arms in which nearly every conceivable kind of conventional weapon system was on the table. Additionally, the end of the cold war division of the world into communist and capitalist camps greatly opened up the global defense market, and arms sales were, for the most part, no longer restricted for ideological reasons. Consequently, arms exporters had to be ready to deal, and offering potential buyers incentives such as industrial participation (offsets), technology transfers, and foreign direct investments, increasingly became part of the cost of doing business.

At the same time, the Asia-Pacific region has become a major importer of advanced conventional weaponry. It is second only to the Middle East when it comes to global arms purchases, importing nearly US$67 billion worth of arms between 2000 and 2007, according to data compiled by the U.S. Congressional Research Service (CRS). In terms of arms transfer agreements, it was the largest market during the 2000-2003 time frame. Some of world's biggest arms buyers are found in the region. China, for example, received US$17 billion worth of weapons systems between 2000 and 2007 — only Saudi Arabia imported more armaments. During this same period, India imported US$11.5 billion worth of arms, Taiwan US$8.4 billion, and South Korea US$6.6 billion.[7]

Accordingly, the Asia-Pacific is a critical market for the world's leading arms suppliers. During the period 2000-2007, for example, 75 percent of all Russian arms deliveries, US$26 billion worth, went to this region, mainly to China and India but also increasingly to Indonesia, Malaysia, and Vietnam, according to CRS data. Russia is also consistently the largest exporter of arms to the region. During the same period, the leading European arms producers, the United Kingdom, France, Germany, and Italy, signed arms sales agreements with the region totaling US$14.4 billion. In all, 54 percent of France's arms sales agreements were with Asia-Pacific countries, as were 53 percent of Germany's and 44 percent of Italy's (only for the United Kingdom was the region a relatively small percentage of overall arms agreements, 13 percent during 2000-2007, and mostly due to an extraordinary large sale of Typhoon fighter jets and other equipment to Saudi Arabia).[8]

The U.S. defense industry also relies heavily on sales to the Asia-Pacific. During the period 2000-2007, it delivered over US$19 billion worth of armaments to the region, or approximately one-third of all its overseas deliveries. Only the Middle East, at US$36 billion worth, was a larger arms market for the United States.[9]

The Southeast Asian arms market is particularly noteworthy, because, while it is relatively small, collectively worth around US$2 billion to US$3 billion annually, it is also one of the more truly open and competitive markets when it comes to arms sales (compared to China or India, which mostly buy from Russia, or Japan or Taiwan, which are more or less captive markets of the U.S. defense industry). While the United States, for example, dominates Southeast Asia in the sale of fighter aircraft (e.g., F-15s to Singapore; F-16s to Indonesia, Singapore, and Thailand; F/A-18s to Malaysia), the United Kingdom has scored particular success in exporting its Hawk trainer jet to Malaysia and Indonesia. Germany, meanwhile, has sold submarines to Indonesia and corvettes to Malaysia and Singapore; France, frigates to Singapore and antiship cruise missiles to Indonesia, Malaysia, Singapore, and Thailand; Russia, Su-30 fighters to Malaysia, Indonesia, and Vietnam; and Sweden, submarines to Singapore. Malaysia and Singapore constitute the largest arms buyers in Southeast

Asia; during 2002-2005, for example, Kuala Lumpur placed orders for US$2.8 billion worth of arms.

Given the size and strength of the regional arms market, it is not surprising that this area has become a critical market, and therefore the object of particularly fierce competition, for the world's leading arms suppliers, particularly the United States, Western Europe, Russia, and Israel. Consequently, supplier restraint has been replaced by a readiness to sell just about every type of conventional weapon system available to the region, and, in addition, to use technology transfers and offsets as inducements to make an arms sale. Such sweetheart deals, therefore, can have as much impact on what kind of arms that Asian-Pacific militaries buy as can actual threats or military requirements.

Repercussions of the Asian-Pacific arms buildup

It is apparent that it is the economics of armaments production, particularly the drive for market share among the leading, competing arms-producing nations, that are increasingly propelling military modernization in the Asia-Pacific region. As domestic arms markets stagnate, U.S., European, Russian, and Israeli defense firms have been forced to go abroad in search of new customers for their products, usually with the consent or even the urging of their governments. As the competition within the ever-tighter global arms market has grown, so too have suppliers been increasingly willing to offer almost every conceivable type of conventional weapon in their catalog.

Under such circumstances, it is appropriate to consider the impact of such a policy and in particular to question the wisdom of such a course when it comes to the long-term security of the Asia-Pacific region. Countries, of course, have the right to legitimate self-defense, and therefore the right to maintain an armed force with sufficient capabilities to meet its perceived requirements. But it is also apparent that the regional process of military modernization can have unintended consequences. The easier availability of the most advanced conventional weapons is going to have an obvious impact on conventional arms proliferation in the region, thus ratcheting up regional military balances and at least indirectly compounding regional military tensions, i.e., the so-called security dilemma. Nowhere is this more evident than in the Taiwan strait situation. China's growing arsenal of more modern warships, submarines, fighter aircraft, and precision-guided munitions has certainly increased Taiwan's threat perceptions of China, and it has fueled Taiwan's counter-acquisition of new air and missile defenses, anti-submarine and anti-surface warfare systems, and counter-landing weapons. Yet, as these militaries become more capable, the situation across the Taiwan strait has not necessarily become less tense — just the opposite, in fact, as armed forces on both sides increasingly test each other's strengths and weaknesses in the strait. Such concerns are only multiplied when one considers the types of military systems being acquired, transformational weapons that promise to fundamentally change the conduct of warfare and which could greatly increase its destructiveness.

Moreover, without necessarily leading to arms races, these new arms acquisitions can lead to very expensive, and ultimately imprudent, arms competitions, or what Barry Buzan and Eric Herring have called the arms dynamic.[10] Such arms competitions are usually defined as non-cataclysmic, status quo-oriented rivalries, dedicated mainly to the maintenance of military balances; however, they can still be disruptive to regional security and can perhaps even evolve into arms races. Just as important, they can act to redirect monies from arguably more critical defense needs. For example, South Korea's efforts to acquire a blue-water navy (complete with a large fleet of ocean-going submarines), intended to rival Japan's and China's maritime forces, could have the effect of drawing resources away from defending against an attack from North Korea.

Additionally, when it comes to the poorer countries in the Asia-Pacific, one might question the wisdom of such arms purchases from an economic aspect, particularly if these acquisitions divert considerable funds away from more pressing social needs. This is particularly apropos when it comes to Southeast Asia: does Thailand, for example, actually need an aircraft carrier, especially one that was so expensive to acquire and to operate and is of such little strategic value? Should Western countries sell certain types of armaments, such as modern submarines or AMRAAM-type air-to-air missiles, to countries in Southeast Asia when the release of such weapons systems could have far-reaching implications for regional security dynamics? (A moot point, unfortunately.) In the end, the only actors who may actually benefit from increased arms sales to the region may be the sellers.

In conjunction, are local efforts at defense industrialization, often via licensing or offset coproduction, an efficient use of scarce economic development resources, or are these undertakings simply creating industrial white elephants? Witness, for example, Indonesia's decades-long effort to establish an indigenous aircraft industry, at the cost of billions of dollars, but with very little to show for it: by the late 1990s, the state-owned Industri Pewsawat Terban Nusantara (IPTN) had grown to a workforce of almost 16,000, and the company was intending to become "'the Toyota of aerospace,' with an aircraft to meet every niche in the 20 to 130-seat range." In fact, Indonesia appeared to be making considerable strides toward meeting its goals of self-sufficiency and toward creating a world-class defense and commercial aerospace sector. In particular, it had one major indigenous program, the N-250 commuter plane, already flying and another, the N-2130 regional jet, on the drawing board. Much of this apparent success was illusory, however, and Indonesia was by the late 1990s already finding it increasingly difficult to maintain its domestic aircraft industry. The Indonesian government poured nearly US$1 billion into the N-250 program, for example, but despite this huge investment, the aircraft continued to experience considerable teething problems. Eventually, the 1997-98 Asian financial crisis forced Jakarta to dramatically scale back its aerospace industry. The company

has since shrunk its workforce to around 3,500 employees and most of its several key manufacturing projects are on permanent hold.[11]

Overall, it is unlikely that the region will rein in its multifaceted military modernization programs anytime soon. So long as military expenditure across the region continues to rise, and so long as leading arms suppliers outside the region continue to sell practically every kind of weapon to local militaries, the Asian-Pacific strategic calculus is unlike to change much. One obvious solution, of course, is to call for more self-restraint on the part of the outside arms suppliers; at the same time, this is almost impossible to do, especially so when it comes to conventional armaments. As opposed to weapons of mass destruction, the threshold of perceived illegitimacy of such arms sales is extremely high and perhaps even nonexistent. Consequently, conventional arms transfers constitute a classic prisoner's dilemma: if one producer decides to demonstrate self-restraint in exporting a particular type of weapon system, its competitors will usually not hesitate to fill the void.

The challenge, obviously, is securing a multilateral agreement among the leading arms producers, particularly the United States and Western Europe, to limit sales to areas where they could have the most negative economic as well as security impacts. Restricting the number and types of armaments exported to the Asia-Pacific may be one region where Western supplier-states could begin to implement such a policy. All this, of course, requires a greater readiness on the part of the leading arms producers to accept some short-term economic losses in exchange for longer-term regional security benefits. That, in turn, requires that the United States and Western Europe find common ground on the wider strategic, military, and political benefits of exercising multilateral self-restraint in the region, not a very encouraging prospect.

At the same time, supplier restraint does not resolve the issue of growing local appetites for more and more sophisticated types, coupled with the fact that many Asian-Pacific states are increasingly capable of producing many such arms themselves. Overall, it is probably unrealistic to assume that the accelerating modernization of local militaries (and not just navies, but air and ground forces as well) will abate on its own. The economic realities of military modernization in the Asia-Pacific are such that the current state of affairs is not likely to change anytime soon.

Notes

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1. China (2006).

2. SIPRI (2009).

3. New Delhi 10%: see India-Defense (2008). 2012: see Raghuvanshi (2008). South Korea 35%: see SIPRI (2009). Taiwan 15%: see Reuters (2007).

4. SIPRI (2009).

5. Vatanka and Weitz (2006).

6. The JSF program office expects to sell at least 25 percent, or 730 aircraft, of the first batch of F-35s to the nine nations currently participating in the aircraft's development phase; this figure does not include export sales to other countries, particularly Israel, which has already announced its intention of buying around 100 F-35's (see http://www.jsf.mil/downloads/documents/ANNEX%20A%20Revision_April%202007.pdf).

7. See Grimmett (2008, Tables 2C, 1C, and 2I).

8. Grimmett (2008). Importer data derived from Tables 2 and 2C. Exporter data derived from Tables 1 and 1C.

9. Grimmett (2008, Tables 2 and 2C).

10. Busan and Herring (1998).

11. Quote: Bailey (1992). Teething problems: Cohen (2000). 3,500 employees: Karnoil (2004).

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The Sino-Japanese energy dispute in the East China Sea: strategic policy, economic opportunities, and cooperation

James Manicom

There is a consensus in the literature that Chinese and Japanese energy security policies are competitive and that this necessarily precludes long-term energy cooperation in the East China Sea. According to Liao Xuanli, this competition has emerged due to political mistrust and the worsening of the strategic relationship since the end of the cold war. Furthermore, these factors outweigh similar Sino-Japanese energy security vulnerabilities, such as a reliance on imported oil, mostly from the Middle East.[1] There are also striking similarities in the countries' energy security policies: both seek to "go out" and gain direct access to upstream oil sectors. However, the nature of these policies reinforces zero-sum thinking because these upstream opportunities are finite in number. Zero-sum thinking is further reinforced by the geopolitical considerations that are driving regional energy security policies across the Asia-Pacific region.[2]

An extension of this argument is that the competitive nature of regional energy security policy precludes cooperation in a territorial dispute in which hydrocarbon resources are at stake. In this view, Chinese and Japanese energy insecurity underwrites resolve on both sides to pursue disputed resources at any cost and eschew cooperation.[3] Both parties have sought to ensure that resource exploration occurs in areas that are least damaging to their jurisdictional claims. Japan has always opposed joint development in the area surrounding the disputed Senkaku/Diaoyu islands, while China has been reluctant to consider projects elsewhere in the East China Sea. Consistent with each party's delimitation preferences, China has attempted to push its claims as far east, and Japan as far west, as possible. Even those who are optimistic about broad Sino-Japanese energy cooperation due to synergies in energy efficiency technologies and environmental management are pessimistic about sustained cooperation in the East China Sea dispute.[4]

Nevertheless, an agreement announced on 18 June 2008 between China and Japan indicates a degree of political will to cooperate on territorial and energy issues. The aim of this article is to ascertain, based on past trends in energy cooperation, whether the June agreement can be made sustainable. The article proceeds in three sections. The first outlines the East China Sea territorial dispute, the energy stakes, and the terms of the June agreement. The second surveys past instances of Sino-Japanese energy cooperation with specific reference to the maritime realm. The final section analyzes the strategic and economic trends of this background and explores implications for the future of the June agreement.

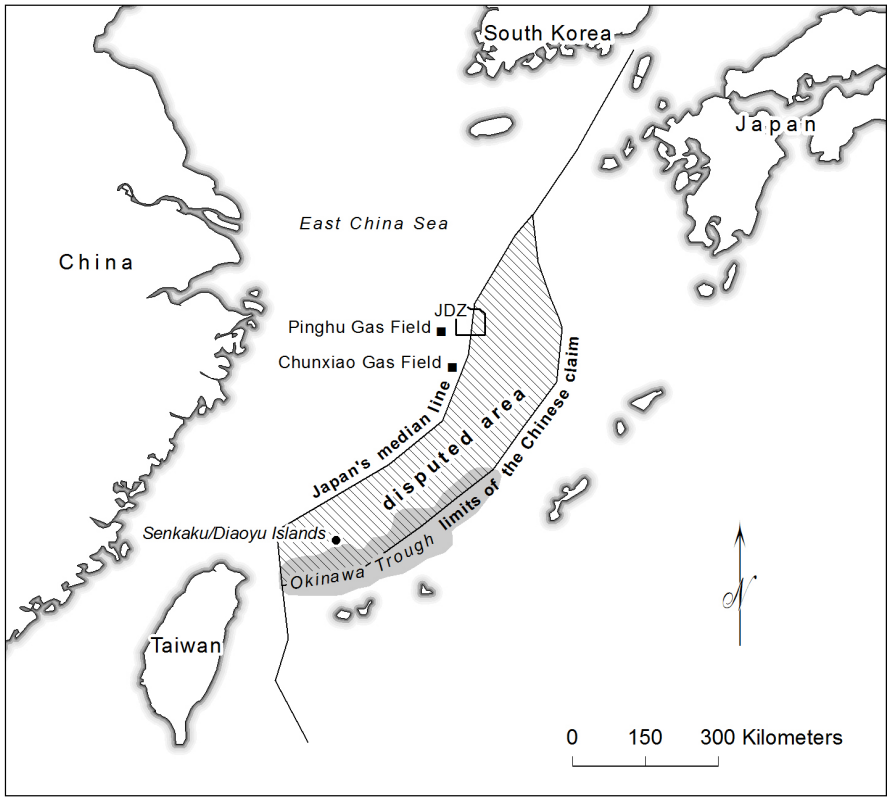

Figure 1: The East China Sea

The East China Sea dispute: resource stakes and the June agreement

As indicated in Figure 1, the dispute over resource development in the East China Sea is centered on the Chinese development of the Chunxiao gas field located 5 km from Japan's claimed median line. The Chunxiao dispute is connected with the Senkaku/Diaoyu islands dispute and the wider question of maritime delimitation in the East China Sea. China contests Japanese sovereignty over the islands, and both states included them in their respective Exclusive Economic Zone (EEZ) and continental shelf declarations in 1996. China claims a continental shelf as far as the Okinawa trough based on the natural prolongation of its land territory. Japan claims an EEZ to a median line that bisects the East China Sea. Chinese leaders do not officially recognize the Japanese median line. Both delimitation methods are recognized under the U.N. Convention on the Law of the Sea (UNCLOS). The

delimitation dispute goes directly to the heart of the Chunxiao dispute.[5]

The Chunxiao dispute: background and stakes

The dispute over Chunxiao stems from a disagreement over the location of the disputed area in the East China Sea, and by extension the area subject to joint development. China argues that Chunxiao lies in Chinese waters on the west side of the median line and that therefore, even according to the Japanese interpretation of international law, there is nothing wrong with the Chunxiao project. The Chinese argue that the disputed area in the East China Sea is between the Japanese-claimed median line and the Okinawa trough, which marks the limit of the Chinese continental shelf claim. As indicated by Figure 1, this is the area of overlap between the two maritime claims. Japan protested the Chinese activities at Chunxiao in August 2003 and claims that the Chunxiao field, as well as the neighboring Tianwaitian, Duanqiao, and Longjing fields extend on to the east side of the median line into its EEZ and that, consequently, it is entitled to a share of the resources produced. Japan has commissioned surveys of the median area that confirmed its suspicions and in July 2005 granted Teikoku Oil the right to conducted exploratory drilling on the east side of the median line. China protested that these were attempts to alter the status quo. As of April 2009, drilling had not commenced.

The total resource value of the Xihu trough, the geological formation on which the gas fields are formed, is unknown. Estimates of potential reserves in the East China Sea vary but the operator of the Chunxiao field, the Chinese National Offshore Oil Company (CNOOC), estimates total gas reserves to be between 175 and 250 trillion cubic feet (cf) and total oil reserves to be between 70 and 160 billion barrels.[6] Currently, the highest expectations of the Xihu trough are for natural gas, up to 17.5 trillion cf in the entire basin and 363.9 billion cf at Chunxiao. None of the contested Xihu trough fields is producing oil at a commercial rate. While these estimates may be inflated, due to this uncertainty both China and Japan are reluctant to make concessions on maritime boundary delimitation that may undermine their claim to the entire sea.

The East China Sea in Chinese and Japanese energy security

The exploitation of East China Sea resources is consistent with two Chinese energy security strategies: diversification of primary energy sources and diversification of import sources. To diversify energy sources, China has prioritized a greater reliance on natural gas in eastern China. Natural gas consumption is projected to be raised from 2 percent currently to between 8 and 10 percent by 2020.[7]

In light of these plans to increase supply in coastal areas, offshore natural gas resources could play an important role, particularly when considered in the context of existing problems with China's domestic gas reserves. Domestic reserves are far from their intended markets, while imported liquefied natural gas (LNG) is only economical close to coastal terminals. Alternatively, offshore natural gas fields in the East and South China Seas are "welcome exceptions to this rule."[8] Early expectations were that CNOOC's gas projects in the East China Sea could fuel the economies of Shanghai, Zhejiang province, and Hong Kong and perhaps be more economical than gas piped from Xinjiang province through the West-East pipeline.

In addition to diversifying the energy mix, this market proximity provides a degree of supply security. Although self-sufficiency has historically been a top priority for Chinese leaders, China's oil import dilemma has forced its leaders to look overseas. Consequently, Chinese entities pursue projects in a wide variety of locations in order to minimize the potential for supply disruption from foreign powers or price volatility. While these "equity oil" stakes give assurance of supply, they are not necessarily the most cost effective option because price volatility can cause a host country to renegotiate the terms of an agreement. In light of these concerns, the East China Sea could provide China with a source of oil and gas close to intended markets and less vulnerable to sea lane disruption.

As for Japan, according to its Agency for Natural Resources and Energy (ANRE) energy security threats include: political conditions in the Middle East, incidental threats such as terrorism or natural disasters, reduction of investments or market manipulation by supply nations, demand trends in importing nations such as China and India, and mismanagement of the domestic energy industry.[9] The exploitation of East China Sea resources addresses these energy security threats in three ways. First, it is consistent with Japan's aim to diversify energy sources away from the Middle East. Second, due its geographic proximity, East China Sea resource production avoids the sea lane choke points that oil and LNG bound for Japan pass through. Third, the exploitation of natural gas supports Japan's energy diversification plans, thereby partly reducing its vulnerability to oil price shocks. Natural gas is to be increased from 15 to 18 percent of the primary energy mix by 2020. Therefore, the long-term prospects of East China Sea resources have the potential to alleviate some of the threats to Japanese energy security.

The June 2008 agreement in the East China Sea dispute

The three-part agreement was achieved following four years of negotiations. The first part outlines a 2,700 km^2 joint development zone (JDZ) south of the Longjing field that, roughly, bisects the median line (see Figure 1). According to the declaration, joint exploration of the zone will be conducted and developed "under the principle of mutual benefit."[10] The second part of the agreement permits Japanese entities to invest in the Chunxiao field in a manner consistent with Chinese law. The third part calls for a treaty to be signed to implement the agreement. The agreement is not an agreement on resource exploitation, nor does it delimit boundaries in the East China Sea. At best, it is an agreement on the most basic positions of China and Japan. The first part of the

agreement indicates a Chinese willingness to be flexible because the proposed joint development area straddles the median line. The second part, a specific reference to the development of the Chunxiao field, is likely a result of the Japanese argument that because the geological features of the field extend across the median line, it is entitled to a share of resources produced. Under these provisions Japanese companies would play an identical role to that of Shell and UNOCAL prior to their exit from the Chunxiao project in September 2004.[11]

Since June 2008 there has been no progress toward either the conclusion of the treaty or Japanese participation at Chunxiao. Japanese media have speculated that this may be due to internal criticisms of the Chinese leadership because of the concessions it made during the negotiations.[12] A more likely reason may be the collapse of the nominal global oil price from US$127 per barrel just after the agreement was concluded. This is not an oil market that is conducive to costly offshore exploration. However, as argued in the next section, oil prices alone have rarely dictated the tone and pace of Sino-Japanese energy cooperation; strategic prerogatives have been equally important.

Sino-Japanese energy cooperation: origins and depth

To assess the sustainability of the June 2008 agreement, this section explores the Sino-Japanese track record on energy cooperation. Historically, Sino-Japanese cooperation in the field of energy and offshore resource development has been driven by the nexus between strategic prerogatives and economic opportunities. The former includes the management of the bilateral relationship in the context of exogenous factors like the Soviet threat and was driven by policy elites. The latter was driven by business and government actors in the context of compatibilities between Chinese and Japanese economic interests. For instance, the East China Sea dispute first erupted in 1970 following reports of immense resource wealth near the Senkaku/Diaoyu islands. Japanese efforts to develop the area with Taiwan and South Korea were stymied by strong Chinese rhetoric. Bilateral tensions did not last long. The first oil crisis and China's strategic realignment against the Soviet Union created the opportunity for diplomatic rapprochement underwritten by energy cooperation.

Following the first oil crisis, Japan began to import Chinese heavy crude as part of its diversification strategy to alleviate its import dependence on the Middle East which at the time provided 85 percent of Japan's oil imports. This was consistent with both Japanese energy security imperatives as well as the strategic imperative of improving relations with China as it tilted toward the West. Following diplomatic recognition in 1972, Japanese policymakers were confident that Chinese oil exports could be depended upon as long as bilateral relations remained positive. Japanese oil imports from China peaked in 1975 after which time they decreased due to incompatibilities with Japanese refineries, compounded by a reduction in Japanese oil demand. In addition to the strategic imperative of balancing against the Soviet Union, China also had economic incentives for energy cooperation with Japan during this period. The need for U.S. dollars underwrote the development of the onshore Chinese petroleum industry as well as China's national development. (The global oil market is conducted in U.S. dollars.) Such was this need that Chinese heavy industry tolerated energy shortages so that China could export its oil to earn foreign exchange. Chinese leaders also kept domestic oil consumption low by stressing the use of coal to free up oil for export as part of a strategy to raise U.S. dollars.[13]

The Senkaku/Diaoyu islands dispute flared up again during normalization negotiations in 1978. Following an attempt by pro-Taiwan Japanese Diet members to undermine talks by calling for the addition of the Senkaku/Diaoyu islands to the agenda, Deng Xiaoping issued his famous dictum that the sovereignty question be shelved for future generations and that the parties focus on joint development. The normalization agreement facilitated cooperation in the development of China's petroleum industry, not least because the Chinese and Japanese energy sectors were highly compatible. China required capital and technical advice, while Japan sought preferential access to China's vast onshore hydrocarbon resources. This relationship also rekindled discussion on the joint development of the East China Sea.

As Japanese oil imports decreased through the 1970s, China sought to reinforce political rapprochement by bringing Japanese oil companies into partnerships in the Bohai gulf, China's first offshore oil exploration zone. Japan regarded the proximity of the highly prospective gulf as an enormous gain for energy security, and Japanese oil companies were the first foreign entities to enter the area in the early 1980s. Simultaneously, delegations of Chinese geologists and petroleum engineers visited Japan to learn about offshore drilling, to visit refineries, and to hold technical discussions with their Japanese counterparts. During these talks both parties expressed a willingness to consider the joint development of the area surrounding the disputed Senkaku/Diaoyu islands. However, two-day working level discussions between Law of the Sea experts in Beijing in November 1980 revealed the degree of the impasse between the two.[14]

The talks stumbled on the delimitation dispute. Although Japan's median line policy was not declared with regard to the EEZ until 1996, Japanese negotiators used the median principle in these early discussions.[15] Although both sides had shelved the sovereignty dispute over the islands, there was still no consensus on the location of the disputed area in the East China Sea. Its joint development remained hostage to the delimitation dispute throughout the 1980s and 1990s. Nevertheless, Japan remained committed to assisting China's national development in order to ensure the emergence of a responsible Chinese power. While the strategic rationale for close energy links may have evaporated following the cold war, there remained strong commercial and energy security incentives for Japanese entities to invest in the Chinese energy sector. The renaissance of Chinese exploration activity, driven by its shift to oil importer status in 1993, provided an opportunity for further cooperation.

In 1991, the government-funded Japan National Oil Corporation (JNOC) became

the first foreign company to invest in exploration projects in the Tarim basin. Some argue that, indicative of Japan's unique place in the Chinese energy sector, JNOC was given advance notice of the bidding round in order to improve China's chances of securing Japanese involvement. This speaks to the need for Japanese technical expertise in China's onshore oil industry at the time. Offshore, Japanese involvement in the South China Sea permitted significant advances in Chinese drilling technology. In the East China Sea, a Japanese consortium secured two blocks on the west side of the median line. However, some view the absence of other bids by Japanese companies as evidence that the disputed islands had adversely affected the interest of Japanese oil companies in the East China Sea. Nevertheless, Japanese companies remained heavily involved in the development of South China Sea and Bohai gulf resources.[16]

This reluctance is certainly a possibility when considered against the efforts of some Japanese companies to pursue cooperative resource development in the disputed area of the East China Sea. In light of continued Chinese need for Japanese capital and expertise, informal discussions on joint development took place at the bureaucratic and private sector levels throughout the 1980s.[17] Beginning in 1985, JAPEX held talks with Chinese government officials on joint development, while Teikoku Oil separately proposed joint seismic exploration with CNOOC. Despite these efforts, talks remained preoccupied with the location of a joint development scheme. CNOOC proposed a joint development area surrounding the Senkaku/Diaoyu islands to Uruma Resources Exploration Company in mid-1987. Simultaneously, a Japanese mission proposed a 100,000 km^2 JDZ that straddled the median line. Because CNOOC requested that Uruma fund the joint operations, as is consistent with Chinese law, it can be inferred that Chinese negotiators were adopting a relatively inflexible position by applying domestic Chinese laws to a bilateral joint development scheme.

In addition to Chinese intransigence, the efforts of Japanese oil companies were undermined by the Japanese government, which chose to simply ignore the issue of resource development on the east side of the median line. In the absence of a common Soviet threat, Japanese leaders calculated that relations with China could be maintained through a blend of economic assistance and a diplomatic posture that glossed over differences. Although it considered a protest in 1996 to Sinopec's development of the Pinghu field, Japan was generally ambivalent about Chinese resource development in the East China Sea. For instance, it issued only diplomatic protests in response to repeated intrusions of Chinese resource exploration vessels across Japan's claimed median line.[18] Furthermore, despite concerns from some Diet members, there is evidence that Japanese government entities were complicit in Chinese resource development in disputed areas of the East China Sea. In 1996, the Asian Development Bank granted a loan to fund the construction of a pipeline from the Pinghu field to the Chinese mainland. This was embarrassingly revealed at the height of the Chunxiao gas dispute in 2005. While the Pinghu field is located west of the median line, some in Japan argue that because it is within 200 nautical miles of Japan's coast, the government should have opposed its construction rather than facilitated it.[19]

Japan's posture toward China's resource development in the East China Sea was defensible to a domestic audience for much of the 1990s because Chinese efforts to develop the west side of the median line were generally unsuccessful. Indeed, the Chunxiao field's discovery in 2001 was hailed as the mark of resurgent prospects in the East China Sea. Actual production in the East China Sea fell behind expectations through the 1990s, which in turn reduced the interest of international partners in East China Sea production. By the end of the millennium, low global oil prices and poor showing from test drilling made Chinese contract terms unpalatable to most multinational oil companies.

CNOOC's discovery of the Chunxiao field in 2001, combined with the state of the Sino-Japanese relationship at the time undermined Japan's posture. Japanese conservatives and media had become more critical of China following Chinese nuclear tests in 1995 and its military posture toward Taiwan in 1996. By the turn of the century, Japanese policymakers became more assertive toward China and less preoccupied with maintaining political relations, particularly since economic relations appeared to develop independently of the bilateral climate. In China, following the adoption of market socialism, the Chinese Communist Party increasingly relied on assertive anti-Japanese nationalism to legitimize its rule. As a result, Chinese leaders severed all high-level contacts with their Japanese counterparts due to Prime Minister Junichiro Koizumi's annual visits to the Yasukuni shrine between 2001 and 2005.

This bilateral climate contributed to the emergence of the zero-sum dynamics outlined earlier. Rising oil import dependence and an increasingly hostile bilateral relationship underwrote a perception on both sides that energy security had become a zero-sum game. This perception was reinforced by China's development projects at Chunxiao. In the Japanese mind-set this was tantamount to the theft of Japanese resources. Furthermore, CNOOC's emergence as a globally competitive oil company eroded commercial incentives for cooperation. CNOOC no longer required Japanese capital or technological assistance to conduct offshore exploration as indicated by the scale of its offshore projects. The Chunxiao field is entirely operated by CNOOC and Sinopec, despite the withdrawal of UNOCAL and Shell.

Following the Japanese discovery of a drilling installation at the Chunxiao field in 2003, tension over the East China Sea once again escalated. As noted, neither party was interested in compromise for fear of surrendering their claim to the entire disputed area. Japanese leaders altered their posture in October 2005 and tabled a joint development proposal. Subsequent joint development negotiations took place between March 2006 and December 2007 and yielded tangible progress in step with the improvement in bilateral relations.[20] The June 2008 agreement is a product of these talks and is indicative of political will on both sides to move beyond a very rocky period in the relationship.

The future of the June 2008 agreement

Sino-Japanese energy cooperation has been most successful when it has been a product of both strategic and economic priorities. In the 1970s, China required dollar earnings, Japan sought to diversify away from Middle East oil, and both were trying to balance the Soviet Union. This relationship was close enough to warrant joint development talks on the disputed area of the East China Sea in the 1980s. While the strategic level imperative of cooperation against the USSR ensured a cordial relationship, it was insufficient to engender cooperation on resource development in the disputed area at the time. While the Japanese were of the view that China needed Japanese expertise to exploit the resources of the seabed, China clearly did not view its oil demand has sufficiently dire to warrant joint development of the East China Sea. Paradoxically, Chinese interest in the development of the disputed area of the East China Sea waned following its 1993 shift to net oil-importer status, not least because it opened up exploration blocs in undisputed Chinese areas west of the median line. Japanese commercial interest in China's offshore development remained, but primarily in the Bohai gulf and the South China Sea, where expectations were high. There was no strategic impetus for either party to seek the joint development of disputed East China Sea resources, not least because of the political symbolism associated with the Senkaku/Diaoyu islands amid a worsening bilateral relationship through the 1990s.

These conditions changed following the dramatic rise in the oil price in 2004. Chinese and Japanese energy insecurity rapidly increased tensions over the development of the Chunxiao field. Chinese oil companies did not need Japanese investment or technology to exploit Chunxiao, which dramatically reduced Japan's bargaining power. Following the nadir period of April 2005, and the end of Koizumi's leadership, both parties became willing to improve relations. In this climate, progress was made on joint development. Similar to Sino-Japanese energy cooperation in the 1970s, cooperation was driven by the strategic imperative of improving relations from their lowest point in the context of high global oil prices; energy cooperation once again was part of an improvement in Sino-Japanese relations.

What does this hold for the June 2008 agreement? The survey presented here indicates that economic and strategic factors worked in tandem to create the impetus for meaningful cooperation. In this context, the recent collapse of the global oil price has arguably removed an economic incentive for cooperative resource development. Nevertheless, as noted in the first section, East China Sea resources are consistent with both Chinese and Japanese energy security objectives. Therefore, in light of the apparent political will to improve the bilateral relationship since mid-2006, the most effective path to cooperation is one that relies on political interest to fill the economic void. If Japan and China were to proceed with joint resource exploration in the JDZ despite the poor market conditions, they would create an impetus for cooperation that could become sustainable if oil prices return to their former levels. This could be accomplished if both sides funded their government-backed oil companies to conduct joint exploration in the JDZ. Alternatively, waiting for oil prices to return to former highs, particularly given current global economic forecasts, risks eroding the political will that created the June 2008 agreement and the improvement of bilateral relations. Oil companies in both states have links with government but will not commence joint exploration under current market conditions unless the additional costs are borne by national governments. Funding joint resource development now strengthens the June 2008 agreement so that it may outlast any subsequent downturn in the relationship. Failure to do so could see the return of the zero-sum perspective on energy and territorial disputes that has characterized Sino-Japanese relations since the end of the cold war. At the very least, the East China Sea case indicates that East Asia's maritime territorial disputes are not necessarily predisposed toward violent conflict.

Notes

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1. Liao (2007, pp. 34-37).

2. Tow (2007, p. 161).

3. Lee (2005); Kenny (2004).

4. Lai (2007, p. 535).

5. For a comprehensive analysis of the delimitation and legal issues see Valencia (2007); Dutton (2007).

6. EIA (2008).

7. Cole (2003, p. 27).

8. Andrews-Speed (2004, p. 132).

9. ANRE (2006, pp. 2-4).

10. Xinhua News (2008). This is an English translation of the agreement.

11. Platt's Oilgram (2004). This effectively amounts to Japanese recognition of Chinese sovereignty over the Chunxiao field. Japanese companies would be bound by Chinese domestic laws, as were Shell and Unocal prior to their exit from the project in September 2004.

12. Japan Times (2009).

13. Chow (1992).

14. Valencia (1989, p. 53).

15. Johnston and Valencia (1991, p. 109).

16. Tarim basin: Oil & Gas Journal (1991). Some argue: Paik (1995, p. 36). Significant advances: Anonymous (1993). Japanese consortium: Petroleum Economist (1994). Absence of other bids: Paik (1995, p. 38).

17. This section draws on Yarita (2005, pp. 23-28).

18. Johnston and Valencia (1991, p. 105); Petroleum Economist (1996a).

19. Asian Development Bank: Petroleum Economist (1996b). Embarrassingly revealed: Yomiuri Shimbun (2005).

20. Au (2008); Manicom (2008).

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Regime building in the Malacca and Singapore straits: two steps forward, one step back

Sam Bateman

With the economic growth of Asia, the Malacca and Singapore straits now constitute the most economically important waterway in the world. The main shipping channels between the Indian and Pacific oceans, they carry nearly half of the world's annual seaborne trade, including oil supplies. According to data compiled by the Ministry of Land, Transport, and Infrastructure in Japan, nearly 94,000 vessels used the straits in 2004, a figure thought to rise to 150,000 vessels by 2020, with tankers in the energy trade accounting for much of the increase.[1] Consequently, the construction of an effective regime of maritime safety, security, and environmental protection in the Malacca and Singapore straits has received much attention in recent years. Many countries have a stake in shipping passing through the straits, and their interests are diverse and divergent. User states have been concerned about the high level of piracy and seaborne armed robbery in the straits and, following the 11 September 2001 (9/11) terror event in the United States, the possibility that a maritime terror attack could disrupt shipping in the straits.[2] Littoral states — countries bordering the straits — are worried about the implications of increased shipping traffic, the threats posed to the marine environment, the high costs of maintaining navigational safety and environmental protection, and the possibility that their sovereignty could be jeopardized by the operational involvement of nonlittoral countries in providing security in the straits.

Regarding piracy and armed robbery, the International Maritime Bureau (IMB) reports a significantly improved record over the past five years or so: for example, 38 attacks were reported in the Malacca strait in 2003; this number has fallen with only two attacks reported in 2008.[3] A downward trend is less evident in the Singapore strait with an average of about five attacks reported each year. This reflects shipping concentrations in the Singapore strait, including many slow-moving, small vessels and ships at anchor, and the presence of opportunistic pirates in the Riau archipelago.

Building an effective regime for maritime safety, security, and environmental protection in the straits has proven difficult due mainly to the diverse nature of the interests involved. Brokering agreement between these interests has required the involvement of the International Maritime Organization (IMO), which is the relevant transnational institution concerned with global shipping safety and security and the prevention of pollution by ships. Greater cooperation among littoral states in regional structures to ensure safety and security has also been evident. Managing maritime safety and security in the straits is a major challenge that is high on the agenda of regional summits and conferences.

Stakeholder perspectives

Data from the International Maritime Bureau show that piracy and seaborne robbery in the Malacca and Singapore straits has improved significantly since 2003. Still, building an effective regime for maritime safety, security, and environmental protection in the straits has proven difficult due mainly to the diverse nature of the interests involved.

Perspectives on priorities for action in regime building vary both between and within user and littoral countries. The terror attack of 9/11 and subsequent measures to reduce terrorism risks have triggered much of the recent attention given to the straits, but even with these new measures, perspectives on the relevant priorities for action have varied. In particular, user states attach priority to implementing these measures, but Indonesia and Malaysia believe the risk of maritime terrorist attack in the straits is low. Moreover, they suggest that it would be difficult, if not impossible, to physically block the straits and reject the more extreme scenarios for a terrorist attack. They also suspect some of the major nonlittoral countries are talking up risks only to justify a strategic presence in the straits.[4]

Littoral countries

Indonesia and Malaysia are concerned about sovereignty and sovereign rights in the straits and believe that they carry an unfair burden in ensuring the safety and security of shipping and protecting the marine environment. Coastal states adjoining an international strait do have considerable service responsibilities for vessels transiting the strait, for example, for the provision and maintenance of navigational aids, communications systems, hydrographic charts and other navigational information, search and rescue services, offshore security services, basic vessel salvage services, and marine pollution contingency arrangements. While the littoral countries accept that piracy and the threat of maritime terrorism are problems, they are equally worried about other issues of law and order at sea, such as the trafficking of arms, drugs, or people, illegal fishing, and pollution of the marine environment. Both Malaysia and Indonesia have extensive fishing interests in the waters of the Malacca strait and, additionally, Malaysia has major tourist developments on its west coast that depend heavily on a clean marine environment.

The littoral states argue that most of the shipping passing through the straits does not call at any port in the straits. But the straits are also used by extensive coastal and domestic shipping which share the use of services with international shipping transiting through the straits. Due to the lack of land-based transport infrastructure in most parts of Southeast Asia, including the Indonesian island of Sumatra, large numbers of smaller merchant vessels, particularly product tankers and general cargo ships, also ply their trades in the straits, as well as smaller container ships on feeder

services from the main container ports of Singapore, Port Klang, and Tanjung Pelepas. User states and international shipowners thus believe the local need for navigational aids and security should be acknowledged when apportioning the costs of providing services in the straits.

Initiatives in the straits by littoral countries are overseen by tripartite ministerial meetings among Indonesia, Malaysia, and Singapore. The first meeting of this group since 1971 was held in Batam in August 2005. Technical matters relating to the management of the straits over the years have been handled by regular meetings of the Tripartite Technical Experts Group (TTEG). The Batam meeting resulted in the Batam Joint Statement, which inter alia, welcomed closer collaboration with and the assistance of user states and relevant international organizations, and supported continuing discussion on maritime security in the Southeast Asian region within the framework of ASEAN and the ASEAN Regional Forum (ARF).[5] It agreed that maritime security should be addressed comprehensively and include such issues as piracy, seaborne robbery, terrorism, smuggling or trafficking people or weapons, and other transboundary crimes.

The littoral countries do not always speak with one voice. Singapore tends to side with major nonlittoral maritime powers in seeking maximum freedom of navigation. It thus usually opposes initiatives to place additional restrictions on ships using the straits. It has also been much more prepared than its neighbors to accept operational assistance from nonlittoral countries in maintaining security in the straits. Sometimes it appears that Indonesia and Malaysia are reluctant even to concede that Singapore is a littoral country to the Malacca strait.[6]

Northeast Asian countries

China, Japan, Taiwan, and South Korea are heavily dependent on shipping through the Straits. This includes tankers and gas carriers moving from the Middle East, and large container ships on around-the-world service runs among Europe, East Asia, and North America as well as other types of vessel, such as car carriers and roll-on, roll-off ("ro-ro") vessels carrying important export and import commodities.[7]

Of these states, Japan has been the most active in assisting the littoral countries with their efforts to provide safety and security in the straits and to protect the marine environment. For many years, it has been the only user state contributing to the costs of safety and environmental protection in the straits. More recently, it initiated several regional measures to combat piracy and maritime terrorism, notably the Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships (ReCAAP), discussed later on in the article. Japan Coast Guard ships and aircraft regularly visit Southeast Asian states to assist local security forces through training and exercises in building their capacity to combat threats from piracy and maritime terrorism. In June 2006, Japan donated three patrol boats to Indonesia to help fight terrorism and piracy, after earlier donating a training vessel to the Malaysian Maritime Enforcement Agency. In January 2008, Japan announced a grant of nearly US$4 million to assist in upgrading Malaysia's maritime surveillance system along the Malacca strait.[8]

Japan's concerns for navigational safety and security in the straits are now shared by China, which is seeking a more active role in contributing to safety and security in the straits. This is a consequence of China's "Malacca dilemma," i.e., China's increased dependence on oil shipments though the straits, and the possibility that the United States might target these in the event of conflict over Taiwan or in some other circumstances.[9] China is increasingly wary of other powers assuming a preeminent role in maintaining security in the straits.

Japan has its own Malacca dilemma. For many years, Japan was apparently happy to be the only outside state to contribute to the costs of maintaining services, but as these increased, along with increased use of the straits by other Northeast Asian countries, Japan has sought to involve other countries in cost contributions. In doing so, it has wanted to maintain its preeminent position as the lender of first resort.

United States

The United States is concerned about its strategic mobility between the Indian and Pacific oceans. Most United States navy ships and submarines that operate in the Middle East and the Indian ocean are deployed from bases in Japan, Hawaii, or the west coast of the continental United States. The United States promotes international cooperation in Southeast Asia against the threats of piracy and maritime terrorism. It has provided technical assistance, including a coastal radar system, to Indonesia to help security in the Malacca strait, and the establishment of a training center for marine police. All this puts the United States in a supportive role in regional maritime security rather than in an operational one. As well as U.S.-American assistance with capacity building, the U.S. Pacific Fleet conducts a series of ongoing exercises with countries in the region, including CARAT (Cooperation Afloat Readiness and Training), and annual naval exercises called SEACAT (Southeast Asian Cooperation for Anti-Terrorism).[10]

India

India is actively pursuing its Look East policies and naval cooperation with Southeast Asian countries and, by virtue of the geographic location of the Andaman and Nicobar islands, has claims to being a littoral country to the straits in its own right. Its navy has been showing a growing desire to be involved in safeguarding the Malacca strait.[11] For example, at the 2006 Shangri-la Dialogue, India's defense minister offered help in any capacity to provide security in the Malacca strait. The navy has been involved in coordinated naval patrols with Indonesia since 2001 and with Thailand since 2005. It is also negotiating similar arrangements with Myanmar and Malaysia.

Shipowners

Major shipowning countries in Europe, including France, Germany, Greece, and Norway, are concerned about risks to their ships and crews, as well as the possibility of higher insurance premiums for ships using the straits. Shipowners are wary about the possibility of having to meet the costs of providing services in the straits for safety, security, and environmental protection. This wariness may increase in the future as the economic downturn leads to decreased demand for international shipping services, smaller cargoes, and increased unit-costs.

Regime building

In the maritime domain, invariably compromise needs to be made between and among the interests of different countries. No country has full independence of action in its offshore zones. Even in its territorial sea, a coastal state must concede the right of innocent passage to ships of other countries, as well as freedom of transit passage and overflight in those areas of its territorial sea that are part of an international strait. Countries must take into account the interests and rights of other states which lawfully send ships into and through waters under national sovereignty. The principles and norms of cooperation need to be institutionalized in the form of a regime for dealing with a common interest, in this case, safety, security, and pollution prevention in the Malacca and Singapore straits.[12] Countries will only participate in a regime if they believe that the benefits of participation outweigh the costs, including for example, the cost that collective action might involve some loss of sovereignty and freedom of action.

Maritime regimes are based on the framework provided by the 1982 United Nations Convention on the Law of the Sea (UNCLOS). Part III of the Convention deals with straits used for international navigation. The responsibilities of littoral states for providing services to shipping in an international strait are implicitly acknowledged in UNCLOS, Article 43, the so-called burden sharing article. This provides for cooperation between user states and states bordering a strait on the provision of navigational and safety aids and the prevention of marine pollution and is the main basis for a regime for safety, security, and environmental protection in the straits.

UNCLOS, in Article 43, envisages that users should contribute to the costs of safety and environmental protection but leaves the problem of devising a cost-recovery mechanism open. Fundamental differences of view on what is meant by burden sharing exist. Littoral states have typically seen this as a matter of sharing the financial costs. But the United States in particular has seen this as a matter of getting more directly involved in providing safety and security possibly through contributions in-kind, such as assistance with patrols and surveillance. Other fundamental questions include whether cost contributions should come from the governments of user states, from flag states, or directly from shipowners, and whether it might it be possible to charge ships a fee for using a strait. These issues have been discussed over the years in many international and regional fora, but a possible formula for burden sharing has only recently evolved.

The economic crux of the problem is that the littoral states of the Malacca and Singapore straits bear much of the cost of a shipping safety, maritime security, and oceanic environmental protection regime on which shipowners of other states free-ride under the free-transit passage provision of the U.N. Convention on the Law of the Sea.

Economic thinking provides some structure in thinking about regime building and burden sharing. The economic theory of club goods, built on the contrast between public goods and private goods, is particularly relevant. As the provision of safe passage through the straits is an UNCLOS-mandated public good, shipowners and user states freeload on the safety and security services littoral states provide. (Any measures introduced by bordering states cannot "have the practical effect of denying, hampering or impairing the right of transit passage."[13]) Because users cannot feasibly be excluded from benefitting from these services — once they are provided — there is no user-incentive to share in the cost of provision. Littoral states themselves can be expected to carry the cost of these services only inasmuch and to the extent that they benefit their own shipping needs. This contrast in perspective explains the widely observed undersupply of safety and security services in international waterways. A viable alternative must be found.

A club good, as the name suggests, shares a good or service among club members, yet effectively excludes nonpayers from benefitting from the provision of the good. How the cost of provision is apportioned among club members (e.g., in equal or in proportional amounts, by means of a fee-per-usage, or by another mechanism) remains for club members to decide. The next two sections detail progress made, and difficulties encountered, by user and littoral states in moving from public good to club good in the straits.

Steps forward

Cooperative mechanism

The Cooperative Mechanism for the Straits of Malacca and Singapore established in September 2007 is the most significant step forward in regime building for the straits. Reflecting their joint responsibility for protecting the environment and promoting navigational safety, this was a major breakthrough in reconciling diverse stakeholder interests. Emerging from a series of meetings sponsored by the IMO in Jakarta in 2005, Kuala Lumpur in 2006, and Singapore in 2007, the Mechanism encourages user

states and other stakeholders to voluntarily cooperate with Indonesia, Malaysia, and Singapore to enhance safety, security, and environmental protection in the straits.[14]

The Mechanism comprises three elements: a Cooperation Forum, an Aids to Navigation Fund, and specific projects to be managed by a Project Coordination Committee.[15] The Forum joins littoral states, user states, and other stakeholders. The Fund is intended to enable user states and others to make voluntary contributions to enhance navigational safety and environmental protection by maintaining and replacing aids to navigation such as lighthouses and buoys. Six specific projects have been identified by the littoral countries, including the removal of wrecks in the Traffic Separation Scheme, and cooperation and capacity-building on hazardous and noxious substance preparedness and response. Several countries, including Australia, China, and the United States, have offered to fund or contribute to the funding of these projects.

While the Mechanism is a major step forward, it has some way to go before it is fully effective. Differences have arisen between prospective donor countries and the littoral states over project funding, and shipowners have been reluctant to contribute to the Aids to Navigation Fund.[16] The 2009 budget for the fund is US$8 million but current contributions add up to US$5.4 million only, with US$2.5 million coming from the Nippon Foundation of Japan; Greece, and a Middle East navigation service contributing one million dollars each; and Korea, the United Arab Emirates, and the Japanese Shipowners' Association contributing lesser amounts. Other shipowner associations have not contributed. Some shipowners appear to subscribe to the notion that passage through a strait used for international navigation should be free under the UNCLOS regime of transit passage, and that a contribution to the fund amounts to a fee for transit that would have to be passed on to shippers, which of course violates the club good notion of cost-sharing (or, alternatively, emphasizes that finding an effective benefit-exclusion mechanism is difficult).

Littoral state cooperation

The commitment by littoral states to maritime security cooperation constitutes another major step forward with regime building in the Malacca and Singapore straits. Relevant activities include trilateral coordinated maritime surface patrols among Indonesia, Malaysia, and Singapore called the Malacca Strait Sea Patrols (MSSP), and coordinated airborne surveillance under the Eyes in the Sky arrangement. Thailand agreed in late 2008 to participate in the MSSP. Despite these developments, cooperation between and among littoral countries is still rather less than ideal: the coordinated air surveillance is infrequent; the surface patrols are coordinated rather than joint; and there are restrictions on the hot pursuit of suspicious vessels into the territorial sea of another country.[17]

Despite limitations, the situation may improve with further development of ASEAN as a regional institution. For example, the latest summit meeting in February 2009 agreed to the goal of ASEAN becoming a regional economic community by 2015.[18] ASEAN is establishing a Maritime Forum and ARF has set up an intersessional meeting on maritime security. Both will address maritime cooperation, including shipping safety and security.

ReCAAP

ReCAAP — the Regional Cooperation Agreement on Combating Piracy and Armed Robbery against Ships — is another positive development. The agreement became operational in September 2006 with the opening of the Information Sharing Center in Singapore.[19] This Japanese-inspired initiative is a very significant achievement that provides the basis for regional cooperation to counter piracy and seaborne robbery in the Asian region. With the important exceptions of Indonesia and Malaysia, it involves all ASEAN nations, plus Japan, China, South Korea, India, Bangladesh, and Sri Lanka. It includes an information network and a cooperation regime with assigned contact points in each participating country.

Indonesia's reluctance to join stems from the belief that ReCAAP undermines state sovereignty in archipelagic waters and the territorial sea. Similar concerns are believed to lie behind Indonesia's reluctance to ratify the 1988 Convention for the Suppression of Unlawful Acts against the Safety of Maritime Navigation (SUA Convention) which, as amended by its 2005 Protocol, potentially provides an international regime for action against piracy and seaborne robbery that overcomes the limitations of the antipiracy regime in UNCLOS.[20] Malaysia's reluctance to support ReCAAP is believed to lie in its objections to the location of the Information Sharing Center in Singapore and its view that ReCAAP is an unnecessary competitor for the IMB's Piracy Reporting Center located in Kuala Lumpur.

National arrangements

At a national level, tighter government control and onshore policing are important factors contributing to the improved situation with piracy and robbery at sea. As piracy events in 2008 and 2009 off the coast of Somalia demonstrate, corrupt governance or lack of good order onshore facilitates disorder at sea.[21] Pirates operate from bases onshore, usually in small fishing communities, and it is not unreasonable to assume that most of the community know what is going on. This will include local police or naval personnel who may even be complicit in the illegal activity. Low salaries for law enforcement personnel encourage such complicity.

Official and community attitudes against piracy in Indonesia have hardened in recent years. Indonesian public awareness of acts of piracy committed in Indonesian waters may have been low in the past. Greater awareness and more active policing onshore constitute the most significant factors leading to the reduced incidence of piracy and seaborne robbery in Indonesia, including in the Malacca strait.[22]

Step back

The step back from an effective regime in the Malacca and Singapore straits has several sources, stemming from difficulties in reconciling the interests of different stakeholders, or problems encountered with implementing new arrangements such as the Cooperative Mechanism, or when Indonesia and Malaysia resist initiatives for fear that these might compromise state sovereignty.

Invariably, sovereignty concerns scuttle attempts at regime building by extra-regional powers. This was evident, for example, in the reaction to the Regional Maritime Security Initiative, a capacity-building initiative put forward by the United States in 2004.[23] In fact, sovereignty in the straits should only be an issue in the southern one-third of the Malacca strait where the strait narrows and the territorial seas of the Indonesia and Malaysia overlap. Littoral states only have sovereign rights and not sovereignty in their exclusive economic zones (EEZs) that constitute the other two-thirds of the strait.[24] Many of the high-seas provisions of UNCLOS, including the antipiracy regime in Articles 100 to 107, apply in this area.

Sovereignty concerns are compounded by the lack of a full suite of maritime boundaries in the straits. Maritime enforcement in the northern Malacca strait, particularly against illegal fishing, is complicated by the lack of an EEZ boundary between Indonesia and Malaysia in that part of the strait.[25] The agreed continental shelf boundary in this area is to the west, that is, closer to Sumatra, than the median line. Indonesia believes that the EEZ boundary should be the median line, whereas Malaysia claims that it should be coincident with the continental shelf boundary. Maritime boundaries have also not been fully agreed in the eastern and western approaches to the Singapore strait where the three countries need to reach agreement on trilateral turning points.

Conclusion

Regime building in the Malacca and Singapore straits requires reconciling diverse and divergent interests of disparate stakeholders and acknowledging the concerns of Indonesia and Malaysia about proposals that appear to jeopardize sovereignty. With these problems to overcome, an appropriate diplomatic and technical structure was required to facilitate identification of acceptable cooperative measures and reach agreement upon them. Over the years, the IMO has provided this structure. It has played a key role in fostering cooperation between littoral and other user states as well as by linking in key nongovernmental organizations.

The IMO-sponsored meeting process that began in Jakarta in 2005 demonstrates the utility of transnational institutions in regime building. This has been supported by regional cooperation, including trilateral operational arrangements that, taken together, are an important contribution to peace and stability in the region. There is still some way to go but a good start has been made with building an effective regime for the Malacca and Singapore straits.

Notes

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1. Okanishi (2007). Evidently, in the short-run this prediction will be affected by the current global economic recession and the consequent downturn in international shipping services. By 2020, trend growth may have been recovered so that the prediction may well turn out to be correct.

2. Luft and Korin (2004).

3. IMB (2009, Table 1, p. 5).

4. This was evident in the reaction by Indonesia and Malaysia to the United States' Regional Maritime Security Initiative (RMSI). See Young (2007, p. 84).

5. Bateman, Ho, and Raymond (2006, p. 16).

6. For example, a conference in Malaysia in 2004 on Building a Comprehensive Security Environment in the Straits of Malacca organized by the Maritime Institute of Malaysia included a session on Perspectives from Littoral and User States, but there was no perspective included from Singapore. See Basiron and Dastan (2006).

7. An APEC study concluded that a five week closure of the Malacca strait would cost APEC economies US$1.7 billion (in 2002 dollars) in terms of oil supply disruption. See Hogan, *et al*. (2005, p. 152).

8. Nippon Foundation (2006); Anis (2008).

9. Lanterne (2008).

10. Bradford (2008, p. 485).

11. Andaman and Nicobar islands: Sawhney (2006). Navy: Arsyad. (2008, p. 177).

12. Writers define "regime" in different ways, but most are agreed that a regime refers to norms, rules, and procedures that regulate particular areas of public policy. See, e.g., Haas (1980, p. 358).

13. UNCLOS, Article 42(2).

14. Breakthrough: Djalal (2008, p. 3). Meetings: Sasakawa (2007).

15. Terashima (2009).

16. Jegasthesan and Sam (2008).

17. Commitment: Bradford (2008, p. 474). Thailand: Storey (2009). The Eyes in the Sky program is a coordinated airborne surveillance program.

18. Fuller (2009).

19. Singapore Government (2006).

20. Indonesian reluctance: Bradford (2008, p. 489). SUA Convention: Beckman (2008, pp. 188-192).

21. Bateman and Ho (2008).

22. Low awareness: vom Busch and Rettig (2006, p. 88). Greater awareness: Bradford (2008, p. 480).

23. Sovereignty concerns: Huang (2008, p. 96). Regional Maritime Security Initiative: Storey (2008, p. 113).

24. There is a clear distinction between the exercise of sovereignty within internal waters, archipelagic waters and the territorial sea, and the exercise of sovereign rights in the EEZ and on the continental shelf. "Sovereign rights" pertain to a functional jurisdiction (notably over resources and environmental protection) that is more limited in character than "sovereignty."

25. Bateman, Ho, and Chan (2009, p. 16).

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European analogies for a liberal peace in Northeast Asia

Brendan Howe

Following the successful example of Europe, liberal optimism has spilled into Northeast Asian analysis with hope for the evolution of a liberal virtuous triangle of democratization, economic interdependence, and international organization.[1] Yet the international environment in contemporary Northeast Asia bears a closer resemblance to that of the European interwar twenty-year crisis of liberalism rather than that of the post-second world war integration project in Europe, and thus, again, at least in this region, such optimism may be seen as premature.

This article addresses first, the extent to which one should be optimistic about the liberal internationalist project in Northeast Asia following the path trodden by Europe in the second half of the twentieth century. Having examined the limitations of this analogy, the second section considers the extent to which Europe's experience of a prolonged crisis in the first half of the twentieth century is more analogous to the contemporary Northeast Asian environment. Finally, the third section assesses whether there are in fact grounds for optimism in Northeast Asia based not on the region's similarities to Europe but rather on its differences from the liberal perpetual peace prototype. The findings are that while Northeast Asia is not a zone of liberal Kantian peace based on the virtuous triangle, and despite power political challenges, a rationally and socially constructed security environment has emerged to constrain the conflictual tendencies of self-interested actors.

A Northeast Asian Union?

The European integration project was an explicit attempt to eradicate the scourge of war through the practical application of the liberal ideals of economic interdependence, international organization, and democratic peace. Building on the success of the 1951 Coal and Steel Treaty, economic interdependence and political integration were steadily expanded, culminating in the 1992 Treaty on European Union, the 1997 Treaty of Amsterdam, and the 1999 monetary union. The project has also promoted the third side of the triangle with democratic-only membership encouraging transition in Greece, Portugal, Spain, and more recent candidates from Central and Eastern Europe. Europe was also the testing ground for another new and important element of a liberal security strategy, with international norms established by 35 states participating in the Conference on Security and Cooperation in Europe (CSCE) signing the Helsinki Final Act contributing directly to the demise of communism in the former Eastern bloc.[2] The following subsections address the extent

Table 1: Comparative statistics for Northeast Asian states

	USA	*Japan*	*Taiwan*	*S. Korea*
(1)	10	36	40	52
(2)	$47,000	$34,200	$31,900	$26,000
(3)	307.2 mn	127.1 mn	23.0 mn	48.5 mn
(4)	4.06%	0.8%	2.2%	2.7%
(5)	3 China 5.6 4 Japan 5.4	1 U.S. 20.4 2 China 15.3 3 S. Korea 7.6 4 Taiwan 6.3	1 China 32.6 2 U.S. 12.9 4 Japan 6.4	1 China 22.1 2 U.S. 12.4 3 Japan 7.1
(6)	1 China 16.9 4 Japan 7.4	1 China 20.5 2 U.S. 11.6 6 S. Korea 4.4	1 Japan 22.7 2 U.S. 13.3 3 China 11.2 4 S. Korea 6.6	1 China 17.7 2 Japan 15.8 3 U.S. 10.5
(7)	1	19	35	40
	Russia	*China*	*Mongolia*	*N. Korea*
(1)	74	133	165	192
(2)	$15,800	$6,000	$3,200	$1,700
(3)	140.0 mn	1,338.6 mn	3.0 mn	22.7 mn
(4)	3.9%	4.3%	1.4%	n/a
(5)	7 China 4.5	1 U.S. 19.1 3 Japan 8.4 4 S. Korea 4.6	1 China 71.9 3 U.S. 4.8	1 S. Korea 45.0 2 China 35.0
(6)	2. China 12.2 4 Japan 6.4 5 U.S. 4.8 7 S. Korea 4.4	1 Japan 14.0 2 S. Korea 10.9 3 Taiwan 10.5 4 U.S. 7.3	1 China 32.0 2 Russia 29.4 3 S. Korea 7.9 4 Japan 7.2	1 China 27.0 2 S. Korea 16.0 4 Russia 7.0 (2006)
(7)	146	132	69	179

Notes: (1) rank, GDP/capita; (2) US$ GDP/capita; (3) population size, 2009 estimates; (4) military expenditure as percentage of GDP, 2005 or 2006; (5) rank, export partners (% of trade), 2007; (6) rank, import partners (% of trade), 2007; (7) world rank, Index of Economic Freedom.

Sources: All information from the CIA World Factbook except for the Index of Economic Freedom rankings, which may be found at the Heritage Foundation website http://www.heritage.org/index/rankings.aspx.

to which each of these elements has been transferred to the Northeast Asia.

Economic interdependence

High levels of modernization are being achieved throughout the region. However, economic growth has been uneven, leading to the possibility of resentment of, and conflict between, neighbors. The United States and Japan are modern industrialized developed states, South Korea is close to achieving the same status, and China's phenomenal growth indicates it may eventually catch up. Russia has just broken into the upper-middle income bracket, while Mongolia and North Korea remain underdeveloped. (By contrast, the lowest rankings for countries in the EU are upper-middle incomes.[3]) Globalization rankings for all Northeast Asian countries, including the United States, are very low, especially when only economic indicators are considered.[4] Table 1 shows the relative importance of countries in the region in terms of population, military expenditure, and size of economies, but also the unevenness of development and modernization in the region displayed by widely divergent GDP per capita scores and ranks.

Asian trade has risen, whether measured as a percentage of purchasing-power parity gross domestic product (PPP GDP) or as a percentage of GDP. Likewise foreign direct investment as a percentage of PPP GDP has risen since 2000. These measures lag behind those found in Europe. But exports within the region have increased and, within the Asia-Pacific Economic Community (APEC), now exceed the percentage of total exports shipped within EU borders. Yet those within the East Asian Economic Caucus (EAEC) remain lower. This is explained by the absence of the United States from the EAEC while it is present in APEC. Even the inclusion of China in the EAEC figures, while it is excluded from APEC measurements, is not enough to overcome this omission.

For most of the region's economies, trade within Asia is becoming increasingly important. The exception, China, however, is a large one. The region as a whole is faced with lopsided over-reliance on the U.S. market, unequal bilateral trading relationships between industrialized and emerging Asia, and also between the Chinese mega-economy and other states. This means (1) that pacific effects of intra-regional interdependence may not be felt; (2) that as rapidly developing countries fight for a share of the U.S.-American and other international markets, relations between them have the potential to deteriorate; and (3) that power relations are likely to reassert themselves. Table 2 shows that although intraregional trade now accounts for more than 50 percent of the total, EU figures are closer to 60 percent, and actually the major powers of industrial Asia trade little with each other (only 6.6 percent).[5]

The Northeast Asian situation is further exacerbated by a lack of free trade initiatives between any of the regional great powers. Countries in the region have far fewer cooperative economic arrangements than is the norm for economies of their scale and development, and the trading models of most of these countries are tied more to economic nationalism and protectionism than the liberal capitalist model designed to boost integration and peace (hence the low economic freedom rankings for all but the United States in Table 1). Since China's accession to the World Trade Organization, her trading partners have become increasingly dissatisfied with its growing economic nationalism and failure to liberalize; in Japan and Korea international investment has been actively discouraged even to the extent of initiating legal procedures against foreign interests; and Russia has recently passed several laws limiting participation in its oil industry to local firms.[6] Thus rapid development has not been matched by the evolution of peace-inducing interdependence in Northeast Asia.

Table 2: Direction of exports, share (2006) and change (from 1990)

Exporting region	*All Asia*	*Emerging Asia*	*Industrial Asia*	*NAFTA*	*EU15*	*Rest of the world*
All Asia	51.9 (9.2)	42.1 (11.7)	9.9 (-2.5)	20.7 (-6.9)	14.2 (-4.1)	13.2 (1.9)
Emerging Asia	51.6 (4.1)	40.8 (9.8)	10.8 (-5.7)	20.1 (-4.6)	14.6 (-2.2)	13.6 (2.7)
Industrial Asia	53.1 (16.2)	46.5 (16.9)	6.6 (-0.7)	22.5 (-8.7)	12.8 (-7.4)	11.6 (-0.1)
NAFTA	19.5 (-5.8)	13.5 (1.0)	6.0 (-6.8)	52.5 (11.9)	14.6 (-7.4)	13.4 (1.3)
EU15	8.2 (0.7)	6.1 (1.7)	2.2 (-1.0)	9.6 (1.2)	59.2 (-6.7)	23.0 (4.8)

Notes: Numbers in parentheses are changes in shares from 1990 to 2006; diagonal cells are intraregional trade flows; NAFTA = North American Free Trade Agreement; EU15 = Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, Sweden, and United Kingdom
Source: IMF Direction of Trade Statistics and IMF staff calculations

International organizations and institutions

European leaders are restrained by external constraints of international organizations, and the external constituency of a regional normative community. By contrast, Northeast Asia combines outstanding economic growth with minimal international organization. The needs of coexistence are provided by global organizations such as the United Nations or WTO, or bilateral agreements. Without regional organization, it is difficult for statesmen to foster a culture of common interests leading to cooperation rather than conflict. Part of the problem is historical, with the only prior experience of international organization, the Greater East Asia Co-Prosperity Sphere, established through Japanese conquest.

Because economic growth and development have been experienced in the context of a supportive transregional regime composed of the United States and global international organizations, there appears little need to change. Regional integration in Northeast Asia is viewed as unfeasible, unnecessary, unlikely, and undesirable.[7] APEC and the ASEAN Regional Forum (ARF) processes, the Shanghai Cooperation Organization, and the Six Party Talks are the closest the region comes to international organization but each is unsuited to boosting international cooperation and regional identity.

The concept of open regionalism upon which APEC is built, means that it is too large, unwieldy, and unfocused to perform the identity-related tasks required for the creation of an organizationally constructed collective security environment. Its economic focus and voluntary commitments, make it an unsuitable mechanism for the promotion of security spillover.[8] The ARF has a security focus and includes all the major players from the region, yet it has made little progress in the face of great power ambivalence. Southeast Asian origins not only could alienate Northeast Asian regimes but also, given the ASEAN emphasis on consensus, may not be productive. Furthermore, ASEAN simply lacks the resources for the task.

The Shanghai Cooperation Organization (SCO) is primarily centered on Central Asian security-related concerns. If an unstated purpose of SCO is to serve as a counterbalance to NATO and the United Staets, given their close strategic alliances with Japan and South Korea, the SCO could even further divide Northeast Asia. Advocates claim the Six Party Talks could and perhaps should evolve along the lines of the Helsinki process.[9] However, a Helsinki effect is an unlikely outcome. Much of the impetus that eventually led to the Helsinki Accords came from the Eastern side of the Iron Curtain as part of a quest for legitimation.[10] Neither North Korea nor China is making such overtures.

Regional integration proved possible in Europe in part due to a perceived common heritage within well-defined geographic boundaries. The socio-political hierarchies in Northeast Asia still glare at the barbarian "other" over barricades. European political forms and traditions comprise a key component of community construction. For Buzan and Segal, absent an enlightenment, Asian politics leans toward authoritarianism and sudden changes of policy, with less transparent political and economic cultures making conflict and misunderstanding among them more likely.[11] This then speaks to the democratic peace.

A zone of democratic peace?

The great liberal hope for the region is that as China continues its phenomenal economic progress, a natural and inevitable by-product will be the emergence of a true Chinese civil society that in turn will press for political liberalization.[12] With the United States, Japan, and South Korea already consolidated democracies a politically transformed China would not only lead to more democratic than conflictual dyads, but would also defuse the potential flash point with democratic Taiwan. Asian peoples are increasingly westernized in their outlook and their societies penetrated by western media, cultural, and economic organizations. The West can impose its wishes through control of multinational organizations transitional countries wish to join. And there is a consensual process whereby the desire to imitate a way of life associated with the liberal capitalist democracies (the wish for modernity) may undermine the social and institutional foundations of any regime perceived as incompatible with these aspirations.[13]

However, Henry Nau notes that "Asia's emerging democracies suffer from deficiencies in peaceful rotation of opposing parties in power, divided and accountable institutions, and protection of civil liberties." He finds bureaucratic politics in Asian democracies to be "elitist, highly personalized, and often corrupt," with weak civil societies and institutions, subsidized and controlled media, corrupt judicial systems, brutal policing, and commonplace human rights violations.[14] Russia's democracy is regressing, Mongolia's transition is fragile, and both South Korea and Taiwan are plagued by disloyal oppositions. In North Korea, Kim Jong-il's regime is likely to be replaced by another form of authoritarian government rather than democracy, and in Japan elites and a single political party exercise an inordinate amount of influence.

In China the Tiananmen Square massacre is but the most glaring symptom of stalled democratization. Tentative steps taken in Hong Kong under British rule were abruptly reversed when the territory returned to China's direct control. In 2002 the government launched an attack on the internet, attempting to restrict access and block sites. Crackdowns against the Falun Gong and other groups under Jiang Zemin's old guard have continued under the new leadership. Economic development has in some ways only strengthened authoritarian forces.

The current political and economic climate challenges the consensual process of democratic convergence. The Western way of life only exerts a positive attraction as long as it is perceived to be desirable and preferable to other alternatives. During a pronounced downturn this may no longer be the case, particularly if competition leads to a new wave of protectionism and shrinking global trade. Furthermore, promised

benefits of democratic transition have been slow to materialize; an expectancy gap has developed within many transitional states and may, in some cases, lead to a degree of discontent sufficient to undermine or even reverse the liberalization that has already taken place. China offers an alternative center of gravity, and its "charm offensive"[15] toward its neighbors contrasts with recent unilateral, illiberal, and "charmless" U.S. policy. Hence Joshua Ramo has identified a "Beijing Consensus" which may ultimately hold more appeal than the political and economic reforms advocated by the Washington consensus, particularly in the light of the current collapse of the U.S.-led international economic system.[16]

A Northeast Asian Union based, like the European Union, on liberal principles is therefore unlikely to emerge, at least in the short to medium term. A number of trends in fact point to a power political future of uncertainty and conflict for the region. These are analyzed in the next section addressing the extent to which the contemporary security environment in Northeast Asia is more analogous to that of the first half of the twentieth century before the European integration project took hold.

The crisis of liberalism in Northeast Asia

When Europe experienced its twenty year crisis it was already characterized by high degrees of development and interdependence, but nevertheless was brought to war by the collapse of the liberal economic system and the re-emergence of economic nationalism in the wake of the Wall Street crash and contraction of global trade. Democratization had made great strides on the continent, with the United Kingdom and France consolidated democracies, and all other great powers transitioning toward democracy; but such was the impact of the crisis and democracy's public support so dependent upon economic performance that Hitler and Mussolini were elected in Germany and Italy, respectively, Republican Spain fell to Franco, and the prospects for democratic peace withered along with the shrinking number of democratic dyads. Hopes for peaceful resolution of disputes rested with a global body from which the world's greatest power remained aloof rather than with a regional international organization. Security arrangements still seemed to be dictated by balance of power politics or geopolitics — a struggle for hegemonic dominance between a declining naval power (Britain) and a rising land power (Germany).

Ian Bremmer and co-authors claim that the parallels of rising regional powers, territorial conflicts, and troubled bilateral relations could see Northeast Asia following a model analogous to Europe early in the twentieth century which set the continent on the road to "50 years of catastrophic violence."[17] While the world is experiencing now an economic meltdown of a similar magnitude to that of the Wall Street crash, the region is entering its second such crisis within a generation. Japan, the economic powerhouse of the region, has only just recovered from a decade-long slump following the 1997-1999 Asian financial crisis, only to be faced with another manufacturing and export collapse of even greater magnitude.[18] Asian stock markets are plummeting again.[19] Perhaps most worrying is that intra-Asian trade is described as "entering free-fall" and therefore unable to contribute further to the pacific effects of economic interdependence.[20]

The benign era of liberal "econophoria" is threatened and regional if not global stability is seen by some as hanging by a thread as it did in Europe in the 1930s.[21] The collapse of the Doha round of the world trade talks and the responses to the crisis of major economies such as the Buy America clause in the U.S. financial stimulus package (even in its more diluted form) could lead to a new round of economic national and further shrinkage of global trade, and thereby a rise in conflictual forces.[22] Nationalism is on the rise in Northeast Asia. All states in the region feel resentment toward and fear of the historical role of Japan, the current primacy of the United States, and the future rise of China. As can be seen from Table 3, Northeast Asia is a veritable powder-keg, with five of the world's top ten defense spenders.[23]

Table 3: Northeast Asian military expenditure

	US$	*%*	*Rank*
United States	711.0	48.3	1
China	121.9	8.3	2
Russia	70.0	4.8	3
Japan	41.1	2.8	6
South Korea	24.6	1.7	10

Note: US$ = in US$ 2008 billion; % = percent of world total
Sources: Center for Arms Control and Non-Proliferation, 22 February 2008; Table extracted from Globalissues.org (2009)

Due to its explicitly revisionist mantra, and phenomenal growth, China is seen as posing the greatest threat to regional security. Learning from the 1990-91 Gulf war, China embarked on a major military modernization program, acquiring from Russia or developing itself, in-flight refueling technology, modern weapons, aircraft carriers, new destroyers, attack submarines, and ballistic missile submarines, new radar and radar-guided missiles, a new multi-role fighter, stealth technology, and is expanding and improving its strategic nuclear missile force. Steven Mosher believes that China deserves a reputation for bellicosity, finding a propensity for violence greater than that of other states (76.9 percent of the time in its international crises, compared to 53.5 percent for Muslim states, 28.5 percent for the USSR, and 17.9 percent for the United States).[24]

After a decade of rapprochement North and South Korea are once more rattling sabres at each other. The 2008 elevation to office in South Korea of a conservative president from the Grand National Party, Lee Myung-bak, has led to an end to the Sunshine Policy of constructive engagement and unconditional economic aid for the North. In response, North Korea has announced that "the group of traitors has already reduced all the agreements reached between the North and the South in the past to

dead documents," relations have reached "the brink of war" and that therefore the North no longer considers itself bound by such agreements.[25]

Alan Dupont notes that not only is Japan moving away from its pacifist past toward a more outward-looking security posture characterized by a greater willingness to use the Self Defense Forces in support of Japan's foreign policy, but also that this shift is gaining momentum, represents a watershed in Japan's postwar security policy, is palpable, irreversible, and broadly based, with younger people being more inclined to support revising the constitution than their parents.[26] Contemporary Sino-Japanese relations have been compared with the Anglo-German rivalry prior to world war I.[27]

In geopolitical terms we are entering a period of uncertainty and instability, similar to that of a hundred years ago when the declining seapower-based world leader (then Great Britain, now the United States) is challenged by an ascending continental landpower. The asynchronous relation of power deconcentration and reconcentration cycles, between the world system as a whole and the European subsystem, has provided the impetus for previous confrontations of this sort. However, it is now in the Asian regional subsystem where we see asynchronicity, the concentration of power in Chinese hands going against the global trend of deconcentration. Geopolitical prediction would see war between a rapidly rising China and declining United States or the regional seapower, Japan, as increasingly likely.

However, while geopolitical prediction is based on long-term cycles and trends, all trends eventually come to an end. The next section considers the extent to which, while the underlying conditions of the contemporary Northeast Asian subset bear a superficial resemblance to those of Europe in the first half of the twentieth century, a radically different strategic operating environment and geopolitical codes of the actors concerned may nevertheless lead to a very different prognosis. To paraphrase Alexander Wendt, geopolitics is what states make of it.

A socially constructed perpetual peace?

In the globalized world, many of the problems facing Northeast Asia are likewise global rather than regional in nature. Multifaceted complex interdependence rather than regional economic interdependence has changed the playing surface. Economic malaise, terrorism, weapons proliferation (both nuclear and conventional), drug and human trafficking, environmental degradation, climate change, AIDS, SARS, avian influenza, contaminated food products, smuggling, counterfeiting, and piracy all play a role in stimulating rational cooperation.

The rise of China and other great powers will end the United States' unipolar moment, but may also signify the end of the hegemonic cycles and hegemonic form of world leadership which has dominated international politics for the last 500 years. The end of the U.S.-American century need not lead to a Chinese, Japanese, Russian, or European century, but rather to a global form of governance or hegemonic alliance within which one or more Northeast Asian state will play an active role. Repeated economic and strategic interaction, and the recognition by ruling elites of the permanence and importance of these processes, can lead to the evolution of rules for avoiding unwanted conflicts and for facilitating desired exchanges. Failure to do so would mean an enormous inconvenience and, more seriously, potential loss of competitive advantage for those who failed to take this step when others had done so. So rationally, international order could evolve functionally in Northeast Asia from the logic of anarchy without preexisting cultural bonds found in Europe, but in direct reaction to the challenges posed by an increasingly integrated European and Atlantic bloc.

The end of the U.S.-American century need not lead to a Chinese, Japanese, Russian, or European century, but rather to a global form of governance or hegemonic alliance within which one or more Northeast Asian state will play an active role.

The geopolitical codes (practical output of geopolitical reasoning) of Northeast Asian states reflect the rational imperative to come to an accommodation with one another in order best to deal with the challenges they face. China's peaceful rise paradigm asserts thriving economically in a peaceful environment and also serving as a catalyst for peace, a kind of virtuous cycle maximizing China's economic benefit. Hence in 2004, Premier Wen Jiabao said China's rise "will not come at the cost of any other country, will not stand in the way of any other country, nor pose a threat to any other country."[28] Nowhere has China's attempt to project its peaceful rise paradigm been more apparent than in Asia. Economic relations with every country in the region have increased dramatically, and China has now surpassed the United States as the largest trading partner of both South Korea and Japan. Since the 1997 crisis, when China refused to devalue its currency, leading ASEAN Secretary General Rodolfo to announce "China is really emerging from this smelling good,"[29] China has been playing the role of a responsible and even benevolent regional great power.

Japan, since the Yoshida Doctrine in response to anti-Japanese riots, has placed the highest priority on economic development, while simultaneously keeping a low diplomatic profile. Despite external and internal pressures for normalization recent polls (Nikkei Shimbun Opinion Polls, December 2007 and January 2008) found only 39 percent of respondents supported the renewal of the law permitting the dispatch of the Maritime Self Defense Forces to the Indian Ocean in support of antiterrorism measures in Afghanistan; and only 35 percent in favor of allowing the Self Defense Forces to be dispatched overseas. Yet there is continued support for the Japanese government to play a more active role in non-traditional areas of foreign and security policy such as the environment (Yomiuri Shimbun Opinion Polls 19 and 20 May 2007). Essentially there is support for a more independent pro-active Japanese security policy but not in line with a process of normalization which would require revision of Article Nine of the constitution, or would require Japanese troops to be put

in harm's way.

Even the Korean peninsula can be seen as a rationally constructed zone of peace. North Korean leader Kim Jong-il clearly desires reunification of Korea, but knows he cannot expect to achieve the unification dream through an invasion which if not immediately halted, would soon be reversed by South Korea and her allies. The only unification achieved as a result of such tactics would be under a Seoul-based regime over the bodies of tens of thousands of Koreans from both sides. Kim has repeatedly asked for a non-aggression pact and recently won a significant diplomatic victory by having North Korea removed from the United States' list of terrorist-sponsoring states, and is interested in learning from past mistakes and changing for the better.[30]

Likewise, no matter how harsh the rhetoric, the current South Korean regime could never contemplate reunification by force. While much is made of the dangers posed by North Korea's missile and nuclear programs, the huge conventional artillery batteries currently massed in easy range of Seoul are more than capable of reducing the target to rubble at a fraction of the cost of developing a nuclear program, and with more certainty and efficiency than is currently demonstrated by the North's missile program. Any victory achieved by the South would be at best a pyrrhic one. In fact, the political and economic difficulties facing any attempt to reunify the Korean peninsula mean that an uneasy status quo is likely to endure for some time to come. Lee Myung-bak's aggressive stance has contributed to his recording the lowest-ever opinion poll ratings, which in turn have made it harder to take any definitive action.

All the major players have shown restraint in both their strategic interactions, and their economic policies in response to the current financial crisis. Far from reverting to the sort of beggar-thy-neighbor policies which exacerbated Europe's twenty year crisis, the United States, Japan, China, South Korea, Taiwan, and even Russia have embarked on cooperative financial stimulus plans, and international financial organization oversight culminating in agreement at the April 2009 meeting of the G-20 economies (which included most of the Northeast Asian subset) which has been called a London Consensus.[31] In addition, rather than austerity packages or military-industrial stimulation of the economy, individual governments in the region seem more intent on new deals of public works. The Japanese government has recently announced a US$15.4 trillion yen spending plan, the third in six months, bringing total spending to about 3 percent of gross domestic product. The Korean government announced a record 28.9 trillion won extra budget. China has announced a US$600 billion stimulus package, with US$25 billion offered to neighbors. The United States has pledged US$787 billion stimulus package and proposed a US$3.6 trillion budget.

Conclusion

Contrary to the hopes of liberal optimists, economic interdependence, international organization, and democratic consolidation have not led to the evolution of a zone of peace in Northeast Asia similar to that in Europe, nor, due to the limited progress made on all three sides of the virtuous triangle in the region, are they likely to in the short or even medium term. Indeed, the regional great power rivalry and economic challenges faced in Northeast Asia, have more in common with the crisis of liberal internationalism faced in Europe in the first half of the twentieth century. However, despite superficial similarities to interwar Europe, there is hope that armed conflict can be avoided in Northeast Asia due to the underlying differences between the two security operating environments and the geopolitical codes of the major actors.

External challenges and internal rational payoffs in Northeast Asia have contributed to a socially constructed rational peace quite different from that which emerged in Europe in the twentieth century. The regime is neither as consolidated nor as stable as its contemporary European counterpart, but it is still more entrenched than the liberal peace of the twenty year crisis. Indeed, any security regime that is able to deal with so many conflictual forces, faces countless skirmishes and instances of sabre-rattling, and yet for five decades prevent the outbreak of serious hostilities between social and political entities harboring historical grudges and outright hostility toward one another, may be considered durable indeed.

Notes

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1. For this article Northeast Asia consists of China, Japan, Russia, North and South Korea, and, where data permits, Mongolia and Taiwan, as well as the United States.

2. Thomas (2001, p. 3).

3. Primarily extracted from the World Bank, gross national income (GNI) per capita 2007, Atlas method and PPP$ (2009). H stands for high income (>US$37,566; PPP$36,100), UMC for upper-middle income (>US$6,987; PPP$11,868), LMC for lower-middle income (>US$1,887; PPP$4,543), and LIC for low income (<US$578; PPP$1,494). PPP$ = purchasing power parity or international dollars.

4. Globalization Index Rankings (2007).

5. Gruenwald and Hori (2008).

6. Gamble (2006).

7. Lee (1996); Lim (1996).

8. Buzan and Segal (1998, p. 107).

9. Cohen (2004).

10. Thomas (2001, pp. 29-35).

11. Buzan and Segal (1998, p. 107).

12. Dittmer and Brzezinski, as cited in Nau (2002, p. 165).

13. Whitehead (1996, p. 21).

14. Nau (2002, pp. 163-164).

15. Kurlantzick (2006, pp. 270-276).

16. Ramo (2004, p. 4).

17. Bremmer, Choi, and Kawaguchi (2005).

18. Evans-Pritchard (2009).

19. Moore (2008).

20. Evans-Pritchard (2008b).

21. Evans-Pritchard (2008a).

22. Halligan (2008).

23. Figures for North Korea, Mongolia, and Taiwan are not listed as they are not among the top-10 spenders. The rankings change (slightly) if SIPRI numbers are employed for 2007, but these older figures miss recent increases in Northeast Asian military expenditure and, due to the dramatic appreciation of the euro against the dollar and devaluation of the Korean won in 2008, also would drastically skew global rankings if converted to U.S. dollars at current exchange rates.

24. Mosher (2000, pp. 58-59).

25. BBC (2009).

26. Dupont (2005, pp. 43-44).

27. Calder (2006).

28. Pan (2006).

29. Pan (2006, p. 272).

30. Gregg (2003).

31. Kaufman (2009).

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