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# Roots of War: The Master Variables

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## Introduction

'Where are the causes of war to be found?', by now a classic query in the study of international relations, resorted to three levels of explanation: 'man, the state, or the international system'. While theories abound to explain war at each of these levels, the evidence remains confusing, confounded largely by the particular theoretic paradigm or explanation chosen (Waltz, 1959).

Those arguing for man as the real root of war have confronted the complexities of distinguishing between 'good' and 'bad' men; querying whether specific features of human nature makes men particularly prone to war. Those arguing for the state, as the correct level of analysis, have yet to resolve whether 'good' states make more war than 'bad' states, distinguishing between democratic and authoritarian politics for those purposes (Chen, 1984; Russett, in press). Those arguing for explanations at the international level face the type-of-system predicament: whether bipolar, multipolar, or other types of systems are more or less conducive to war (Rosecrance, 1969).

Interestingly, however, seldom has the choice of level of analysis alone provided a satisfactory explanation for violence or war. More often than not, the underlying paradigm guiding the enquiry serves as the lens for explaining the nature of the evidence – to determine whether organized violence is caused by man, the state or the international system.

Theoretical developments in the study of international relations have been numerous, often reflected in terms of competing theories of relations among nations. Such developments have been particularly reactive to events in the international arena which make it even more difficult to identify empirically the appropriate explanatory level.

By the mid-decade of the 1980s, the dominant paradigms – beyond specific explanations of particular events or processes – could be characterized roughly as follows: a realist-state centric view of the world; a Marxist perspective, broadly defined; a periphery paradigm, including dependence and related perspectives; and idealist-communitarian orientations, covering earlier functionalism, integration views and collaboration



perspectives. Each differs in its views of motivation, processes and outcomes, and in their reliance on the nature and type of socio-economic and political factors that lead to war. These contending perspectives are both paradigms of state behaviour in international politics, as well as statements of political economy, making it difficult to distinguish between theories of international relations and paradigms of political economy. The real world does not respect distinctions between politics and economics, nor does it conform to acknowledged disciplinary differentiations. Each of these paradigms takes cognizance of the interconnections between the two domains of activity, to a greater or lesser degree, as the case may be.

The purpose of this chapter is to delineate socio-economic and political causes of violence. We present the variables, processes, sequences and connections that relate man and the state in order to locate, where appropriate, the underlying causal factors that lead to international conflict in a way that transcends contending perspectives of international relations and of political economy. Our purpose is to delineate generic relationships across levels of analysis and highlight some particular characteristic features, such as specific state profiles, to provide some linkages between man, the state and the international system that enhance propensities for conflict and violence.

## The 'master variables'

Our point of departure centres around the most basic elements defining states, namely 'master variables', whose linkages characterize the basic features of statehood in any particular case and at any point in time. Three master variables and interconnections generate the profiles of states. These are *population*, *resources* and *technology* – in the generic sense of their aggregate representations as well as in the specific sense of their distinctive manifestations.

The population variable, as an example, has specific manifestations such as size, rate of change, composition, distribution, mobility and so forth. Resources, defined broadly as a natural source of wealth or revenue, are conventionally distinguished in terms of minerals, fuels, arable land and so forth. Resources can also be viewed in terms of inputs into productive processes, or inputs for generating bases of human survival. Complexities abound, however, when considering definitions and dimensions of technology. The conventional distinction between products and processes, useful for some purposes, may obscure the fact that technology refers to knowledge and skills that are mechanical as well as organizational. Skill levels are often difficult to measure, yet they often determine what can in fact be done given the resources and the population at hand. Technology, in the generic sense, provides the means of conversion of inputs into outputs; the level of technology thus referring to the efficiency of conversion.

These elementary observations are designed to highlight the reality that

each state, or society, at each point in time, is characterized by a particular set of master variables that define the empirical parameters of polity, on the one hand, and provide the basis for the policy agenda, on the other. For example, a state like Japan, 'born' with few raw materials, has throughout modern experience acquired access to raw materials from the external environment. This pattern shaped state policy irrespective of the political regime or government in power. While Japan may be an extreme case in this regard, there are others whose reliance on external resources also defines their objectives in the most elementary sense. Each master variable cannot be viewed in isolation from the other two. It is their interconnections – each with reference to the others – that define state characteristics. The same numerical value for population size may be considered a problem in one context, but hardly an issue in another.

The recognition of master variables leads to three distinct lines of enquiry: what is the relationship of master variables within a state to external international behaviour? How do master variables generate differences in patterns of international behaviours? What processes, deriving from the above, may be linked with 'antagonizing behaviour' spiralling to violent conflict? By way of illustration, we then turn to ways in which master variables generate differences in national profiles. These three lines of enquiry, and the illustrations, constitute the agenda of this essay.

## The master variables, the state and international behaviour

The master variables provide the basis for delineating linkages from the individual to the state. The initial proposition is that the roots of war are to be found in population growth which, when combined with other master variables may affect dispositions towards conflict, as well as the intent and ability to wage war successfully. The starting point is the individual (the 'discrete statistic').

Every individual (each 'statistic') has basic needs and requirements, and a set of demands. For example, to ensure minimal survival, food, water, air and living space are required. As a population grows, the demand for these basic resources increases. This expansion of demand is a claim on the environment and the social context. Whatever the minimal amount of basic resources needed by a single person, multiples thereof will generate corresponding demand. The functional form of the process of growth – of people and demand – is basically an empirical question. The point here is that demand invariably entails uses of resources.

To obtain and use resources effectively, people rely upon technology, the application of knowledge and skills; technology facilitates acquisition of new resources and development of new uses for known resources. Interactive effects are embedded in the fact that the development, maintenance and use of technology also require resources. On the one hand, technological growth serves to 'relax' productive constraints; on the other, it may also create new constraints.



Generally the more industrialized the technology, the greater the magnitude and the wider the range of resources required. Technological developments almost invariably have social outcomes; furthermore, organizations and institutions of the society are likely to become more complex. To speak of technology without recognition of intense interdependence and reciprocities with its social context is very misleading, yet often resorted to for simplification.

For all societies, at all levels of development, security, cohesion and access to resources are a necessity for sustaining basic needs and demands. Sustained access is a prerequisite for meeting demand generated on all levels of the social order, as well as for the maintenance of social capabilities and institutions, and even the state itself.

Threats of being cut off are often the most credible and powerful in creating national antagonisms and feelings of insecurity – irrespective of the empirical basis for these perceptions. Such threats (and perceptions thereof) serve to link the social system and its demands to the external environment, and assist in defining obstacles to meeting demands. The nature of the linkage (and the underlying perceptions) will shape the disposition to subsequent action and the nature of that activity.

To meet particular demand, people develop specific capabilities and particular institutionalized arrangements in two generic ways: by developing and applying technical knowledge and skills, and/or by co-operating with others, organizing and even bargaining. Bargaining is generally a useful means of articulating 'interest' and exercising leverage.

The important point here is that *demand* as well as the availability of *capabilities* to generate activity (or behaviour) is such that if *either* demand or capability is zero no activity can take place. However, it is possible that the strength of one may compensate for the weakness of the other. (For example, religious or ideological fervour can be used as a compensatory mechanism, much as economists specify substitution effects. Witness, therefore, the Gulf War of the mid-1980s, where one state, Iran, uses its population and their demands as the core element of its strategy to compensate for limitations of other capabilities, such as weapons, infrastructural facilities and so forth.) Actual behaviour is the outcome of the interaction of demand on the one hand and capability on the other.

But these relationships are neither simple nor linear: population growth can contribute to demand and to the expansion of capability; depending upon resources and technology, it can also constrain capability. In other words, population can be an asset or a liability, depending on its position in the context of the master variables in question.

The driving fact, however, is that a growing population, especially when combined with advancing technology and industrialization, cannot be sustained in a resource base or a limited environment. Expansion beyond the environment (or extension of the boundaries of the environment)

itself is almost always necessitated to reduce attendant constraints. It is this extension and expansion of behaviour outside an initial environment or established boundaries that defines the socio-economic roots of violence.

The political system – and policies – serve largely to interpret this extension (as 'good', 'bad', 'necessary', or whatever) and to aggregate and articulate social demands. The behaviour of a state will be shaped by its institutions and capabilities, and patterns of international activity delineated accordingly (Choucri and North, 1975).

As domestic resources are depleted (or resources of a particular sector), costs tend to rise. This is a generic relationship, irrespective of the particular resource in question. Rising costs generate strains of their own. When the gap widens between the demand for resources and the resources locally available, the external environment becomes salient in the national policy space.

**Lateral pressure and international behaviour**

With rising demands and expanding capabilities, states reach out – directly and indirectly – for resources beyond home borders and demand some degree of security for the maintenance of access routes. The protection of a wide range of associated activities and interests becomes a salient feature of outward orientation. The process of outward expansion is termed 'lateral pressure'.

In principle, lateral pressure due to domestic constraints can be 'solved' in several generic ways: (1) control of territories beyond national boundaries (various forms of colonialism); (2) permanent out-migration – some members move into a new resource environment (e.g. the English colonists in the thirteen colonies, Europeans to the United States generations later, European settlers in South Africa); (3) temporary out-migration (e.g. Turks, Portuguese, Spaniards and Algerians to Western Europe, Arabs and Asians to oil-rich countries of the Middle East); (4) forced expulsion of population (displacement and refugees in a variety of conflict situations); (5) external exchange of goods and services (international investments, foreign direct investments, transnational economic services, in private and/or public modes); (6) expansion of national boundaries outward (such as the US historically, or Tsarist Russia, or Israel following wars with Arab states); or (7) combinations of the above (adapted from North, 1986).

Historically, lateral pressure has often taken the form of territorial aggrandizement; however, the attempt to relax or reduce domestic constraints imposed by territorial boundaries or limitations of space generally entails outward expansion which can be manifested in many other forms as well. Again, interactive effects of the master variables are at work. For example, technological advances may contribute to domestic resource expansion and availability, but they also create new demands and new claims on resources.



The actual patterns of expansion (or the specific modes of lateral pressure undertaken) are conditioned by geopolitical location, the levels of population and technology, and the resources available for external activity. For example, the phenomenon of corporate investment abroad is illustrative of a contemporary mode of lateral pressure (Gilpin, 1975), and some have suggested that this form competes with national sovereignty (Vernon, 1971), while others have stressed its transnational characteristics (Keohane and Nye, 1977).

The point here is that lateral pressure has been expressed variously, in both peaceful and violent activities – as exploration and peaceful settlement, as conquest, often as trade and financial influence. Whatever the mode, the consequences may be expected to depend upon the capabilities of the expansionist country relative to the capabilities of its neighbours. In general, states with high capability, those we refer to as 'major powers', tend to influence, dominate, possibly exploit and on occasion conquer societies of significantly lower capabilities. At times, trade as a mode of lateral pressure is used as an instrument of power and control (Hirschman, 1969; Sideri, 1970). There are also instances of limitations of lateral pressure imposed by others and reversals in power relations can occur (as we have seen in the US war in Vietnam).

In each historical situation, the expansion of a society's activities and interests into far-off places has been an indicator of its domestic capabilities and power (and some would say political 'will'). Similarly, each substantial contraction or withdrawal has tended to mark the diminution – relative if not absolute – of the society's capability on critical dimensions.

When the master variables themselves harbour sources of social conflict, more complex forms of violence can emerge. For example, ethnic differences in the population structure of Lebanon culminating in civil war created a conflict system whose dynamics are so robust as to entail wide-ranging regional implications.

**National interest, intersections and antagonizing processes**

State behaviour, however, is not only the outcome solely of a demand for resources, markets, services or other economic considerations. Other objectives are pursued. The reality is that motivations are mixed: some groups support a policy with one goal in mind, others support the same policy as a means of achieving other objectives. As long as capabilities exist to translate motives into behaviour, actual motivation may not be important.

In general the external activities of a society tend to derive from demands and activities that are generated internally and that cannot be met or successfully carried out without some reference to the external environment. International competition and conflict are thus closely linked to the domestic growth of countries, with the result that domestic and foreign activities are effectively interconnected. What may be

construed as foreign policy for one audience may be interpreted as domestic politics for another. Issues and issue-areas can become blurred. The important aspect of national interests is less their existence (or their specific content) than the emergent feeling that they must be defended. States do not 'stand still' relative to one another, some are growing while others are declining. Under such circumstances a rapidly growing society may threaten the established international order.

When two countries extend their respective interests outward, there is a strong probability that such interests will be in opposition, and the activities of these nations may collide. Competition among the colonial powers in Asia and Africa prior to the First World War is the classic case. The US presence in Vietnam and its justification as part of a containment doctrine is an 'intersection' of the military presences of two (or three) major powers, and the violence in the conflict makes it a collision *par excellence*. In this context one can also interpret the Soviet presence in Cuba as an intersection with the US in a part of the world that is considered as an American sphere of interest.

National leaders, making assumptions and claims for the sovereignty of their respective states, tend readily to perceive other states as rivals. Not all collisions are inevitably violent; however, when collisions do occur, they are likely to become violent. 'Apparent cause and underlying cause do not necessarily agree' (Aron, 1967: 87).

As an intersection intensifies, there are many possible outcomes. Collisions of activities and interests can lead to the withdrawal of one (or both) of the parties, an agreement between them or continuing conflict (Choucri and North, 1975: 9). Opportunities for identifying strategies of potential co-operation may occur if the costs of conflict are perceived to be high. Any one of these options is shaped by their respective demands, capabilities and interests.

When two societies are mutual rivals and a military gap between them is perceived as wide or widening, efforts to catch up may be undertaken, and feelings of threat ensue (Ashley, 1980; Choucri and North, 1975). A threatening move by one party in an interactive situation often evokes a comparable response from the other party, whether or not the purpose of the first was to threaten or inflict an injury. This escalation generates a conflict spiral. The arms race is a special type of escalation wherein an increase in one state's military capabilities is viewed by the leadership of a rival state as a threat to its security (Richardson, 1960). Interactions 'interlock' and yield action–reaction processes. Perceptions of threat and suspicions then abound.

The empirical evidence to date suggests that arms race phenomena are generally fuelled by two sets of underlying processes: those involving competitive international action–reaction processes; and those generated by domestic factors, such as technology, budgetary, bureaucratic or interest-group pressures. Clearly, domestic factors and action–reaction dynamics, rather than being contradictory may well be mutually reinforcing (Choucri and North, 1975, 1987). In sum, then, international crises generally exhibit escalatory or action–reaction processes. Some crises escalate into war, others de-escalate; in all cases, however, lateral pressure lies at their origins. In turn lateral pressure is rooted in the disposition of the master variables.



**Interactions among master variables**

It must be stressed that population growth, advancement in technology, rising demands, increases in military capabilities, and expansion of national activities and interests are seldom the immediate or proximate explanations of war. They generate demands, constrain capabilities, arm the antagonists and contribute to the stances of the opponents, but seldom are they the direct cause of violence. The more proximate explanations are likely to include confrontations or provocations, alliances, counter-alliances and an arms race. Thus, from the perspective of states interacting in an international context, conflict and war are rarely, if ever, directly explained by the master variables alone. (Exceptions are considered below.)

Master variables provide the parameters for the players; they are often contributory to, not determinant of, conflict. It is the intersection in spheres of influence, action–reaction processes and their perceptual and psychological underpinnings that are among the more immediate causes of violence. However, all these processes originate with numbers in the population profile of a state – the discrete statistics, the individual human beings. Over the longer range differences in population levels and rates of change of technology and access to basic resources may literally generate demands, capabilities, leverages and behavioural outcomes as states relate to each other. The master variables thus provide the socio-economic roots of the processes leading to war.

Considering the master variables in their aggregate manifestation may obscure their particular manifestations. For example, ethnicity is a demographic characteristic that may have explicit implications for conflict and violence. Elsewhere we examined the role of ethnicity as a determinant of violent conflict between states and found that a large number of interstate conflicts show ethnic differences within and between the combatants to be a significant feature of the conflict (Choucri, 1974, 1984).

The example noted earlier is akin to a textbook case: the Lebanese Civil War in 1976 and the subsequent invasion by Israel were the outcome of changes in differential rates of growth among ethnic groups, dislocating the earlier communitarian basis of the polity and calling into question the viability of the social contract. The obvious superiority of Israeli technology and military power was irrelevant to the conflict or to its outcome at each point in time.

Considerable evidence regarding another facet of population, namely the age distribution, suggests that age contributes to domestic conflict,

and the notion of 'population-at-risk' refers to those populations (groups or societies) whose characteristics are more conducive to overt conflict (Kelly and Galle, 1984). Further, to some extent, and in certain contexts, crowding is found to be a conflict-producing phenomenon (Proshansky, 1984).

Of the many population variables, that which is least explored is the mobility of populations across national boundaries and the way in which relations among nations might be affected. International relations theory and analysis harbours serious gaps with regard to migration across national boundaries. Considerations of the rules of entry and rules of exit appear to provide an empirical link between the fact of such mobility and the efforts of states to regulate or formalize the mobility (Weiner, 1985). It is more important, however, to explore the process by which states regulate cross-border mobility. Why a particular state sets in place particular rules of entry and exit remains to be determined (Choucri, 1987).

The resource variable, so central to survival, is by the same token subject to specific manifestations yielding 'constraint' or 'availability' as the case may be. For oil-rich states, the demand for a critical raw material combined with their access to technology (to convert oil in the ground to actual production) was historically the outcome of corporate management and control (Tanzer, 1969). The increase in their own knowledge and skills, and expanded technical capacities enabled them to exert pressure and assume control over national resources (Choucri, 1976). The resultant interdependence in the world oil market eventually led to market changes allowing producers to influence prices. Consumers responded, individually and collectively – at all levels of social organization – shaping new behaviours and resulting in new 'demand' schedules (see Choucri, 1981, for the analytical and simulation structures).

The deteriorating oil prices throughout the early 1980s are the apparent outcome of dramatic change in individual behaviour (consumers and governments) over the decade of 1970s. In this set of events, actions and counter-actions, the master variables were a central part of the story. Population played a role by influencing consumption and demand, but technology set in place new patterns of resource utilization and threatened to separate the pattern of GNP growth and traditional patterns of energy utilization.

Technology is the master variable most difficult to untangle from its context. None the less, it provides the critical differentials in capabilities, the leading edge in international transactions. Whether in trade, military activities, investment strategies, or whatever, those with a 'technological edge' have a relative advantage. (The Lebanon–Israel conflict is an important exception, confounding expectations.)

**Master variables, state profiles and international behaviour**

The actual behaviour of any state is shaped by the underlying profile



created by the master variables. The following examples illustrate how the interaction of population characteristics, resource endowments and levels of technology lead to different types of international behaviour, and how some of these may be more conducive to conflict than others. These comparisons are presented in terms of 'state profiles' to illustrate broadly the linkages between internal characteristics and external activities.

*Profile A: high population, high technology, high resources*

Today the United States and, to a lesser extent, the Soviet Union are illustrative. This profile allows, perhaps even necessitates, outward-oriented activities. Expansion of state behaviour outside territorial boundaries occurs in a wide variety of ways – trade, military activity, diplomatic interactions, investments, violent confrontations and so forth. The types of external behaviour are very broad. A Soviet Union with the level of technology of China would be less threatening to the US today. Although there are differences between the US and the USSR along the master variables, and differences in levels and type of international behaviour, they represent a profile fundamentally different from other generic types.

*Profile B: high population, low technology, low resources*

This state profile is commonly associated with the large former colonies of Asia and Africa, and provides little opportunity for international behaviour. India in the 1950s is a case in point, as is China at the same point in time. Thirty years later the profile of India shifted notably when their technology advanced dramatically and resource constraints were reduced. Today, we could not characterize India's profile in the same manner as in the 1950s. This change entails an expansion of the domestic resource base ('development' to be sure, as well as application of 'technology'), but unlike the Japanese case where domestic resource constraints are severe, the Indian profile had significant resource potential which was realized over the past three decades.

*Profile C: low population, low technology, high resources*

This state profile is one of resource abundance, as illustrated by the oil-exporting countries of the Gulf in the Middle East. The real constraints are low population size and low levels of technology: population and technology must both be imported. The fact that states rely on imports for two of the master variables raises substantially the degree of dependence on the external environment.

*Profile D: low population, high technology, low resources*

Israel and Singapore illustrate this type of state profile. The distinctive feature is high technological advances relative to size and to domestic resources. The foreign policy thrust is to use national capabilities to

obtain access to resources, which then enable the expansion of activities outside territorial boundaries. Some of these activities may lead to conflict Consider, for example, the implications of an Israel with low technology; its external behaviour and military stance would be quite different from the one of today. So, too, a Singapore with the level of technology of a Gabon would not be a credible producer or exporter of high-tech materials.

*Profile E: low population, low technology, low resources*
Many of the smaller developing countries are of this type. Survival is a primary objective. The agenda is stark. The bounds of permissible behaviour domestically and internationally are constrained relative to the other state profiles considered here. Examples include Chad and Niger.

*Profile F: high population, high technology, low resources*
Japan represents this profile, where 'carrying capacity' concepts illustrate the constraints, and where the demand for resources persists as a salient element that cannot be alleviated simply by economic development. The greater the Japanese industrialization over the past century, the more pronounced became the domestic resource constraints and, by extension, the initial necessity of access to external resources. States like Japan, born with few raw materials, regard unimpeded access to resources as a prime objective irrespective of the political regime or government in power.

*Profile G: low population, high technology, high resources*
Canada, Sweden and Norway today illustrate this profile. Their distinctive feature is relatively low population levels in conjunction with high levels on the other variables. A major thrust of external activity is trade and diplomacy. (Historically, of course, Sweden was not always a 'peaceful' state.)

These illustrations can be thought of as 'comparative statics', one-point-in-time snapshots. They indicate only some broad implications of a state's population-resource-technology profile for its international activity. State profiles, however, are not static, but highly dynamic, and there is a change over time of profile and of consequences. Comparative statics – profiles of states – provide only an initial view of the relative positioning of the master variables setting the broad parameters of international behaviour. The processes of lateral pressure and the political framework mediate between the stark profile and the external behaviour, whether tending towards conflict or towards co-operation.

## Conclusion

Returning to the questions asked at the onset of this chapter, the concluding propositions, are these: the roots of war are found in man making



claims on an environment within the structures of states. Demands are generated and capabilities are marshalled to assist in meeting these demands. To the extent that behaviour extends beyond national boundaries, the interactions of states then shape the nature of subsequent outcomes. We reiterate that master variables are seldom the immediate or proximate causes of war. Even when the conflict has an obviously demographic base, the influence of population does not occur overnight.

In this process, man recedes in importance, being no longer a proximate cause of subsequent events or processes. But there are exceptions. In cases of ethnic divisions or cross-national migration, population variables may constitute the immediate determinants of conflict. The mode of lateral pressure and the constraints on such pressure imposed by other states or by the international environment will define the emergent policy agenda and the articulation of national interests.

The master variables, the comparative statics of state profiles, and the process of lateral pressure are generic in the sense that no society is immune, and no political regime or ideology can eradicate their impacts. They transcend the nature of a particular political system, or the ideology or belief system prevailing among the leadership or the population. Nor are these processes hostage to the requirements of a particular paradigm in international relations or of political economy.

When defending national interests becomes salient, the costs of defence are not always assessed appropriately. History has shown many examples of miscalculations of costs. How far states are willing to go to defend their perceived interests and when they decide to opt out of strategic interactions has sometimes been referred to as 'the search for peace systems'. This search generally follows a transformation in the disposition of the master variables.

Master variables seldom change rapidly. They generally evolve over a long period of time. The reality, however, is that their interaction literally defines the bounds of permissible behaviour, and determines what a state can or cannot do at any point in time. This interaction is the fundamental constraint on statehood, relaxed only to the extent that the critical variables themselves are modified. Relaxing the constraints can occur within national boundaries, or through expansion of behaviour outward (lateral pressure) or both. Propensities towards conflict and violence are determined by the mode of lateral pressure and its international consequences.

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# THE QUEST FOR PEACE

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