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A TEST FOR THE SYSTEMIC IMPERATIVES OF ORDER AND WELFARE**

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ABSTRACT

Making and marketing arms and weapons technologies provide a test of neo-realist and market theories of the international system. Neither adequately explains why states produce and sell arms and lethal technologies. Both require fundamental revision and integration to account for the behavior of states in this policy domain.

This paper argues that two systemic imperatives — order and welfare — determine states' behavior in making and marketing arms. Part one establishes the conceptual framework for this proposition and explores the implications of these imperatives for arms production and transfers, along with the diffusion of military technology. Part two outlines national strategies and organizational arrangements of developed and developing states in responding to these imperatives, and provides through this *tour d'horizon* a provisional evidentiary basis for the argument of part one.

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INTRODUCTION

Sketched below is a conceptual framework for the political economy of making and marketing arms. There now exists a sufficiently large and reliable body of research to synthesize what we know about the structure and operation of the global political economy of arms.¹ Such a framework is a precondition for explaining policymakers' behavior and, obversely, for rationalizing the choices confronting them in their efforts to define efficient and effective strategies for developing and acquiring arms. These strategies can be either consistent or at odds with a state's over-all political and economic aims. The latter, however, may themselves be competing and incompatible, leading to the pursuit of individual strategies which, while consistent, respectively, with the specific aims driving them, may conflict with each other. The postwar American commitment to liberal economic trade and investment principles and acceptance of the countervailing principle of member preference within the European Economic Community, a concession made largely on geo-political grounds to promote a united Europe to contain the Soviet Union, illustrate compromises that must often be made between strategic and economic objectives and the mixed and contradictory strategies that arise from mutually desirable but essentially irreconcilable aims.

More precise conceptual maps also are needed to identify missing details about why and how arms and related know-how are produced and transferred. Proposition testing and data collection efforts, now underway,² can be advanced if what we wish to explain, predict, and control -- why states make and market arms and lethal technologies -- is more clearly defined and delineated. Better maps are especially needed today because of the isolation of research and policy analysis of arms production, sales, and coercive technologies from current thinking about the global political economy. This separation is as surprising as it is unwarranted,³ conforming neither with the expected rational (or at least "satisficing")⁴

behavior of policymakers, nor with the discernible and interdependent patterns of nation-state and market decision-making.

This paper argues that two systemic imperatives -- order and welfare -- determine states' behavior in making and marketing arms. Part one establishes the conceptual framework for this proposition and explores the implications of these imperatives for arms production and transfer, along with the diffusion of military technology. Part two outlines national strategies and organizational arrangements of developed and developing states in responding to these imperatives, and provides through this tour d'horizon a provisional evidentiary basis for the argument of part one. It focuses primarily on factors that can be generalized across states. There is no assumption that these system-wide factors influence state, governmental, bureaucratic, and corporate behavior with equal weight, nor that they explain outcomes independently of other levels of analysis and causation. However, these alternative levels are addressed only indirectly, since the number and complexity of causal factors preclude extensive discussion here.⁵ Conversely, these lower contingent levels of explanation provide neither a framework to rationalize the discrete political economic strategies of states nor a basis for generalizing across the behavior of individual states to demonstrate that they are a species of a larger genus of behavior. Appeal must be made to the system-wide factors of order and welfare that condition, albeit variably, the behavior of all states in the system.

We will proceed on the assumption that an international political economic system exists that, when properly defined, explains, partially but critically, why states make and market arms.⁶ Evidence for this assumption, adduced below, derives simply enough from the way states and societies go about fashioning arms and threatening to harm, maim, and kill each other or to destroy or damage each other's values to get their way. Since the actors themselves assert these activities to be worthwhile, usually on the basis of "self-defense," these coercive activities are considered, for purposes of analysis, as instrumentally rational as any other object, say, building skyscrapers, caring for the old, or solving global pollution problems. Making and marketing arms are an integral part of a nation's political-economic activities and purposes and not alien or exogenous to them.

Table 1

INTERNATIONAL ARMS MARKET: ACTORS AND OBJECTIVES

<u>Actors</u>	<u>Objectives</u>
National Actors Nation-states and national governmental authorities	Security, political influence economic growth, solvency, full employment
Subnational Actors Military organizations	Military security
Industrial and corporate units	Maximum economic gain -- profits in market economies or budgetary allocations in controlled economies
Technoscientific centers (research groups, universities, institutes)	Service functions for military and private sector in pursuit of new knowledge, techniques and products
Governmental bureaucracies	Surveillance and control of other subnationals
Transnational Actors Multinationals	Maximum economic gain
Revolutionary movements, nation-states	Political change and new regimes
International Actors Alliance organizations: NATO, WTO	Offense, defense, deterrence; collective political influence; internal management and policing of dependent states
Economic or political communities (EC)	Trade and technological competitiveness; political influence
World and regional organizations (UN, ASEAN, OAU)	Regional order and cooperation; development; arms control

Source: Adapted from Christian Catrina, Arms Transfers and Dependencies (New York: Taylor and Francis, for UNIDIR, 1988), p. 69.

I. Order and Welfare: Systemic Imperatives Driving the Making and Marketing of Arms

1. Defining an Arms Political Economy

The international system within which the global political economy nests is defined essentially by the military and techno-economic capabilities distributed among decisionmaking units controlling the allocation of assets.⁷ These units principally, but not exclusively, include nation-states and governmental bureaucracies, as well as national and multinational military, industrial, and financial institutions. Table 1 summarizes the main actors and their presumptive objectives. Generally, national political leaders tend to assign in their public pronouncements secondary importance to techno-economic capabilities relative to military force and security, while these priorities appear reversed for subnational or transnational actors. Thus, policymakers reaffirm the conventional, if misguided, distinction between "low" and "high" politics, a perennial of traditionalist realist thinking unmindful either of the pressures on governments to produce ever higher levels of material welfare and of the causal link between techno-economic development and military power. In practice, however, governments and their ruling elites are compelled increasingly to blur the line between strategic and political objectives and techno-scientific and economic development. This process of integrating national security and welfare aims is nowhere more explicit than in the area of making and marketing arms where governmentally induced and directed techno-scientific and economic development conspire with market forces and incentives to enhance a nation's material wealth, status, and power.

In arguing the rebuttable proposition that the global economy is less interdependent today than before the world wars, Kenneth Waltz suggests that market forces today do not play a determining role in redistributing economic and technological capabilities and, concomitantly, power among states.⁸ This paper, based on state behavior associated with arms production and sales, draws the opposite conclusion. Nation-states and governments only partially control markets, yet markets both constrain states or provide them opportunities to advance or preserve their relative power positions. The redistribution of resources among states through the market has been and will continue to be decisive in defining the current state system's hierarchy and each state's power to work its will. Some states, such as the

United States and the Soviet Union, may have sufficient resources to pursue highly valued autarkical policies, but, as Soviet leaders recently have discovered, perhaps only at the expense of economic growth and development that in the long-run undermine national power. Autarky may be achieved -- Albania and Burma are suggestive examples -- but at a cost of economic retrogression and, not unexpectedly, declining national power and international legitimacy.

Growing recognition of eroding US and Soviet techno-economic and military hegemonies,⁹ occasioned partly by the inexorable extension of an increasingly interdependent global economy, prompts a more inclusive definition of the international system than traditional realist or neo-realist assumptions admit.¹⁰ In focusing on the power implications for states of market operations, the Marxist-Leninist argument that markets concentrate political and economic power is still relevant. Less helpful is the linear and strict Marxist identification of market forces with political and economic exploitation by a particular class.¹¹ The market fosters and facilitates the redistribution of power, but it also yields wealth and welfare as desirable and demanded outcomes of compelling appeal for governments and peoples beset by economic underdevelopment or pushed by Sait's law of unquenchable appetite for more now. The connections between wealth and power are more complex, diffuse, and obscure than either Marxist or contemporary "free market" scholarship and theorizing have yet revealed.¹² What is clear is that power and wealth are real forces. They are associated, respectively, with order and welfare as the systemic determinants of natural security and a nation's socio-economic policies. The pressure of these determinants and the quest for power and wealth that they engender prompt the need to enlarge and deepen realist assumptions about the international system and about the particular incentives driving national behavior.

To be useful, theories about the international system must empirically relate the distribution of military and techno-economic capabilities to the discretionary authority in the hands of formal governmental and non-governmental decisionmakers to influence or control preferred outcomes in conflict with other states whether over geo-political or economic stakes. Both forms of power explain which nations get their way and, by that token, the political structure and decisive decisional processes of an international order or polity.

Relative to most domestic regimes, international order is imperfect but it no less defines the basis for a polity or political system as a function of the distribution of material capabilities.¹³

There is also reason to reject a sharp and artificial distinction between military and non-military goods and services and to assume, subject to confirming empirical investigation, that what may appear to be competing security and welfare policies at a foreign policy level may be coherent and at least "satisficing" behavior at a systemic level of analysis. In this sense, arms are tools or implements of security and destruction. These qualities condition the terms of trade between states and distinguish arms markets from other markets because of concerns about secrecy, transfers of hostile technologies, and potentially adverse political impacts of uninhibited commercial exchanges of these lethal products and services.¹⁴ Trade in arms is still trade and subject to the laws of economics and markets, however specialized exchanges in lethality might be. Similar special concerns prevail in other, non-military, economic sectors, such as computers or bio-technology whose markets are no less shaped by the products and services traded within them. Arms are then simply goods and services, like other commercial products, whose value is determined relatively and according to supply and demand. If arms are produced and another product foregone, their value may be monetized as an opportunity cost. Treating arms as an instrument of power and as an object of wealth (viewed as a product of trade or as a "conserver" of the value of labor, capital, and know-how) permits demand and supply of these products and services to be evaluated within a common international economic and security framework.

In enlarging but limiting our analysis to include objects proper to a political economy of arms, we inevitably deemphasize, but should not altogether ignore such factors as values and ideology (religious or secular), social structure, customs, or cultural preferences and mores. While one may have been able to predict the basic stalemate of the Iran-Iraq war through analysis of population, industrial output, and military preparedness, one certainly could not completely explain the war's outcome or the full implications of the Iranian revolution and pan-Islamic fundamentalism strictly by analyzing technology or military prowess. Similarly, it has been argued that a persistent postwar West German tendency to restrict arms exports to states at war owes much to culture -- to Kantian conceptions of an ideal world order and Grotian legalism -- as well as to contemporary political concern for the legitimacy of NATO reliance on nuclear weapons.¹⁵ In view of such multiple causation, a

balance must be struck between rigor and relevance that surmounts the artificial boundaries between current political and economic analysis, yet is not so delicate and sensitive that it reacts to almost any causal perturbation that could be introduced into the analysis. By including military and techno-economic capabilities as an integrated theoretical concern, we will at least lower some of the barriers created by a narrow disciplinary focus on the nation-state.¹⁶ We can also note the role of law, ideology, and values where relevant. In working to overcome the isolation of politics and economics, the theorist can better approximate the assumptions on which governments themselves operate in equilibrating the requirements of rule and order with wealth and welfare. We also will be forced to integrate theories of the state and those of the market.

Making and marketing arms thus falls within the scope of activities understood as political economy, i.e., that domain of human activity that is the intersection of the pursuit of political power and purpose with the production of goods and services. These activities are responses, as in all other forms of political-economic behavior, to two pervasive systemic imperatives animating state and governmental behavior: order and welfare. Order is a primary problem intrinsic to politics. It arises from the divergent claims and demands made by individuals, groups, and nations on each other to gain adherence to their preferences. Order, as a political problem, may be considered under two modes: in fundamentally valuational and normative terms, as the ancient Greeks, viz., as ordering processes by which rulers (whether one, the few, or the many) define what is worthwhile from what is not. Or, order may be valuationally neutralized as a political concept as Machiavelli and value-free modern political theorists and practitioners assume and viewed as the pursuit of power in which preferences are imposed on others.¹⁷ Order, then, is associated either with widespread and general acceptance of certain shared values or with instruments of influence, rules of behavior, and deference to legitimate or effective authority within a political system. As such, and in the extreme, order may be consensual or coercive. In greater or lesser measure, most political orders are an admixture of both elements.

Modern, empirical political science has adopted Machiavelli's perspective. Power is therefore a central concept. Following Robert Dahl, power is "the capacity of A to get B to do something he would not otherwise do in the absence of power."¹⁸ In expanded form, incorporating traditional and modern notions of power, politics is a continuing dialectic of

purpose and power about who gets his way about what and how. It includes not only the basic Hobbesian concern with individual, group, and national security but also with the quality of public and private life -- defined critically by regime considerations and the scope of personal and social freedom, equality, and welfare.

Welfare is a relatively new systemic imperative coincident with the emergence of commercial capitalism and, later, with industrialization. It is also linked to a widely shared assumption that the Malthusian doctrine of chronic poverty and penury can be overcome. Welfare now approaches order as politically primal and, at the very least is a necessary if not sufficient determinant of the legitimacy of any modern political order. Welfare also extends to an overriding concern with the amount and equitable distribution of material wealth enjoyed by individuals and groups, whether as collective or personal goods and services. Obviously, welfare no less than order is an ambiguous term whose content is essentially derived from actor values and behavior and evolving historical circumstances. If one has no material aspirations, then one is rich. This limiting ascetic case, however, is not the prevailing preference of populations and of governments today. Nor is the notion of welfare absolute since some may be satisfied with less material wealth than others and, indeed, those with more may believe themselves less well off, depending on prevailing ideological beliefs, mores, and expectations.

Welfare, however defined, may be associated with order and security, but should not be equated with it. Meeting material welfare demands does not automatically produce order. On the other hand, those who feel aggrieved on welfare grounds may revolt against an existing order and replace it. Such certainly were some of the most important motivations underlying the great revolutions of our era, common threads linking the American, French, Russian, and Chinese upheavals. No state today can ignore welfare imperatives -- even an explicitly anti-modernist counter-revolutionary movement like that of Iran; no government, however constituted, can survive without addressing them, whether by creating the conditions for acquiring more wealth, suppressing these demands through coercion, or convincing their populations to be satisfied with their material lots.

2. States and Markets: Implements of Order and Welfare

The human instruments created over the past several centuries to solve, albeit provisionally, the problems of global order and welfare have been, respectively, the nation-state and the market. In ideal or pure form, the incentives and expectations generated by each social mechanism are fundamentally contradictory. Nation-states claim to be independent and autonomous, whereas the market theoretically is interdependent and universally accessible to buyers and sellers. The nation-state allocates resources by command, whether rendered by authoritarian fiat or democratic consensus, while the regime of the market is supposed to operate by free choice, guided by the principles of comparative advantage, governmental nonintervention in market competition, and division of labor to promote the efficient production and distribution of wealth. The nation-state is fundamentally parochial, atavistic (including national, ethnic, and racial attributes), discriminatory in its secular (e.g. democratic, authoritarian), religious, or communal orientation (e.g., Islamic, Christian, Jewish, Hindu), and inclined to protect its entrepreneurs, work force, and citizens against foreign economic competitors. The market, as a consequence of advances in transportation and communications, has nowadays a global reach and is purportedly non-discriminatory. In theory, access and right are attributes of the quality and quantity of the goods and services being offered for exchange, and not the seller's or buyer's birthright, social status, nationality or beliefs.

Territorial boundaries bind the nation-state; unhindered markets ignore territorial limits. Indeed, as the "oil crisis" of 1973 showed, nation-state imperatives diverge significantly from those of market players -- as when the French and Italian governments were unable to coerce greater petroleum supplies from their nationalized oil companies than embargoed states such as the US or the Netherlands could coax from multinational suppliers rearranging shipments on the high seas.¹⁹ An international society, with the nation-state as its principal coercive mechanism to command order, is, by circumstance, a self-help system. Alone or in concert, the units are responsible to check the hegemonic pretension of other units or coalitions. Threats to a unit's existence, power, and status are pervasive whether as an attribute of the system, as Rousseau argued,²⁰ or as a circumstance of a particular conflict with another state, say, the Arab-Israeli or India-Pakistan conflicts. Military capabilities and diplomacy are the traditional forms of power relied upon to respond to these threats.²¹

Following Boulding,²² international relations, conceived narrowly as limited to nation-states, can be viewed as a threat system; conversely, the market is, as an ideal model if not always in practice, an exchange system in which goods and services are ostensibly traded for mutual benefit free from coercion or threats. Meeting threats against presumably resourceful and calculating nation-state opponents creates incentives to withhold and control information vital to national security and to restrict scientific and technological exchange. Efficient and fair markets imply over time, a continuous flow of information, scientific findings, and technological know-how among economic units. A pure threat system is a zero-sum game. A market can provide for multiple and positive pay-off to all players; all may gain in their exchanges, although differentially as a function of exertion, talent, natural endowments or chance. The nation-state conceives power as command and compellence to control outcomes; the market defines power in terms of reciprocally satisfying exchanges between consenting parties.

In the real world it is almost impossible to find either states or markets working in pure form or independently of each other. Total wars between irreconcilable adversaries, dedicated to the singular objective of annihilating or subordinating the opponent, are limiting cases. The Punic and Napoleonic wars or World Wars I and II most closely approximate the model (if not normatively desirable) conditions of nation-state behavior under severe and mortal threat. So, too, global free markets, exempt from limiting or consensually tolerated nation-state rules, cannot be found in distilled form. Expansion of Western finance and industrial capitalism, the antithesis of 17th and 18th century mercantilism, did not conform to pure market practices, as Liberal critics abundantly understood. And contrary to the expectations of these latter theorists, the economic expansion of 19th century corporate capitalism relied heavily on the coercive power of the states with which individual firms, such as Britain's East India Company or Germany's Krupp, were closely associated. These companies as well as their investments and exports enjoyed protectionist privileges as a by-product of European imperialism and the creation of a global Eurocentric political system. In turn, industrial and financial corporate development through the market strengthened the internal economic and military capabilities of the nation-states.

Threat systems and the globalization of markets under the aegis of state-protected capitalism also prompted innovations in domestic political and bureaucratic organization.

Specifically, the general staff arose and, with it, a new class of experts, using and managing violence efficiently to employ the new abundance of economic and military capabilities and human resources available to the state principally, though not exclusively, through the creativity and exertions of home populations.²³ The Sino-Japanese and Russo-Japanese wars and both world wars were to demonstrate the difficulty of containing expansionist powers, like Japan and Germany, through such means as multinational congresses, pacts, leagues, or regional balances of power once economic growth and internal socio-political transformation redistributed nation-state power capabilities throughout the global system.²⁴ The importance of internal and global markets in transforming international power relations generated incentives for states to rely on and to control market operations. Witness, for example, Japan's "co-prosperity sphere" to rationalize its Asian imperial expansion.

If the market was itself a powerful instrument for producing material power, it also became, quite independently of its power projection attributes, the principal means for making and distributing wealth among nations, groups, and individuals. Left to their own inner logic, however, markets had several severe shortcomings in responding to rising popular demand around the globe for greater access, ownership, and consumption of goods and services. As early market critics, both Socialist and non-Socialist, recognized, economic wealth and political power tend to gravitate toward the few in monopolistic or oligopolistic control of internal markets. State interest in a competitive edge also leads to a bias in favor of nationally based industrial and financial institutions, to the disadvantage of the less endowed, informed, powerful or privileged.²⁵ Some form of countervailing power -- largely conceived as state intervention -- was commonly invoked to right market imbalances as well as to correct perceived inequities, uneven distribution of wealth, and institutionalized inequality among states and peoples. As long as these conditions persisted, they generated pressures, as the Marxist-Leninists predicted, for revolutionary change and, by logical extension, for a new global political order.²⁶

Keynesian market critics also understood that free markets did not necessarily find a stable equilibrium at full employment.²⁷ External intervention was needed to achieve acceptable levels of domestic wealth and welfare. The worldwide depression of the 1930s and the globalization of the nation-state system in the postwar era logically extended the analysis from domestic welfare to the international political economy. It is now axiomatic

that a nation's domestic welfare increasingly depends on its competitive performance in international markets, and governments are expected to nurture and support natural competitiveness. The high cost of war today -- witness the Iran-Iraq struggle -- also inhibit reliance on force or threats to skew market rules in a nation's favor, even for a state that may objectively command greater coercive assets than a militarily weaker but economically stronger adversary or competitor. This is certainly the case between stalemated nuclear rivals since numbers count for less in nuclear warfare than between conventionally armed states

The problem facing governments is nowadays more daunting than ever before. To ensure domestic order and welfare they are obliged increasingly to intervene abroad, unilaterally or in concert, to control the behavior of other states and markets on behalf of their populations at the very time that state control over international markets, including the transfer of arms and lethal technologies, has diminished. Central banks' dilemma about whether and when to intervene in support of key currencies is one example given the enormous financial resources at the disposal of multi-national corporations and private groups and individuals. Such dilemmas arise in part from widely perceived legitimate but often conflicting claims of nation-states and markets. Efficient resource allocation for economic welfare requires markets, but uncontrolled markets can yield outcomes short of desirable output levels or politically prevailing standards of wealth, equity or safety (as in environmental pollution). Specifically, unregulated national or international arms sales can perturb military and political balances among nation-states, and disrupt harmony among socio-economic groupings within them.

3. Theoretical Synthesis of State and Market Forces

The mix of strategies pursued by a particular state to relax the dilemmas posed by competing security and market needs will vary, depending on particular regional and national circumstances. If the analyst focuses narrowly on the first imperative, and generalizes across cases to identify system-wide constraints on behavior, states are portrayed as primarily driven by the security dilemma or the war trap. Under these conditions, they are assumed to be either operating under assumptions of pure anarchy or, at best, as members of a primitive world society of states governed by minimal rules of conduct and principles of legitimacy.²⁸ Under notions of rigid security requirements, even economic exchange is viewed as a contest

between states ultimately for preeminence and military superiority. States, then, are expected to resort to force or threats to acquire the resources necessary for order and for levels of material welfare that will ensure or enhance their status.²⁹ Analysts who prefer to concentrate on techno-economic exchanges, however, tend to assume mutual cooperation and trust under market condition and, over time, universal access by states to needed resources and technologies through mutually beneficial exchanges to goods and services.

Any attempt to reduce one set of state imperatives causally to the other stands, as the discussion below suggests, against logic and experience. Exclusionary perspectives that restrictively define the systemic determinants of state behavior also run counter to widely shared notions of political legitimacy based on the ability of national governments to discharge their order and welfare functions. Neither facts, logic or norms have prevented neo-realist theorists, concerned narrowly with the elementary conditions of order, from defining the market and its implications for power creation and redistribution as subsidiary to national military power and diplomacy and outside the boundaries of theoretical concern. Liberal and Marxist theorists have been correspondingly incapable of incorporating the development of the territorial state, attached essentially to national and, hence, atavistic or ideological or community exclusiveness, into their rival interpretations of market oriented economic development (Liberals) or dependency and liberation (Marxists).³⁰ Theorizing about international relations and, specifically, about international political economy, therefore, has been stifled. By the same token, focus on the nation-state blocks theorizing -- empirical or normative -- about much of global politics concerned with getting and spending. To pose the question of order in global terms, i.e., as more fundamental than simply that of accommodating nation-states, is already to be dismissed as visionary and presumably irrelevant, according to some analysts.³¹

Theory thus has reached an impasse. Partisans of one vision or the other -- realist, Liberal, or Marxist-Leninist (updated by dependencia writers) -- either speak past each other or explain only those parts of state and market behavior that suit their empirical and normative predispositions. The circularity and lack of progress in thinking about political economy is captured in Robert Gilpin's self-abnegating but thoughtful observation that

... [L]iberalism, nationalism, and Marxism make different assumptions and reach conflicting conclusions regarding the nature and consequences of a world market economy or (as Marxist prefer) a world capitalist economy . . . These contrasting ideologies or perspectives constitute intellectual commitments or acts of faith. Although particular ideas or theories associated with one position or other may be shown to be false or questionable, these perspectives can be neither proved nor disproved through logical argument or the presentation of contrary empirical evidence.³²

One way out of the impasse is to include both nation-state and global market assumptions, however conflicting, in political economic theory. Moreover, it is important to distinguish between currently popular models of political economy and political economic theory based on hypotheses about the systemic incentives of global political and economic systems and on empirical observations that provide a provisional evidentiary foundation to demonstrate their effect on the behavior of great and small powers. Models and theories should not be confounded. Rather than identify a model with a theory, and conduct research primarily to determine whether state and market behavior fits a particular model's expected rules,³³ it would be more fruitful, as this analysis suggests, to begin with those general and pervasive aims that appear to animate actors -- particularly those associated with military and techno-economic interests -- and to attempt to explain, partially but critically, political actions in terms of these organizing or systemic-wide aims which arise as a consequence of the nation-state system's and market forces. Systemic rationality can be understood, therefore, as a set of rules (i.e., policies) in disposing and deploying capabilities that the actor (and not the analyst) judges will result in a satisfying equilibrium in meeting competing global or environmental state and market, i.e., order and welfare, needs.

One place to begin building such a body of testable propositions about nation-state and market behavior is with the making and marketing of arms. This sector exposes the dilemmas of order and welfare more acutely than most other political-economic domains. It is not, as has been depicted, a sector of exclusive concern either to the military strategist or to the economic planner.³⁴ It is precisely this sector that links the specialized concerns of both within a common framework of analysis, i.e., the political economy of the state with the simultaneous globalization of the nation-state system and economic markets. Arms

production and sales combine both the incentives for behavior derived from command and coercion with those arising from consent and exchange for mutual benefit.

This domain also most clearly reveals the futility of confining analysis to paradigms, for all their professed rigor, that do not capture the integrally mixed strategies pursued by holders of material capabilities in ordering their relations. On the strength of patterns formed by these mixed strategies, we can begin to develop a more empirically relevant and verifiable theory of political economic behavior rather than be led by what might be invidiously characterized as the three blind mice approach of realist, liberal, and Marxist-Leninist thinking. At a minimum we can train research energies on accurately describing and explaining what is occurring. Prevailing political-economic models are angular and brittle, subject to easy breakage with the first shock of contact with fact and reality. If that is the case, it seems foolish either to go on testing models that cannot deliver on their claims³⁵ or to assemble impressive data to bolster models flawed on their face.³⁶

II. Evidentiary Basis for a Theory of Making and Marketing Arms

1. Patterned-Nation State Strategies to Acquire Arms and Promote Domestic Welfare

One or a combination of three alternative strategies are open to any state in its efforts to acquire arms: autonomous national production; collaboration with other states or firms in developing and transferring arms and know-how; or assistance from other states or off-the-shelf purchases through direct payments, credit, or barter. A state's basic security concerns and level of economic aspirations will condition choices among these strategies, and among specific mixes of arms. For example, a security strategy premised on forward defense and maximum operational readiness strategies will dictate a more comprehensive arms policy than one based on area or continental defense and reliance on the mobilization of reserves and conversion of the civilian economy for military purposes.³⁷ In capitalist states, a choice also exists between state and private ownership of the means of arms production. We will describe the combination of these strategies and production modes for today's main arms producing and marketing states before beginning to generalize about current thinking about the causes and consequences of producing and exchanging arms and lethal technologies.

The United States -- The American government continues to rely principally on private corporations and research institutions to develop and to produce arms by contracting for, rather than directly owning, the means of production. The market plays a dual role in such a private enterprise-government subsidized system, regulated and sustained by an elaborate contractual process. For firms, research centers, and universities, the market supplies the personnel and financial investments and techno-scientific inputs needed to sustain a complex industry and outlets for the sale of arms and technology. Unlike other Western democracies, the American market has been sufficiently large until now to underwrite the costs of research and development of major weapons systems and to lower unit production costs below those of competitors, especially for high performance weapons such as supersonic aircraft or for sophisticated electronic hardware such as the AWACS command and control system.

The size of the American market and the large resources at the disposal of the central government also have permitted Washington to pursue, despite periodic objections from allies, an essentially autonomous weapons production policy. Until recently, this circumstance has provided the United States a comparative advantage in the inter-allied and global arms markets. During the 1960s and 1970s the US enjoyed a favorable balance of trade within the Atlantic alliance of approximately ten to one (nowadays the ratio is three to one, another indication of declining US competitiveness), and was the leading Western arms seller in the developing world. Advanced military technology also made the US an attractive partner in joint projects within NATO. European firms gained access to US technology, and European treasuries were taxed less in buying high performance weapons than if they had attempted to develop these arms on their own.³⁸

Therefore, the United States could, at once, autonomously meet its arms needs -- a prime (perceived) requirement of nation-state survival, power, and status -- yet dominate allied arms markets through technological innovation and lower unit costs, as well as through levered political influence arising from allied dependency on the American security guarantee. Washington also patterned its global distribution of arms, perhaps more than other states, on the basis of its security policies vis a vis the USSR; major arms recipients tended to be allies and strategically valued clients. As a bonus, American firms could profit commercially from the global sale of weapons and military technology built on US and allied market sales.

Through such a process, the F-16 would become not just the standard for NATO, but an international fighter incorporated into the inventories of such diverse states as Israel, Pakistan, and Indonesia.³⁹ The American arms industry and, by extension, American security interests and technological and economic growth could then be supported not only by national subsidies and purchases but also by world market sales.

The political economy of American arms was consistent with Washington's overall post-war political-economic strategy, enunciated in alliances and close strategic ties with partners in Europe, Asia, Latin America, and the Middle East. These regions accounted for the bulk of US arms and military technology transfers. The creation of the International Monetary Fund (IMF) and the World Bank and support for General Agreement on Tariffs and Trade (GATT) free trade principles also testified to American open market preferences, including stable and convertible currencies pegged to the dollar. An expanding capitalist market was the preferred socio-economic solution to Western and developing world welfare demands. It was conceived also as an answer to the ever lurking socio-economic grievances that were widely believed to spawn political upheaval and authoritarian solutions during the worldwide depression and protectionism of the 1930s. Thus, by the 1960s, American leaders assumed they could achieve both autarky in producing arms and effective lethal technologies and market hegemony in selling them abroad. Order and welfare both could be served through an expanding global market and economic interdependence.⁴⁰ Such assumptions increasingly were subject to doubt, however, as the general US trade position eroded, as defense costs and budget deficits soared, as procurement scandals broke, and as global arms markets became saturated by a growing list of suppliers.

The Soviet Union -- Like the United States, the Soviet Union has pursued an autonomous arms production policy, and has distributed arms primarily to reward and protect foreign clients.⁴¹ In contrast, however, it relied on a command, not a market, economy to develop and procure arms, albeit with the provision of semi-competitive state supported research and design institutes for major weapons (e.g., MiG vs. Antonov vs. Yakovlev vs. Tupolev vs. Ilyushin aircraft). Committed to Socialist principles of state ownership of the means of production, Moscow rejected the Marshall Plan and vetoed East European participation in the European recovery plan. It correctly reasoned that integration would have drawn the Soviet Union and its allies into a capitalist market structure under US hegemonic

leadership. Collaboration with the West in arms making and marketing was precluded. Non-military areas of economic exchange also were highly restricted and largely confined to commerce with other Socialist states, partially out of ideological preference and meager export production of competitive goods, as well as by Cold War trade policies. Trade with developing states relied significantly on military and heavy equipment exports and barter over monetary and financial terms of exchange, since flexible capitalist market arrangements were shunned as exploitative or unavailable (a nonconvertible ruble was a serious impediment). A billion-dollar Soviet purchase of Moroccan phosphates in exchange for Soviet heavy road building equipment and technical assistance illustrates a general pattern.⁴² While barter arrangements may be viewed as a form of market exchange, they cannot sustain the size, multiplicity, or complexity of product, service, investment, and financial exchanges implied by a fully developed market economy.

Whereas the United States has relied on its continental and global markets to generate the techno-scientific advances and the economic resources to sustain its weapons industry, the Soviet Union, following essentially a nationally based and ideologically driven policy of economic autarky, relied on its weapons industry and large unit demand supplemented by purchases of Warsaw Pact states, to drive its technological development, to foster its influence in the Third World, and to gain a competitive advantage in world markets in military arms sales. With a claim on national investment exceeding any Western state, including the United States (at least as a proportion of GNP), the Soviet military-industrial complex demonstrated an ability for innovation in avionics, space, and special materials. Yet even in arms development, where the Soviet Union implicitly enjoyed a competitive edge, "it is almost axiomatic," as many observers recognize, "that each new generation of Western weapons, computers and aircraft within three to five years will be followed by Soviet replicas."⁴³ The perceived dictates of national security, order, and independence also subordinated domestic welfare considerations that could presumably have been better served by entering world markets and by adhering to the liberal trade principles but, clearly, at the expense of ideological and national power aspirations.

In foregoing the competitive cold bath of the global economy for the sake of the Cold War, the Soviet Union and its bloc partners accepted, if they did not welcome, or anticipate, lower rates of economic growth and technological development. Also not expected was a

gradual decline in Soviet techno-military competitiveness, an area where the USSR had scored remarkable successes, dating from the rapid development of atomic and nuclear weapons and intercontinental ballistic missiles, symbolized by the Sputnik launch of October 1957. Like its Western adversaries, the Soviet Union produced advanced automotive, aircraft, optics, computer, and space satellites systems, but despite reportedly lower unit costs these products could not compete commercially in world markets. They were transferable to East European and, on generous credit terms, to Third World clients essentially as part of the Soviet Union's security policies and protected economic position within its spheres of political and strategic influence. Soviet military technology also began to suffer from lags in high technology electronics, particularly computers, and from delayed development of synthetic resins and metallurgy, resulting in less maneuverable equipment and reliable engines. However, what Soviet military equipment has suffered in technological sophistication continues to be somewhat offset by relative simplicity and durability of proven, incrementally improved, and now battle tested (Afghanistan) designs.⁴⁴

Ironically, then, the Soviet Union's state directed and security oriented industrial sector and its resultant lagging ability to meet popular welfare needs and to keep pace technologically with Western and Asian capitalist states eroded its military superpower status. An essentially reactive military technology has not generated sufficient levels of innovation on its own, nor has it enjoyed the synergism associated with open and free techno-scientific and informational exchange.⁴⁵ As Paul Dibb has shown in his evaluation of Soviet power, "The Soviet Union . . . will have to be economically and technologically competitive if it is to retain its superpower status in the 21st Century. Gorbachev himself has said that the future of socialism is at stake. If Gorbachev fails, the Soviet Union risks falling out of the ranks of the world's great powers."⁴⁶ The Soviet model, no longer attractive to the Soviet Union itself, has also lost interest to developing states.

The technological progress of European and Asian states, along with the continuing American challenge, now appear to have altered fundamentally both Soviet security and economic policy. Moscow's cooling relations with North Korea and efforts to establish economic partnerships with more economically productive Asian states than its Vietnamese client are examples of a new trend in Soviet political-economic policy. In addition, the spectacle of French cosmonauts joining their Soviet colleagues, of East German associate

member status in the West European EUREKA high technology research project, and of Soviet MiGs on display at Western air shows indicate prospects even for certain types of economic collaboration in military equipment in the coming years, especially as Europe establishes new organizational structures.⁴⁷

Glasnost and Perestroika are, then, broad reform strategies to overcome past impediments to economic growth and, arguably, competitiveness in the continuing qualitative arms race with the United States and the West. Both address the failings of a command economy and narrow reliance on nation-state paradigmatic rules of behavior in addressing the systemic imperatives of welfare and order and of the Soviet state's preferences along both dimensions. Controlled economic planning and centralized decisionmaking were as much Soviet responses to perceived threats and efforts to enlarge political-economic influence as they were purported answers to the shortcomings of capitalism. Not surprisingly, Soviet domestic reform efforts depend simultaneously on projecting a diminished threat to other states, particularly those on Moscow's European and Asian borders, and on officially reinterpreting threats to Soviet security and political aims. As one Soviet analyst explained, in emphasizing the need for new cooperative relation with Western Europe built on the ill-defined notion of a "Common European Home,": "The idea derives from an understanding that the European military confrontation was at once useless and dangerous, and that, generally speaking, the danger is not attack, but sliding into a crisis, the development of ecological problems, and the impossibility of Soviet integration into the world market as a consequence of the camp mentality and our self-improvement by military expenditures."⁴⁸

The Soviet Union needs the competitive pressures of the world market to stimulate efficient internal production and services and to make its industries more attractive to foreign investment. Viewed strictly from a Marxist perspective, there is much truth in Timothy Luke's conclusion that "The USSR's position demonstrates both the continuing ability of the capitalist world economy to integrate virtually any economy into its network of production and the on-going failure of even the most energetic national challenge to transnational capital to finally break out of the dependency networks imposed upon it in the semi-peripheral mode of industrialization."⁴⁹ From a strategic, nation-state viewpoint, however, his evaluation of failure paradoxically may be premature. If the Soviet preferred model of the global political economy has proven wanting on the dimensions of national and personal welfare and military

technology, future success in adapting Socialist principles to a global capitalist market may conceivably supply the Soviet Union with the techno-economic and military capabilities it lacks today to support its long-term global ambitions.

Soviet planners' recent concern for domestic political and economic reform and for experimentation with market mechanisms highlights a continued preoccupation with the Soviet global power position. The absence of serious military objection to the reform movement, to unilateral military cuts in Soviet forces (e.g. the U.N. speech of Mikhail Gorbachev announcing reductions of 500,000 troops and 10,000 tanks), and to decreases in Soviet military spending are prima facie evidence of widespread concern in leadership circles that unless the reforms succeed, the Soviet Union may even lose its status as a military superpower. From this perspective, welfare goals would still appear to be in the service of the nation-state. It is by no means certain that the Soviet system and internal state control can be reconciled with open market rules (e.g., the right of workers to strike and bargain collectively) or with national diversity (witness the Baltic and Armenian disturbances). Working through these dilemmas is the ultimate test of the success of Glasnost and Perestroika.

What is good for the Soviet Union is also good for its East European allies. As each of these states makes its separate peace with the West and enters into techno-economic bargains with Western governments, banks, and firms, Moscow's hold over them inevitably slips. The narrowly based system of Eastern bloc comparative advantage and division of labor cannot withstand exposure to the rigors of the global market. One can anticipate a further gradual shift in power through pluralistic political and economic reform, partially catalyzed and caused by market mechanisms, to weaken the bureaucratic hold of governmental and party agencies. However, the convergence of Western and Sovietized societal modernization may, indeed, still be an optimistic assumption. Given the pace and effect of current reform efforts in the Soviet Union and the Warsaw bloc, a more plausible case than convergence is some likely mix of command and market elements as the basis for the longterm development of the Soviet political economy.

Western Europe -- In the first generation after World War II, the West European states lacked the means successfully to pursue either autonomous arms acquisition policies or

independently defined global political and economic aims. Beset by decolonization and internal political upheaval, particularly acute in France, and dependent on the US for military protection and assistance as well as for economic recovery, the West European states were captured largely within the orbit of an American-directed global political economy. This did not prevent some, like Britain and France, from attempting to pursue policies of national arms autarky in conventional and nuclear weapons. But even these efforts depended heavily on outside subsidies of various sorts. Aside from the \$17 billion in Marshall Plan aid received by West European states, France and the United Kingdom were granted, respectively, over \$4 billion and \$2 billion in military financial assistance and materiel in the first decade after the war.⁵⁰ At the height of the Indo-China war, half of the French military procurement budget was assumed by the US treasury.⁵¹

Less well known, however, were the substantial contributions of the United States to the recovery and sustenance of the European arms industry. The reconstruction of Europe's economy was itself an indirect support for the regeneration of national arms industries. The priority assigned by Marshall Plan assistance to capital investment and to expenditures on infrastructure development like electric power, laid the basis for Europe's return to the global arms market place. The Marshall Plan also required the European states to coordinate their national plans in utilizing aid,⁵² thus promoting the conception of Europe as an integrated economic entity. The European Steel and Coal Community, the Common Market, and Euratom were logical extensions of this process. A united Europe, economically and politically, was viewed by Washington as essential for the successful conduct of the Cold War even at the expense of liberal trading principles with the creation of a regional economic bloc based on community preference.⁵³ Less well publicized as a boost for West European arms firms were several billions of dollars of U. S. off-shore purchases in the 1950s, including machine tools, as a response to NATO commitments. France's Dassault, for example, built 225 fighter aircraft, paid for by US government contracts on behalf of the French air force. Later copies of these aircraft were sold to India and Israel for the benefit of the French arms industry. The know-how, design, experience, tooling materials, and foreign sales derived from these contracts directly contributed to the development of the commercially successful Mirage series and to Dassault's emergence as an international producer of advanced fighter aircraft.⁵⁴

The role of the market in European arms development differed from that of either superpower. Whereas the United States and the Soviet Union could support indigenous and autonomous weapons industries through national markets, the West European states had to rely heavily on collaborative arrangements to lay the foundation for their arms industries. The French, purportedly the most nationalistic of European states, actually entered into more NATO and bilateral European weapons programs than any other European state in the 1960s and 1970s, although continuing to compete nationally with certain of these collaborative projects.⁵⁵ Inter-European weapons cooperation became a sine qua non for the major European arms producers to share R and D costs and to assure sufficient weapons orders from cooperating states' armed forces. Such purchases also became a significant factor in commercializing European arms sales worldwide.

US and inter-allied technology has been transmitted mutually along these transnational networks or, as in the case of the F-16, as part of the terms of sale. As the European economies prospered and, consequently, their bargaining leverage increased, NATO states preferred licensed production and access to new technology over straightforward arms purchases or offset compensations for buying abroad. Strengthening industrial and technological bases through these exchange agreements -- more barter than financial arrangements -- was understood as vital in improving competitiveness.⁵⁶ In co-developing the Tornado aircraft, Germany, Italy, and the United Kingdom negotiated a set of delicately balanced offset arrangements to ensure adequate and equitable levels of work for their airframe, engine, and electronics firms, despite the higher total cost to the program. Rolls Royce licensed German and Italian firms to coproduce the RB-119 engine, and Germany transferred some of its 42.5% developmental share to the United Kingdom in order to gain London's consent for the purchase of US over British radar for the "European fighter."⁵⁷

Until recently the global market for arms has played a far greater role in European arms production than for the United States. Commercial interests have tended to predominate over security concerns in arms transfers. Among the major European producers, moreover, the mix of nation-state and market reliance has varied. At one end is France which, with the end of the Algerian War and the final liquidation of its overseas empire, adopted a strategic policy based on nuclear weapons and the subordination of conventional forces to its nuclear

strategy.⁵⁸ To sustain an advanced weapons industry and to equip its conventional forces through indigenous production, an open door arms sales policy — ventes tout azimuts — was pursued to serve both strategic and techno-economic aims. Through most of the 1960s and 1970s, France enjoyed a comparative advantage in the arms trade relative to its European allies. Its weapons were affordable and battle-tested; Israeli Mirages ruled the skies in the Six Day War. US preoccupation with the Vietnam War coupled with rising demand for weapons by the newly independent developing states, especially oil-rich states enjoying windfall profits from rapidly rising oil prices, spurred France's arms exports. Created was a global network for arms and military technology transfers, centered in the Ministry of Defense, and led by a special corps of military engineers, dedicated to making and, increasingly, to marketing arms.

France also profited from the failure of its European allies to contest its aggressive sales effort. The United Kingdom attempted to sustain an independent and autonomous arms industry after World War II, developing nuclear weapons and a long-range V-bomber force comparable to US capabilities in the 1950s.⁵⁹ However, its relatively shallow and narrow economic and techno-scientific base was unable to sustain this effort. The British decision to base its national strategic policy on American-derived nuclear delivery systems and to limit severely its overseas commitments in the decades after Suez, led to a radical change in its security and economic posture.⁶⁰ Britain maintained relatively high cost indigenous weapons production in ground, naval, and air systems, but progressively consolidated production facilities through mergers. In contrast to Gaullist France, London, especially under Labor governments, delayed expanding production to meet overseas sales markets, but moved to recoup for lost time with the establishment of the Defence Sales Organisation in the late 1960s, whose mandate was expanded and spurred by successive Thatcher governments.⁶¹

West Germany was precluded from developing nuclear arms. It was also bound by constitutional and legal restrictions in producing and marketing conventional weapons, as well as by obligations undertaken by Bonn in entering the Western European Union and NATO in 1955. West Germany initially concentrated on rebuilding its arms industry through allied collaborative accords rather than on filling global market demand through exclusively nationally produced weapons. In the process, and to circumvent restrictions, the Federal Republic established Europe's widest network of overseas licensed production agreements.⁶²

Italy's weapons base also was too small in the early postwar period to challenge France as Europe's weapons leader. In view of US, British, and French NATO market dominance, Italian firms concentrated on developing niches in the arms market, particularly in the Third World, suited to their capability and to the modest international aspirations of the Italian state. Apart from specialized shipbuilding, Italy ultimately established, in conjunction with European Community partners, a considerable stake in high technology systems such as aircraft and helicopters, and in joint ventures with aspiring Third World producers such as Brazil.⁶³ Other European arms manufacturing states, such as Sweden suffered for their neutral status outside the Western bloc. Notwithstanding, they persevered for national defense and economic reasons in developing a wide spectrum of military systems, including high performance fighter aircraft and artillery (note the billion dollar contract of Sweden's Bofors with India), to meet the domestic consumption of its armed forces and to exploit foreign sales.

The basic dilemmas, then, of the European arms economy emerge from a review of the contrasting strategies pursued by each state in producing weapons. Those in the "NATO club" have maintained design and production capabilities and access to a joint market for advanced weapons systems, but at the price of arms dependencies and mutual collaborative constraints on national discretion in selling arms. Those not in the club have struggled to remain competitive in high technology systems, and enjoy a somewhat unique, less aligned appeal in the Third World.⁶⁴ France, for one, has tried, somewhat successfully, to obtain the benefits of both qualified club membership and a free-lance role. Lately, though, the security environment has shifted again, making choices among autarky, collaboration, or foreign supply even more difficult. The threat of major power war in Europe has receded, intensifying an already growing criticism of military spending and US dominance and spurring advanced technology programs, like EUREKA, to meet U.S. and Japanese competitors. Meanwhile, relatively high unemployment persists amidst slumping Third World arms sales. Concerns for order and military security, thus, have taken second place to concerns about technological competition and welfare. The lure of military production is still there, but it is likely that strategies chosen will focus more than ever on building Euro-technology rather than on strengthening ties directly to NATO (with its concomitant demands such as weapon "standardization and interoperability").

Such decisional problems become even more complicated in view of European Community pressure for technological modernization in the Single European Act (1992). Primary defense coordination agencies (NATO, Western European Union) do not entirely correspond in membership to the EC, or, in the case of national bureaucracies, they are often at odds with EC organs (Commission and Parliament).⁶⁵ Therefore, defense manufacturing collaboration is likely to remain an ad hoc affair, and to include partners outside the EC, at least until the Euro-governance problem is resolved.

Developing states -- It comes as no surprise that developing states' arms production and sales can be explained in terms of the systemic imperatives also underlying developed states' policies. In addition, developing states have intense needs to obtain and absorb advanced technology, and are highly sensitive to arms dependencies. Thus, while the mix of motives and interests shaping their responses to nation-state and the market incentives reflects their unique circumstances, their reactions are no less directed by the systemic imperatives of order and welfare and their preferred status and influence over outcomes within each emergent global regime than developed states.

Two flawed conceptual assumptions underlie much of the analysis of Third World arms production and sales. The first is the often narrow conception of security applied to a state's arms production capacity. Since there apparently exists no immediate external threat to Brazilian security, many analysts attribute its arms sales almost exclusively to commercial motivation.⁶⁶ The analyst discovers, axiomatically, what he assumes that he will find. A broader systemic understanding of nation-state incentives and rules leads, however, to a different conclusion. A state's or regime's physical security, while of obvious critical importance, is not the sole or even preoccupying security concern. National leaders, especially of major states, also attend to real and perceived threats posed by the international power structure and distribution of capabilities. For aspiring Third World leaders, keeping pace militarily and technologically with other military powers, and opening economic niches require harnessing the nation's modernization process itself to the requirements of nation-state power.⁶⁷ That national leaders may be misguided or ill-advised is beside the point. Their images of what is important to them and their states (even in finding employment for university trained personnel who might otherwise organize political opposition) is what counts. It is important but hardly decisive for them to be shown that a priority assigned

military spending may inhibit techno-economic growth. As the behavior of the great powers and of those, like Brazil and India, aspiring to this status, evidences, state leaders are concerned about the real and perceived threats and status requirements posed by the structure of international power and the distribution of capabilities and, conversely, about the ability of the state to influence the global structure of power in preferred ways as well as to define the terms and outcomes of those instances of state cooperation and conflict of particular interest.

The distinction between general and specific threats also helps to harmonize currently contrasting explanations of Brazilian, Chinese, Indian, and Israeli arms production and sales.⁶⁸ It has been observed, for instance, that the Indian military still campaigns for the purchase of high quality foreign weapons even at the expense of the Indian government's interest in nurturing domestic arms production technology. Indeed, the Indian Defence Ministry recently has announced plans to increase exports of India's own arms products in order to pay for the import of needed high technology weapons. China, on the other hand, appears intent on "reverse engineering," whereby foreign weapon prototypes are replicated, improved, and exported by domestic production facilities. Thus, China has come to rely on foreign markets to perfect its new weapons designs.⁶⁹ What accounts for these varying arms acquisition patterns by ambitious developing states?

Speculation might center on the nature of perceived broad and specific security and welfare threats and incentives. India, for example, with relatively recent war experiences and recollection of arms supply embargoes in the 1960s, responds heavily to Pakistani and Chinese armament levels, which in turn are driven by Western arms and technology transfers. Delhi also exhibits general ambitions for influence in the Indian Ocean and South Asian theaters as well as concerns about domestic order. To compete with a specific adversary, and perhaps also because of historical relationships and bureaucratically derived delays in domestic arms production, the Indian military evidently trusts and prefers the purchase of major, sophisticated weapons from foreign sources, most especially the Soviet Union.

China also has recent war experience and a generation-long revolutionary tradition of partial weapons autarky, but with unhappy experiences at the hands of traditional arms suppliers such as the Soviet Union. The role of the Chinese armed forces in arms

procurement may be far different than that of India, and rather than focussing on a particular enemy, Beijing evidently responds to a broad range of immediate and long term security concerns, ranging from a superpower on one border to internal dissent and ethnic unrest in distant provinces or to distrustful neighbors to the south and west. India until recently seems to have emphasized acquisition of technology primarily to build its own power base and military readiness; China emerged from relative political isolation to mount a determined effort both to develop technologically and to market that technology to others. The full answer to the intriguing question of what factors explain these contrasting arms acquisition policies probably resides in more comprehensive analyses of perceived threat by the leadership of these states, the differential need for export revenue and technology transfers as well as widely different resource and funding bases, bureaucratic structures, and historical experiences.

Clearly, though, as Patrick Morgan's analysis has shown,⁷⁰ general threats to a government's sense of proper order can be as compelling as those associated with a particular threat to a nation's security in orienting a nation's security policies, associated welfare strategies, and arms production and import-export policies. It is precisely the growing military and techno-economic interdependence of states that drives the search for weapons autonomy in two important senses. On one hand, weapons are insurance against an uncertain future. If no immediate military or political threat, as such, can be identified, it does not follow that in the long-run a state will not be directly menaced or, conversely, that it will always have the means to insulate itself from threats arising from global, regional, or domestic sources.⁷¹ On the other hand, weapons also can, and are perceived to, generate short-term benefits for a regime in its bargaining in international or domestic politics, albeit with probably under-valued opportunity costs, especially to economic development. For example, Brazil's development of a competitive arms industry, dependent on global market access to technology and on the sale of arms and know-how, was already anticipated in France's post-war reaction to superpower strategic-political and techno-economic hegemony. For Brazilian leaders, as for French, it was not simply an issue of seeking autonomy to prevent other nations from chocking off "arms supplies in order to get [a state] to alter its behavior"⁷²-- a key factor explaining the arms policies of developing states according to most

analysts -- but a matter of gaining autonomy to improve their perceived international status and bargaining position as well as national welfare and popular support.

The history of Brazil's EMBRAER, its major aircraft industry, underscores this mix of nation-state and market motives.⁷³ It was launched through state initiative despite discouraging estimates of high risk and opportunity cost in entering an intensely competitive market dominated by the United States and Europe. EMBRAER, and the Brazilian aircraft industry generally, were not expected to make a profit, but to lay the basis for Brazil's entry into advanced technology markets. Economic growth was subordinated to long-term, at least semi-autonomous development of civilian/military aircraft technology, at the expense of immediate consumption or potentially more profitable investment areas. EMBRAER's strategy was keyed to three principles: to master appropriate and extant technological processes associated with aircraft production; to cooperate with foreign firms (principally US and Italian) to gain access to needed know-how; and to concentrate on projects which promised spin-offs beneficial to the aircraft industry and to the Brazilian economy.

Brazil's strategy produced several successful aircraft. The Bandeirante was exported worldwide as a military cargo and civilian transport. The Xingu and Tucano, sold respectively to France and Britain, provided additional evidence of Brazil's ability to penetrate the markets even of advanced industrial states. In customizing products to buyer needs, Brazilians exploited niches in world markets unattractive to major producers. Successes have spawned three new projects, including Brazil's first exclusively military aircraft, the AMX, designed with the help of Italy's Aeromachi for ground strike missions. The Brazilian effort to establish an indigenous but globally viable aeronautics industry "should not be mistaken," as two analysts observe, "for a civilian enterprise or business which appeared for economic reasons It should be more properly understood as an element of the Brazilian bid for major power status, part of a long range strategic rationale . . . EMBRAER's successes stem from its integrated business strategy that coordinates necessities and capabilities on commercial, industrial and specially technological levels. Its technological development is the single most critical element of this strategy ."⁷⁴

Most other major arms producers in the developing world share Brazil's technological and commercial aspirations to some extent, but would appear, as well, to fit the

more classical model of countries which make arms to support strategic and diplomatic objectives, and to avoid dependencies. India, concerned about arms embargoes since its experience with Western suppliers during the 1966 Indo-Pakistani war, has pursued a somewhat more autarkic and protected arms economy than Brazil's, in selling arms and technology abroad. Thus, less than 10 percent of Indian military production has been exported, while over 90 percent of Brazilian production is aimed at the international market. Because of the difficulties and delays in bringing indigenous Indian equipment on line, as well as a largely state-run heavy industry somewhat insulated from foreign investment, new licensing and export oriented policies are designed to facilitate importation of the latest technologies. India had been able to use its nonaligned status to gain access to both East and West weapons technology. Its nuclear program has been substantially aided by technical and material assistance from the United States, Canada, and West Europe; its conventional weapons and aerospace industries similarly enjoyed Western help (largely British and French) and substantial favor from the Soviet Union, which permitted India licenses to co-produce weapons not granted even to Warsaw Pact states.⁷⁵ Between 1971-85, India held 15 licenses for major arms systems from four states, more than any other state.⁷⁶

Israel, also concerned about dependency in warfare, has a growing defense industry owing much to foreign licensing contracts, especially from France in its early period and the United States more recently, as well as direct aid from Washington. France's boycott of sales to Israel in the aftermath of the Six Day War in 1967 subsequently spurred efforts to make Israel's arms production industry as independent as possible. While in no way mitigating its dependency on foreign technology, particularly for key component parts, Israel, like other the major Third World arms producers, has developed considerable arms autonomy through barter and exchange relations with developed and developing states. Arguably the most immediately vulnerable to security threats of the major arms producers among developing states, and subject in the past to arms resupply delays (1973), Israel is now able to meet forty percent of its requirements through domestic manufacture. In some studies, it had reached sixth rank by 1986 in arms exports, overtaking Brazil. Its growing autonomy provides it with a local surge capacity to meet urgent and unforeseen ammunition and spare part needs, to design weapons unavailable elsewhere, to insulate itself in several key weapons categories (e.g. tactical missiles) from boycotts and embargoes, and to generate needed foreign

exchange through exports. Like other arms producers in the southern hemisphere, Israel has also relaxed costs to its trading position through import substitution policies that lower balance of payment and reserve deficiencies.⁷⁷

However, as Third World states enter the big leagues of weapons production and sales, they become subject to the same market forces which hinder economic growth in the rest of the industrialized world. In particular, the Israeli arms industry now appears to be fighting for its life amidst shrinking world markets (in Israel's case including reduced export prospects to Iran, Central America, and South Africa), the decline of the dollar's value, defense budgetary constraints, and rising foreign competition, including suppliers capable of furnishing materials for Israel's defense needs at cheaper cost than Israeli firms.⁷⁸ These constraints, however, have not precluded Israel from using its defense expenditures and arms industry to promote domestic welfare through weapons production and exports.⁷⁹ In any event, the arms exports of states, such as Israel and China, are seen to enhance their nation-state importance. In the five year period from 1981-1985, China and Israel reportedly exported, respectively, \$6.0 and \$1.5 billion in constant 1984 dollars in arms.⁸⁰ As China's missile sales to Iran and Saudi Arabia or Israel's arms supply to South Africa suggest, the great powers cannot ignore either state if they seek to control the arms trade, regional conflicts, or military technology. Close attention to both nation-state interests and market success enhances these developing states' bargaining leverage, although the market can work to limit their leverage as well.

2. Current Cross-National Patterns of Making and Marketing Arms

Several important implications arise for the global political economy by generalizing across the behavior and strategies pursued by states in acquiring and selling arms and military technology. First, neither the paradigm and postulates associated with strategic-diplomatic nation-state behavior nor with developmental or dependency theories of the market fully explain the international arms economy. Superpower policies since World War II have reflected both paradigms, as both powers sought autonomy in promoting their preferred notions of order and welfare. The United States has come closest to achieving its strategic and political-economic goals of national independence in providing for its own arms, of maintaining a global security system and, for a generation after World War II, of dominating

global markets, the latter circumstance providing the wherewithal to meet military and domestic welfare needs. Ironically, heavy reliance on military markets, while producing unprecedented amounts of economic goods and services, also has contributed but by no means is the sole factor explaining the relative decline in US competitiveness. What one analyst has aptly characterized as the hegemon's dilemma, the very success of the United States in promoting a liberal economic regime and the globalization of markets in guaranteeing the security of this regime has, ironically, and perhaps inevitably, eroded its hegemonic status.⁸¹

The Soviet Union also has achieved a level of weapons autonomy, largely premised on priorities of security and order over welfare as immediate objectives. It has, however, sacrificed higher rates of techno-economic growth for itself and its partners. Reliance on military capabilities to sustain its superpower claims has created its own dilemma. In failing to avail itself of the efficiencies of the market place in allocating productive investments and in distributing wealth, Moscow has undermined its long-term military prowess. Indeed, neither superpower has sufficient military power to impose its strategic and political preferences on its adversary, and both have experienced sobering difficulties in the Third World (viz., the US in Vietnam and the USSR in Afghanistan).

As for their European partners, an eroding US dominance is premised on consent, rather than command, in the Atlantic community. As Gaullist France's withdrawal from NATO joint command structure symbolizes, consensual leadership is highly contingent and narrowly conditional. Put another way, NATO applies only to Europe, not elsewhere; and even in Europe the US does not have a free hand. If Glasnost and Perestroika are carried to their logical conclusions, as noted earlier, the Soviet Union's military and economic hold on its Warsaw pact partners also must inevitably slip and, correspondingly, the legitimacy of the Communist governments in East Europe must inevitably erode, as the reform efforts in Poland and Hungary suggest. Whether either superpower will be able to exploit its opponent's weakness within its sphere of influence is an open question. What is certain, however, is that the incentive to capitalize on these opportunities have never been stronger in the postwar period.

Correspondingly, incentive for a Euro-wide political economy are growing in both East and West. Autonomy, as a strategic or techno-economic ideal, has proven no less illusory for Western Europe than for the East. In stressing foreign policy harmonization as well as a unified market and the free flow of capital goods, technology, and, with reservations, labor within the Community, the Single European Act of 1992 reaffirms a succession of key decisions, dating back to the Marshall Plan, in the construction of a more closely cooperating (if not fully unified) Europe. In arms production, where security and welfare constraints conflict, Europeans have been less consistent and more nationally reserved, an illustration of the fundamental tension between the requirements of national and market imperatives as well as the competing needs of national security and diplomatic influence and welfare. Dependency on the United States for security and on arms development has impeded a European arms strategy to complement the evolution of the European Community. European governments' wavering choice between the US and other European states in weapons collaboration and purchases underlines the point that, singly or in combination, European states are only semi-independent or, alternatively, increasingly interdependent in weapons development.

West Europeans have relied heavily on collaboration to sustain their military-industrial-scientific-technological systems (MISTS). Foreign support is sought not only for specific weapons projects but also for national organizational structures themselves and for their continuing technological advancement. These organizational structures, while indigenously based, depend critically on external technological know-how and on guaranteed markets among collaborating states. The cost of weapons research and development and the high unit costs of exclusively national production, in the absence of available global marketing outlets, generate strong incentives to cooperate. This is so despite inevitably higher average costs of multinational versus national programs.⁸² Thus, the market drives a major portion of Euro-defense production, although individual states seek general political autonomy in arms production as well.

A critical test of Community integration will be the degree that members coordinate their overlapping and partially conflicting national arms production strategies. Political costs in eliminating multinational collaboration have not escaped the attention of national MIST leaders, as they are under increasing pressure to relax their innate opposition to any

weakening of national control. Foreign dependency on cross-national arrangements and market dynamics are traded for greater domestic bureaucratic autonomy -- and political survival.⁸³ At the same time, however, spirited sales competition among European suppliers is still the norm in their dealings with Third World customers.⁸⁴

The Janus-quality of Western allied security and techno-economic relations in making and marketing arms -- ostensible autonomy paralleled by operational interdependence and only partial independence -- is reflected in composition of European missile projects since World War II. As Table 2 indicates, the number of exclusively national programs has not appreciably increased in over forty years, hovering between a low of 15 between 1946-59 and a high of 18 between 1970-79. Meanwhile, foreign participation in the form of major sub-systems from a foreign supplier or formal international programs, has increased discernibly in each period, rising steadily from six in the first period to 31 between 1980 and 1987. Initially, these collaborative arrangements were exclusively between the US and NATO Europe. They subsequently enlarged to include solely NATO European projects (e.g. Franco-German cooperation in Euromissile), and by the 1980s, Third World states were as active as the US in European missile projects. Thus, arms production follows a general international economic pattern in which assembly increasingly takes place multinationally. Here the search for markets and response to offset demands combine with cheaper wage rates and regional security interests in parcelling out the work load.

The developing world's dependence on arms and military technology from the developed world is obviously even more acute than the relationship between West Europe and the United States. On the other hand, Third World states are increasingly unwilling to purchase arms outright. Neither the pursuit of nation-state nor market autonomy are well served by so one-sided a dependency. In creating indigenous MISTs, developing states rely on devices similar to those employed by developed states -- licenses, offsets, counter-trade, coproduction agreements, and sub-contracts. Between 1971 and 1985, a SIPRI study cites 90 license agreements involving 21 nations.⁸⁵ These accords transmit know-how among states and form an intricate webbing of MIST relations. Such a structure can be conceived as progressively independent of the national state settings which initially created and sustained them. Within their national settings, MISTs represent the most advanced and some of the best funded elements of national modernization efforts. Like their counterparts in the

Table 2

EUROPEAN MISSILE PROJECTS

	<u>1946-59</u>	<u>1960-69</u>	<u>1970-79</u>	<u>1980-87</u>
National Projects	15	19	18	16
Foreign Participation*	6	11	21	31
TOTAL	21	30	39	47

*Major sub-system from a foreign supplier, or formal international program.

Source: Rand Corporation Report, 1988.

developed states, they are staffed by the "best and brightest" scientific, technical, and military personnel, with access to the highest levels of governmental influence.

The strategies pursued by developing states in building their military technological and scientific base and in acquiring know-how from abroad have paid dividends. By the mid-1980s, 52 LDCs were capable at some level of military production. Compared to the period between 1960 and 1980, this enhanced capability is remarkable.⁸⁶ In 1960, seven states were able to produce 15 aircraft models; twenty years later, the ratio stood at 18 to 67. Similar trends are discernible for naval vessels, ground equipment, and tactical missiles. Parallel with the growth of MISTs in the developing world, though due mostly to imports, these states' arms inventories also have grown in size and sophistication. In 1950, almost no LDC possessed advanced military systems. By 1985, 55 states had acquired supersonic aircraft; 71, tactical missiles; 107, armored fighting vehicles; and 81, modern warships.⁸⁷

This progress should not obscure the two-tier techno-scientific hierarchy that has crystallized between the developed and the developing world. The superpowers and the West European states have been able to maintain their lead in developing big ticket, advanced military systems. These include all forms of nuclear strategic systems, including platforms and launch vehicles. The diverse airframe, jet engine, and electronics technologies associated with modern fighter aircraft also escape the capabilities of most developing states, and even tax the resources of developed states, as in Europe. Between 1977 and 1983, the United States annually expended approximately three times more than the European Community states on military R and D.⁸⁸ The developing states are hopelessly outspent in this area, and will have to rely for some time on external technology transfers to remain competitive. In the case of Brazil's aircraft industry or Israel's Gabriel sea-to-sea missile (over \$1 billion in orders by 1986),⁸⁹ marketing success is attributable to exploitation of market segments overlooked or neglected by developed states. In addition to specialized designs, as for desert warfare, Brazil has utilized a "keep it simple, keep it cheap" approach to its infantry equipment.

While this techno-scientific hierarchy and relative shares of the global arms market seem likely to persist for the foreseeable future,⁹⁰ the lethality of developing states' weapons, and their impact on regional conflicts, should not be underestimated. Nor should their

increasing technical ability to develop nuclear, chemical, or biological weapons, or to reproduce and expand upon other states' weapon designs be dismissed as unimportant.⁹¹ There is no clear and automatic correspondence between the economic and strategic value and significance of a state's arms exports. The international conference held in Paris in early 1989 on chemical weapons, highlighted by the U.S. diplomatic offensive against a Libyan chemical plant and German technical assistance in its construction, underscored the widening production and transfer capabilities of developing states in lethal technologies and substances. At the same time, depending upon the global debt situation, high price tags on many advanced weapon systems could cut, at least periodically, either the number of weapons transferred or the total value of sales by major powers in Third World markets.

As the costs of supporting MISTS and national arms production have risen, most arms producers have increasingly emphasized the commercialization of their arms, services, and know-how to sustain their national efforts. Despite somewhat shrinking international markets, this trend has been unabated in the 1980s. The Reagan administration repudiated Carter era restrictions on US military sales, and shifted sales away from government initiatives in two ways. First, sales greater than \$100 million no longer must be negotiated officially through the Foreign Military Sales (FMS) system. This means that while sales volume increased, transactions were handled increasingly on an industry-to-industry, or industry-to-government basis rather than through Pentagon (and potentially resistant Congressional) channels. Between 1982 and 1988, FMS sales, largely attributable to three major contracts of F-16s to Belgium, F-18s to Spain, and Trident to the Britain, fell from 72 percent of the total of arms sales to 52 percent.⁹² Second, this shift to industrial initiative has also assisted in increasing sales of subsystems and components rather than complete weapon systems.

West European governments also have pursued more aggressive arms commercialization. France, Europe's leader in "banalizing" the sale of military equipment and technology, did not slacken its pace under the Socialist government of François Mitterrand, although the Socialists had campaigned on a platform of "moralizing" arms sales. Even as President Mitterrand was being inaugurated, the Saudi government was being assured through the good offices of the President's brother, an Air Force general, that arms contracts with Riyadh would be honored.⁹³ Charles Hernu, the first Socialist Minister of

Defense of the Fifth Republic, reaffirmed his commitment to global arms marketing and use of the arms industry to promote full employment and to spur France's technological development:

People forget that the defense minister is not only responsible for military personnel. Out of 720,000 people who work for the Defense Ministry, there are 143,000 civilians and 90,000 arsenal workers. In addition, there are the armaments enterprises [Aérospatiale], Thomson-CSF, Dassault, Renault . . . Panhard . . . [which] employ 300,000 workers and engineers. As for subcontracting, do you know how many it employs? One million! . . .

I would like to remind you of the arms industries' contribution to research. Do you know that we are the envy of the Americans in the sphere of lasers, carbon fibers, and the detection of submarines and nuclear weapons?⁹⁴

France's principal European competitors -- Britain, West Germany, and Italy -- likewise have relaxed previous governmental controls on arms export.⁹⁵ The British of Defence Ministry has been encouraged to follow the French example, and succeeded richly in 1988 with a multibillion dollar Saudi contract for Tornado aircraft and other advanced military systems.⁹⁶ In 1985, the United Kingdom booked \$6.5 billion in new arms orders, dwarfing all other Western states, including the United States.⁹⁷ Since 1982, the West German government has eased its arms export restrictions, so that no major West European arms supplier any longer formally bans sales to regions at war or where tensions are high and volatile.⁹⁸ All, with France in the lead, have supplied arms and equipment to parties on both sides of the Iran-Iraq war. Despite continued legal controls or restrictions, and with renewed promises to enforce them, sales now extend to chemical weapons and the construction of plants around the world capable of building them.

In three of the eight years between 1978 and 1985, the four major West European states have delivered in value more arms and have signed contracts for more arms exports than the United States.⁹⁹ In 1984, as Brzoska and Ohlson report, France exported 50 percent of its arms production; Britain, 42 percent; West Germany, 20 percent; and Italy, 70 percent.¹⁰⁰ Now smaller Europeans producers are entering global arms markets. Spain

delivered arms to 37 developing countries between 1970 and 1986, and the Netherlands has contracts with 22.¹⁰¹

Less visible, but at least as significant in monetary and lethal value, are Soviet and Warsaw Pact arms and technology sales. If strategic and political imperatives still are the principal East bloc arms transfer motives, an increasing demand for foreign exchange currency is, as one recent study concludes, "incontestably the most important economic factor explaining Soviet arms sales."¹⁰² A 1982 CIA report concludes that over 85 percent of Soviet arms deliveries in the 1980s have been paid in hard currency, a rise from around 50 percent in the early 1970s.¹⁰³ Arms sales provide Moscow more hard currency than gold exports, and about 40 percent as much as the sale of oil and natural gas. Between 1981 and 1986, the value of Soviet arms deliveries to the Third World averaged \$16-17 billion in constant 1987 dollars, or approximately 40 percent of all supplier sales to the developing world.¹⁰⁴ East European regimes, principally Czechoslovakia and Poland, accounted for an additional \$3 billion during this period.¹⁰⁵ The East bloc's 40-50 percent share of the Third World arms market does not appear to be as immediately threatened as that of the Western states. Whereas orders lagged for the latter group of states -- down by approximately 50 percent to a low of \$12 billion in constant 1987 dollars for 1986 and 1987 the Soviet Union, generally offering better credit terms, actually increased its market share in these two years.¹⁰⁶

The developing world also has stepped up commercial sales efforts. Until now, they have not been able to break the hold over the world arms market held by the developed states. A SIPRI study calculates that these states accounted for only 3 percent of sales in the period 1980-84.¹⁰⁷ A figure between five and nine percent appears to be closer to the mark. US government figures note that between 1980 and 1987, China alone controlled 3.75 percent of all sales contracts and about 3 percent of all deliveries. It also broke with prevailing arms supplier restraints in selling medium-range missiles to Iran and Saudi Arabia, suggesting an aggressive sales promotion policy as well as a determination to become a major military power and, by that token, an alternate arms supplier to the developing world in the next century. In the 1980s, China ranked fifth in arms deliveries and agreements.¹⁰⁸ As noted, states such as Brazil and Israel also have captured important corners of the market, what the French prefer to call créneaux. They are not likely to abandon their commercialization efforts

in the future since they are integral parts of their long-term trade and security strategies. An elusive autonomy may be the long-run aim and rationalization of their arms sales policies; enhancing national power, balance of payments, and employment is the short-term marginal motive, not unlike the pattern of larger suppliers.

Not surprisingly, the increased commercialization of arms sales and military know-how has reinforced a trend toward the multilateralization of arms supplies. One can define supplier relationships as sole, dominant, or multiple according to whether a supplier furnished over 96, 55-95, or less than 55 percent of the arms to another state. Since the 1960s, the height of the decolonization period, there has been a discernible shift toward multiple supplier, and away from sole or dominant, relationships. In two time periods, 1964-73 and 1976-80, sole supplier dyads dropped from 26 to 16 states (most confined to the Communist bloc), and from 61 to 49 in the dominant grouping. In the same periods, multiple supplier relationships rose from 29 out of 132 recipient states to 62 out of 142 states.¹⁰⁹ The combined superpower share of the developing world market fell from over 80 percent between 1966-75 to less than 70 percent thereafter, reaching its lowest ebb in 1984 at less than 54 percent. Thanks to a 10 percent rise in Soviet market share deliveries between 1985 and 1987, the superpower share rose to 72 percent in 1987,¹¹⁰ but it is not at all clear, in light of high costs and worries about high technology transfers, that this level can be sustained. In any case, supplier duopoly has given way ineluctably to oligopoly.

Conclusion

The behavior of states in making and marketing arms does not square either with the explanatory power of narrow realist assumptions or those of market theorists. States are acutely aware that their bargaining power depends on their acquisition of arms and lethal technologies and on their capacity for indigenous production of implements of war. They are no less aware of the increasing problematic utility of these weapons as a function of this very diffusion of arms and arms production capabilities throughout the international system. Similarly, they are alert to the dilemma posed by the constraints of command economies or practices in controlling markets with respect to the efficient and effective production of goods and services. No less are they aware -- witness Soviet reform efforts -- of the relentless process of redistribution of techno-scientific and economic capabilities by market

mechanisms among states, capabilities which are the basis for military power, the bargaining lever traditionally used by states to shape international environment to suit their preferred conceptions of order and now to meet their welfare needs.

A realist theory of international relations falls short of explaining the political-economic policies of arms producing and selling practices of developed or developing states. To be relevant again, this traditional approach must incorporate a theory of the market, driven by order and welfare imperatives, into its order and power considerations. The very distribution of modern weapons and their diffusion to states around the globe and even to non-governmental bodies enlarge the scope of state bargaining over differences associated with order and welfare issues. Military force or the threat to resort to violence still frames negotiations but more as a deterrent, precluding easy resort to this traditional arbiter, than as a mechanism within the easy reach of states to impose their preferences of adversaries and, faute de mieux, even allies who cannot otherwise protect themselves against a common opponent.

Since a state's long-term power and its capacity to meet internal welfare demands depend increasingly on its competitiveness in world markets, the terms of economic exchange are then essentially transformed into a power struggle no less decisive in the long-run in defining the hierarchy of states than tests of battle. Techno-economic conflict becomes a surrogate for war viewed as politics by other means, while high technology becomes the hope for economic revitalization as well (viz., Europe in 1992). This struggle goes beyond the mere use of economic capabilities for political ends, what is currently understood as economic statecraft. Welfare now refers to a state's very techno-economic strength and its ability to meet its population's welfare needs as well as the challenges (military and economic) of other states. Just as the destructive nature of modern weapons shifts the bargaining process to the manipulation of threats and the definition of inevitably tenuous arms control arrangements (since an exchange of hostilities is too costly) so also the techno-economic conflict proceeds increasingly in pursuit of some agreed upon rules of market behavior to insure tolerable levels of international order and welfare, judged acceptable and legitimate both by national governments and their populations.

Once theory building is based on the mixed motives of order and welfare, the challenging task of measuring the variable impact of these imperatives on the aims and the strategies of specific states can be pursued without excluding either systemic factor from consideration.¹¹¹ A better understanding of the strategic and economic priorities explaining state behavior is a precondition for contriving or engineering acceptable adjustments among states to meet their competing security and welfare aims and interests. These adjustments will have to be made as a consequence of nation-state compromises or as the accepted outcome of market forces, ratified by national leaders and their populations. The hegemonic solutions of order and welfare, imposed by the superpowers on their clients and allies in the postwar period either by force or consensually accepted by them for lack of feasible alternatives, now recede progressively in force and attractiveness, even to the superpower themselves.

This latter circumstance can be partially explained itself as the gradual adjustment of the superpowers to the diffusion of military and economic capabilities in the world environment.¹¹² What is not clear is whether this incessant adjustment process can be contained at a level of order below the eruption of potentially catastrophic hostilities and yet be responsive either to demands for greater measures of welfare by populations everywhere or to associated calls for more democratization (e.g. China). The ceaseless pursuit of making and marketing arms and lethal technologies raises, not resolves, these uncertainties. But if progress is to be made either in explaining state behavior or in fashioning policy instruments to regulate the struggle for power and welfare, realists assumptions that differentiate the theory of the state from the market as well as order from welfare will have to be revised to integrate these domains within a common conceptual framework. The domain of making and marketing arms, as the discussion above suggests, is a useful laboratory to delineate the properties of sound theory building and relevant policymaking viewed both from a national and from an international perspective.

FOOTNOTES

¹ For general reviews of the arms production capacity of developed and developing states, consult Stephanie G. Neuman, ed., Defense Planning in Less Industrialized States (Lexington: Lexington Books, 1984); *idem*, "International Stratification and Third World Military Industries" International Organization, XXXVIII, No. 1 (Winter 1984), 167-197; James E. Katz, ed., Arms Production in Developing Countries: An Analysis of Decision Making (Lexington: Lexington Books, 1984); *idem*, Sowing the Dragon's Teeth: The Implications of Third World Military Industrialization (Lexington: Lexington Books, 1986); Milton Leitenberg and Nicole Ball, eds., The Structure of the Defence Industry (London: Croom Helm, 1982); and Michael Brzoska and Thomas Ohlson, eds., Arms Production in the Third World (London: Taylor and Francis, 1986); Pauline Creasey and Simon May, eds., The European Armaments Market and Procurement Cooperation (New York: St. Martin's Press, 1988). See also the bibliographical materials compiled by Nicole Ball in Stephanie G. Neuman and Robert E. Harkavy, eds., Arms Transfers in the Modern World (New York: Praeger, 1980), pp. 323-361 and Goran Lindgren, Bibliography on Economics of Armaments (Uppsala University, October 7, 1988).

² For a review of the enlarging literature on the political economy of arms, see, for example, Goran Lindgren, "Armaments and Economic Performance," in Peace Research: Achievements and Challenges, Peter Wallensteen, ed. (Boulder, Colorado Westview, 1988); Judith Reppy, "On the Economics of National Security," in Security and Arms Control: A Guide to National Policymaking, Edward A. Kolodziej and Patrick M. Morgan, eds. (New York: Greenwood Press, 1989), pp. 73-95; and Christian Schmidt and Frank Blackaby, eds., Peace, Defence and Economic Analysis (London: Macmillan, 1987). A recent effort to incorporate security and economic considerations to explain US motivation in transferring arms, per Gregory Sanjian, Arms Transfers to the Third World: Probability Models of Superpower Decisionmaking (Boulder: Graduate School of International Studies, Monograph Series, University of Denver and Rienner Publishers, 1988). See also his "Great Power Arms Transfers: An Empirical Test of a Fuzzy Decision-Making Model," Paper presented to the Annual Meeting of The Midwest Political Science Association, Chicago, April 1989.

³ The burgeoning literature on political economy slights arms production and sales, yet it is precisely this sector of a state's political-economic behavior where its security and welfare concerns most directly intersect. An early work which was sensitive to these concerns is Robert Gilpin, France in the Age of the Scientific State (Princeton: Princeton University Press, 1968). For a comprehensive review of the field of political economy, also see Robert Gilpin, The Political Economy of International Relations (Princeton: Princeton University Press, 1987) and the extensive bibliography, pp. 409-435.

⁴ Herbert A. Simon, Administrative Behavior (New York: Free Press, 1976, 3rd ed.).

⁵ These level of analysis problems are reviewed by J. David Singer in "The Level of Analysis Problem in International Relations," in The International System: Theoretical Essays (Princeton: Princeton University Press, 1961), pp. 77-92; and by Robert Jervis, Perception and Misperception in International Relations (Princeton: Princeton University Press, 1976), pp. 14-31.

⁶ A systemic approach can frame the limits of explanation, but it cannot substitute for the rich analysis and causal explanations of state political-economic behavior in arms production associated with case studies. See, for example, Michael T. Klare on the United States, The American Arms Supermarket (Austin: University of Texas Press, 1985); Raju G. C. Thomas on India, Indian Security Policy (Princeton: Princeton University Press, 1987); and Aaron S. Kleiman on Israel, Israel's Global Reach: Arms Sales and Diplomacy (Washington, D. C. : Pergamon-Brassy, 1985). For an effort to apply a systemic explanation to French arms production and sales policy, see Edward A. Kolodziej, Making and Marketing Arms: The French Experience and Its Implications for the International System (Princeton: Princeton University Press, 1987).

⁷ Kenneth Waltz's systemic approach to theory-building is applied to arms production and sales behavior, but his restriction of international politics to traditional realist assumptions of military capabilities and diplomatic influences is relaxed to include techno-economic capabilities and their significance in defining the hierarchy of states of the international system. See Kenneth Waltz's A Theory of International Relations (Reading, Mass.: Addison Wesley, 1979). Waltz' rigor in formalizing an essentially Hobbesian conception of international relations (amended to include Rousseau's extension of Hobbesian notions of perpetual conflict to a society of states) cramps theory building in international relations and narrows policy analysis to coercion,

threats, and force to explain state behavior, international conflict and cooperation, and organizational structures and processes in international relations. Personal, social (group and corporate) and national wealth and welfare imperatives need to be incorporated in theory building if theory is to be relevant to the concerns of the student and practitioner. As Hedley Bull implicitly argues, Hobbes is a useful beginning but not an end point in identifying the scope of international relations and in explaining units and their behavior which fall within this domain. See his "Hobbes and International Anarchy." Journal of Social Research, XLVIII, (1981), 717-738, especially, p.736, and n.13.

⁸ Waltz, pp. 129-160. For an alternative perspective to Waltz' narrow focus on geo-political and military security, see David Baldwin, Economic Statecraft (Princeton: Princeton University Press, 1985); Stephen D. Krasner, Structural Conflict: The Third World Against Global Liberalism (Berkeley: University of California Press, 1985), idem., ed., International Regimes (Ithaca: Cornell University Press, 1983); and Robert O. Keohane, After Hegemony: Cooperation and Discord in the World Political Economy (Princeton: Princeton University Press, 1984).

⁹ The recent recognition of the economic determinants of military power appears partially to account for the popularity of Paul Kennedy's The Rise and Fall of the Great Powers (New York: Random House, 1988).

¹⁰ Robert Gilpin, no less a neo-realist theorist than Waltz, provides a more plausible point of departure for theory in his attempt to explore the implications of power generated by a nation-state system and by market incentives. See his The Political Economy of International Relations and compare with Waltz' Theory of International Relations.

¹¹ The debate between Lenin and Schumpeter, representing Marxist and liberal interpretations, respectively, of the power implications of capitalist markets, can still be read with profit: V.I. Lenin, Imperialism, The Highest Stage of Capitalism (New York: International Publishers, 1939) and Joseph Schumpeter, Imperialism (New York: Meridian Books, 1955).

¹² Gilpin's review in his The Political Economy of International Relations is relevant, pp. 25-64.

¹³ Hedley Bull's notion of an international order based on a society of states provides an understanding of the international system that avoids the pitfalls and excesses either of Kantian optimism or Hobbesian pessimism about the current stability or prospects of international order. Hedley Bull, The Anarchical Society: A Study in Order in International Politics (London, Macmillan, 1977). Bull's analysis falls short, however, in incorporating considerations of welfare and wealth as no less intrinsic to the scope and proper domain of international relations theory than military force and order.

¹⁴ Christian Catrina, Arms Transfers and Dependence (New York: Taylor and Frances, for UNIDER, 1988).

¹⁵ This argument was advanced by Michael Brzoska at the panel on "The Political Economy of International Arms Collaboration," International Studies Association Meeting, March 28-April 1, 1989. See also his "The Erosion of Restraint in West German Arms Transfer Policy," Journal of Peace Research, XXVI, No.2 (May 1989), pp. 165-178. The broadest conception of the scope of international relations, going well beyond interstate relations, is advanced in Quincy Wright's still seminal treatment in The Study of International Relations (New York: Appleton-Century Crofts, 1955). This work has been curiously ignored by scholars who owe him a debt in enlarging the study of international relations beyond the relations of states and in his refusal to restrict the study of international relations simply to external or phenomenological or directly empirically verifiable behavior. Wright's science of international relations made room for the goal-tending and proclivity of people and states and their capacity to transform "reality" by devising new regimes to regulate their behavior and to assign value and purpose to action.

¹⁶ Concentration on state behavior has impeded international relations theory building, even if one enlarges it to encompass techno-economic capabilities. For example, some aspects of the international exchange, such as the drug trade appear strongly to be influenced by cultural factors, reflected in the influence of Columbian caudillos and Lebanese clans. The philosophical sources of the impediment posed by a nation-state mentality are reviewed in Martin Wight's "Why There Is No International Theory?" in Diplomatic Investigations; Herbert Butterfield and Martin Wight, eds. (Cambridge: Harvard University Press, 1966) pp. 17-34.

¹⁷ Aristotle, Introduction to Aristotle, Richard McKeon ed. (New York: Modern Library, 1947), especially pp. 298ff on ethics and politics.

- ¹⁸ Robert Dahl, "The Concept of Power," Behavioral Scientist, II, No. 2 (July 1957), 201-215
- ¹⁹ Frederic S. Pearson, "Netherlands Foreign Policy and the 1973-74 Oil Embargo: The Effects of Transnationalism," in Transnationalism as a New Force in World Politics: Impacts on International Business, Intergovernmental Relations, and Social Policies, ed. Forest Gieves, (Pergamon, 1979), pp. 114-138; and Peter R. Odell, Oil and World Power, (London: Penguin, 1983, 7th ed.).
- ²⁰ Kenneth Waltz, Man, the State, and War (New York: Columbia University Press, 1959), pp. 159-223; and Stanley Hoffmann, "Rousseau on War and Peace," Janus and Minerva (Boulder: Westview, 1987), pp. 25-51.
- ²¹ Raymond Aron, Peace and War: A Theory of International Relations, Richard Howard and Annette Baker, trans. (New York: Doubleday, 1966).
- ²² Kenneth Boulding, "Toward a Pure Theory of Threat Systems," American Economic Review, LIII, No. 2 (May 1963), 424-434.
- ²³ Relevant for overviews are Alfred Vagts, A History of Militarism (New York: Meridian Books, 1959) and Samuel P. Huntington, The Soldier and the State (Cambridge: Belknap Press, 1957).
- ²⁴ For the impact of domestically generated economic and military power, see Anton DePorte's analysis of Germany's challenge to Europe's balance of power system in his European between the Superpowers (New Haven: Yale University Press, 1985, 2nd ed.). The shift in the balance of power in Asia toward Japan is recounted in Alfred Whitney Griswold, The Far East policy of the United States (New York: Harcourt, Brace, 1938).
- ²⁵ This is the essence of the Leninist critique, n. 11.
- ²⁶ Whether change would arise through armed revolution or evolution is debated in Lenin's Imperialism and centers on his attack on Karl Kautsky, who argued that capitalism could be reformed short of violent overthrow. If the reforms instituted by Soviet Premier Mikhail Gorbachev are any indication, Kautsky would appear to have won the historical argument in the long-run, even though he was politically marginalized in

the short-run. Command economies, more than market or capitalist systems, have stagnated while perpetuating economic and political privilege, contrary to their claims.

²⁷ John Maynard Keynes, The General Theory of Employment, Interest and Money (New York: Harcourt, Brace, 1964).

²⁸ See Kenneth Oye, ed. Cooperation under Anarchy (Princeton University Press, 1986), and Bull, The Anarchical State, pp. 3-76.

²⁹ Robert C. North, Nobutaka Ike, and Jan F. Triska, The World of Superpowers (Stanford: Notrik, 1985, 2nd rev. ed.); and Nazli Choucri and Robert North, Nations in Conflict (San Francisco: Freeman, 1975).

³⁰ Gilpin, The Political Economy of International Relations, pp. 25-74.

³¹ Stanley Hoffmann's provocative essays in Janus and Minerva illustrate this bias.

³² Gilpin, The Political Economy of International Relations, p. 41.

³³ An illustration of this distinction between a model and a theory is suggested by Timothy W. Luke's carefully crafted article that interprets Soviet economic and technological development within a neo-Marxist model, suggested by the work of Immanuel Wallerstein. Timothy L. Luke, "Technology and Soviet Foreign Trade: On the Political Economy of an Underdeveloped Superpower," International Studies Quarterly XXIX, No. 3 (September 1985), 327-353.

³⁴ Contrast the alternative conceptions, the first realist and political, and other Marxist and economic, respectively, of Andrew Pierre and Mary Kaldor: Andrew Pierre, The Global Politics of Arms Sales (Princeton: Princeton University Press, 1982) and Mary Kaldor, The Baroque Arsenal (New York: Hill and Wang, 1981).

³⁵ Cal Clark, "The Taiwan Exception: Implications for Contending Political Economy Paradigms," International Studies Quarterly, XXXXI, No. 3 (September 1987), 327-356.

³⁶ See Luke, "Technology and Soviet Foreign Trade," which attempts to interpret Soviet foreign economic behavior in terms of the Wallerstein model. The latter provides a partial fit if only global economic structures are examined independent of a state's security orientation. The Wallerstein approach, driven by assumptions based on the purported behavior of capitalistic markets, slights explanation for state behavior deriving from realist assumptions. Reliance on a neo-Marxist model, as Gilpin suggests, skews results toward expected behavior as a consequence of economic, not security or geo-political, imperatives.

³⁷ Frederic S. Pearson, "The Priorities of Arms Importing Countries," Arms Control, IX (Fall 1988), pp. 170-185.

³⁸ Thomas A. Callaghan, Jr., Pooling Allied and American Resources to Produce a Credible, Collective Conventional Deterrent, A Report Prepared for the U.S. Department of Defense, August, 1988. Allied collaboration covered a wide array of weapons, including F-4s, F-10s, F-111s, F-16s, C-130s, Hawk, Sidewinder, and Bullpup missiles, and AWACS.

³⁹ Ibid., pp 117ff. See also Robert A. Gessert et al., Arms Exports and Weapons Cooperation in NATO: Summary and Analysis of a Data Base (McLean, VA: General Research Corporation, 1980).

⁴⁰ For American postwar international economic planning, see Richard Cooper, The Economics of Interdependence: Economic Policy in the Atlantic Community (New York: McGraw-Hill, 1968), and Harold B. van Cleveland, The Atlantic Idea and Its Rivals (New York: McGraw-Hill, 1966).

⁴¹ Robert M. Cutler, Laure Deprès, and Aaron Karp, "The Political-Economy of East-South Military Transfers," International Studies Quarterly, XXXXI No. 3 (September 1987) 273-299. See also Catrina, p. 89.

⁴² I. William Zartman, "Soviet-Maghribi Relations in the 1980s," The Limits of Soviet Power in the Developing World: Thermidor in the Revolutionary Struggle, Edward A. Kolodziej and Roger Kanet eds. (Baltimore: Johns Hopkins University Press, 1989) pp. 301-332.

⁴³ Luke, p. 349.

⁴⁴ Catrina, pp. 87ff.

⁴⁵ An exception appears to be the Soviet space program, Peter M. Banks and Sally K. Ride, "The Soviets in Space," Scientific American, CCXL, No. 2 (February 1989), 32-40. In general, Luke, pp. 327-253, appears correct about the over-all retarded development of Soviet technology.

⁴⁶ Paul Dibb, The Soviet Union: The Incomplete Superpower (Urbana: University of Illinois, 1988, 2d ed.), p. 278.

⁴⁷ Some conceivable policy initiatives are discussed in Europe: Dimensions of Peace, ed. by Bjorn Hettne (London: United Nations University, 1988)

⁴⁸ Le Monde, October 20, 1988, p.4. (Emphasis added.)

⁴⁹ Luke, p. 349.

⁵⁰ U.S. Department of Defense, Foreign Military Sales and Military Assistance Facts (December, 1978), p. 17, and Jean Godard, "L'Aide américaine à la France," Revue de Science Financière, XLVII, No. 3 (July-December 1956), 446.

⁵¹ Idem, "La Contribution alliée aux charges militaires," Revue de Defense Nationale (April 1956), pp. 436-445.

⁵² See for example, Alan Milward, The Reconstruction of Western Europe 1945-1951 (Berkeley: University of California Press, 1984) and Michael J. Hogan, The Marshall Plan: America, Britain, and the Reconstruction of Western Europe, 1947-1952 (New York: Cambridge University Press, 1987).

⁵³ Robert Kleiman, Atlantic Crisis (New York: W.W. Norton, 1964); Arthur Schlesinger, Jr. A Thousand Days (Boston: Houghton Mifflin, 1965); Theodore Sorenson, Kennedy (New York: W.W. Norton, 1967) and citations in n. 52.

⁵⁴ John Peters, "U. S. Policy of Offshore Procurement," Army War College, Carlisle Barracks, Pennsylvania, 1954.

⁵⁵ Through such programs as the Hawk missile (US), military helicopters (UK), and tactical missile, transport and trainer aircraft (FRG), the French arms industry strengthened its technological base, as did their collaborators. Kolodziej, Making and Marketing Arms, pp. 148-167.

⁵⁶ On European armaments cooperations, see Creasey and May, n.1. France has been particularly successful in using licensing arrangements to win foreign sales contracts with Third World states. No less than other West European states, the French are interested in strengthening their arms production capabilities in purchasing arms abroad, Kolodziej, ibid., pp. 321-326.

⁵⁷ Where foreign purchases could not be avoided -- for reasons of price, quality, alliance commitments, etc. -- offsets became normal business practice. France and Britain received offsets of 130% for purchasing AWACS. In counterpoint, the US has sought offsets from allied governments, especially West Germany, through the purchase of American arms as compensation for the stationing of US troops in Europe and for the American security guaranty. Callaghan, pp. 131ff.

⁵⁸ Wilfrid Kohl, French Nuclear Diplomacy (Princeton: Princeton University Press, 1971), and Michael Harrison, Reluctant Ally (Baltimore: Johns Hopkins University Press, 1981).

⁵⁹ Andrew Pierre, Nuclear Politics (New York: Oxford University Press, 1972); John Baylis, Anglo-American Defence Relations: 1939-1984 (London: Macmillan, 1984, 2d ed.).

⁶⁰ Britain retained residual autonomy in the nuclear field by producing its own fissionable material and designing its own bombs and warheads. John Simpson, The Independent Nuclear State: The United States, Britain, and the Independent Military Atom (London: Macmillan, 1985, 2d ed.).

⁶¹ Frederic S. Pearson, "The Question of Control in British Defense Sales Policy," International Affairs (Spring 1983), pp. 211-238. Also consult Lawrence Freedman, "British Foreign Policy to 1985: IV: Britain and the Arms Trade," ibid. (July 1978), pp. 377-392.

⁶² Discussions of postwar German arms production and sales are found in Frederic S. Pearson, "Necessary Evil, Perspectives on West German Arms Transfer Policies," Armed Forces & Society, XIII, No. 4 (Summer 1986), 525-552, and "Of Leopards and Cheetas: West Germany's Role As a Mid-Sized Arms Supplier," Orbis, XXIX (Spring, 1985), 165-181.

⁶³ Catrina, pp. 106-107. Besides works cited in n.1, above, other relevant research on Third World military production and exports include Renato Dagnino, "The Emergence of Military Industry in the Third World, in World Peace and the Developing Countries: Annals of Pugwash 1985 (London: Macmillan, 1986), pp. 235-248; Miguel S. Wionczek, "Growth of Military Industries in Developing Countries: Impact on the Process of Underdevelopment," Bulletin of Peace Proposal, XVII, No. 1(1986), 47-58; Carol Evans, "Reappraising Third World Arms Production," Survival XXVII, No. 2 (March-April), 99-118; and Michael Brzoska, The Impact of Arms Production in the Third World (Hamburg: Institut fur Politische Wissenschaft, 1987).

⁶⁴ The economic logic against exclusive permanent multifunctional clubs is presented cogently by Douglas Dosser, David Gowland, and Keith Hartley, eds., The Collaboration of Nations: A Study of European Economic Policy (Oxford: Martin Robertson, 1982), Ch. 1; see also, Keith Hartley, NATO Arms Co-Operation of Nations: A Study in Economics and Politics (London: George Allen & Unwin, 1983).

⁶⁵ See Frederic S. Pearson, "European Security Policy and the Single European Act," Paper presented at the Annual Meeting of the International Studies Association, London, April 1989.

⁶⁶ See, for example, Gerald M. Steinberg, "Indigenous Arms Industries and Dependence: The Case of Israel," Defense Analysis, II, No. 4 (December 1986), 292.

⁶⁷ See William Perry and Juan Carlos Weiss, "Brazil," in Katz The Implications of Third World Military Industrialization (Lexington: Lexington Books, 1986).

⁶⁸ These incentives are reviewed in Peter Wallensteen, et al., Global Militarization (Boulder: Westview, 1985) and in Kolodziej, "Whither Modernization and Militarization?" pp. 206-232. See also Carol Evans.

⁶⁹ For an over-all evaluation of Indian arms production and techno-scientific policies, consult Thomas, Indian Security Policy, especially pp. 195-274. For recent commentary, see Sanjoy Hazarika, "India Plans to Increase Arms Imports and Exports." New York Times, February 5, 1989. On China, see Cutler, et al., p. 291.

⁷⁰ Patrick Morgan makes this useful distinction in his discussion of nuclear deterrence. It is applicable also as an explanation of the arms production and export behavior of states. See Patrick Morgan, Deterrence (Berkeley: Sage, 1982, 2d ed.).

⁷¹ Similar threat definitions characterized the military/industrial transformation of European and Asian powers and the United States in the 19th and 20th centuries. Leaders as diverse as Theodore Roosevelt and Woodrow Wilson, and those in the French Fourth Republic and the Gaullist Fifth Republic, were agreed on the necessity to affect the global balance of power and promote autonomous military and economic capabilities that could be applied to such balances to favor their nation's interests. For the United States, consult Robert E. Osgood, Ideals and Self-Interest in American Foreign Policy (Cambridge: Harvard University Press, 1953); for France, see Edward A. Kolodziej, French International Policy under De Gaulle and Pompidou: The Politics of Grandeur (Ithaca: Cornell University Press, 1974).

⁷² Katz, Understanding Arms Production in Developing Countries, pp. 4-5.

⁷³ An excellent paper that traces the strategic and economic factors underlying Brazilian arms production is Renato Dagnino and Domicio Proenca, Jr., "Arms Production and Technological Spinoffs: The Brazilian Aeronautics Industry," (mimeo.)

⁷⁴ Ibid., p.8

⁷⁵ See n. 69.

⁷⁶ Andrew L. Ross, "The International Arms Trade and Arms Acquisition in the Developing World: Arms Imports and Local Defense Production," Institute of Southeast Asian Studies, Singapore, September 29 (mimeo.).

⁷⁷ See Steinberg and Kleiman, cited above.

⁷⁸ See Mark M. Nelson, "Israel's Arms Industry is under Fire from Cheaper Imports, Closed Markets," Wall Street Journal, December 17, 1987.

⁷⁹ Alex Mintz and Michael D. Ward, "The Political Economy of Military Spending in Israel," American Political Science Review, LXXXIII No. 21 (June 1989), 521-534.

⁸⁰ U. S. Arms and Disarmament Agency, World Military Expenditures and Arms Transfers (Washington, D.C.: Government Printing Office, 1988), pp. 96 and 105.

⁸¹ Arthur Stein, Forces of Circumstance: Structure and Choice in International Relations (Ithaca: Cornell University Press, 1989).

⁸² See, for example, Mark A. Lorell, Multinational Development of Large Aircraft (Santa Monica: Rand, 1980).

⁸³ Kolodziej, Making and Marketing Arms pp. 148-167.

⁸⁴ Catrina, p. 94.

⁸⁵ Brzoska and Ohlson, pp. 282-286.

⁸⁶ Andrew L. Ross, Arms Production in Developing Countries: The Continuing Proliferation of Conventional Weapons, No. N-1615-AF, Rand Corporation Note (Santa Monica: Rand, 1981), pp. 16-19. These data have been updated by reference to Stockholm International Peace Research Institute (SIPRI), World Armaments and Disarmament, SIPRI Yearbook 1974, pp. 250-258. Idem, Yearbook 1980, pp. 168-173 (New York: Crane, Russak and Company, 1980).

⁸⁷ SIPRI, World Armaments and Disarmaments: 1978 (New York: Crane, Russak, 1978). pp. 238-253, for 1960. For 1985, International Institute for Strategic Studies, Military Balance: 1985-1986 (London: IISS, 1985).

88 Western European Union, Assembly of Western European Union, Defence Industry in Spain and Portugal, Document 1161, November 7, 1988, p.9.

89 Steinberg, p. 304.

90 Stephanie Neuman forcefully makes the point about stratification, although the static character of this structure may be overdrawn if one projects forward the success of the developing states and the advanced countries of the European Community in challenging superpower hegemony in selling arms and military technology. See Neuman, "International Stratification," n.1.

91 Leonard S. Spector, Nuclear Proliferation Today (New York: Vintage, 1984).

92 Arthur Alexander, "U.S. European Arms Collaboration and Trade," (Santa Monica: Rand, 1988), p.8.

93 Jacques Mitterand, The French President's brother, later became head of Aérospatiale, France's leading nationalized aerospace firm. Aérospatiale depends on foreign arms sales for half of its business turnover. For a review of French arms commercial policies, consult Edward A. Kolodziej, Making and Marketing of Arms, Interview, 1978.

94 U. S. Foreign Broadcast Information Service, September 14, 1982, p. K1.

95 For an overview of commercialization, see Michael T. Klare, "The State of the Trade: Global Arms Transfer Patterns in the 1980s," Journal of International Affairs, XL., No. 1 (Summer 1986), 1-21 and "The Arms Trade: Changing Patterns in the 1980s," Third World Quarterly, IX, No. 4 (October 1987) 1257-1281. Also, ns. 38, 61, and 62.

96 Klare, Third World Quarterly, p. 1275.

97 Richard F. Grimmett, Trends in Conventional Arms Transfer to the Third World by Major Supplier, 1978-1985 (Washington, D. C.: Congressional Research in Service, May 15, 1986), p. 30.

98 Michael Brzoska, "The Erosion of Restraint in West German Arms Transfer Policy."

99 Grimmett, pp. 1-13.

100 Michael Brzoska and Thomas Ohlson, "The Trade in Major Conventional Weapons," in SIPRI, World Armaments and Disarmaments: SIPRI Yearbook 1985 (New York: Oxford University Press, 1986), p. 336.

101 Michael Brzoska and Thomas Ohlson, Arms Transfer to the Third World, 1971-1985 (London: Oxford University Press, 1987), pp. 59-101. Brzoska and Ohlson list only 26 countries, but the later and authoritative WEU study, Defence Industry in Spain and Portugal, cites 37 developing countries to which Spain has sent arms between 1970 and 1986, including 13 Latin and Central American countries, p. 9.

102 Cutler, p. 278

103 Ibid., pp. 278-280. Cutler also cites a Wharton School study that estimates Soviet hard currency sales slightly lower at 75 percent, but in both cases, the proportion of hard currency sales is high.

104 Richard F. Grimmett, Trends in Conventional Arms Transfers to the Third World by Major Supplier, 1980-1987 (Washington, D. C.: Congressional Research Service, May 9, 1988), pp. 56-57

105 Ibid.

106 Ibid., pp. 46-47

107 Brzoska and Ohlson, p. 30.

108 Grimmett, Trends, 1980-87, pp. 51 and 61.

109 Kolodziej, Making and Marketing Arms, pp. 307-309.

110 Grimmett, Trends, 1980-1987, p. 57. Superpower arms transfers agreement or orders were well below the 70 percent height for the 1980s. Ibid., pp. 46-47.

111 Promising efforts to reintroduce rigor in this regard include, inter alia., Mintz and Ward, n. 79; Alex Mintz, "Arms Imports As an Action-Reaction Process: An Empirical Test of Six Pairs of Developing

States," International Transactions, XII, No. 3, 229-243; and Frederic S. Pearson, "The Correlates of Arms Importation," Journal of Peace Research, XXVI, No. 2 (May 1989), 153-164; and Sanjian, n. 2.

¹¹² See Alexander George, et al., eds., U.S.-Soviet Security Cooperation (New York: Oxford, 1988), and Kolodziej and Kanet, eds., The Limits of Soviet Power in the Developing World, especially pp. 3-61, 397-462.