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APRIL 1, 1974 - JUNE 30, 1974

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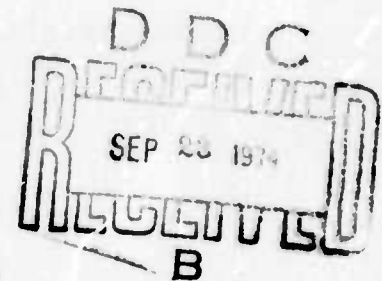
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THE DIMENSIONALITY OF NATIONS PROJECT

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ABSTRACT

During the quarter the manuscript National Attributes and Behavior: Data, Dimensions, and Linkages 1950-1965 was completed and turned over to a press for publication and a proposal to analyze the relationship between political systems and war was submitted to NSF for consideration.

Results emerging from analyses conducted during the quarter show that both over time and space show that a nation's amount of foreign conflict is highly correlated with its power but independent of its wealth, politics, transactions, trade, and alignment. Moreover, about half of a nation's dyadic foreign behavior can be explained by its socio-economic and political distances from other nations. This holds true for such diverse nations as the U.S., U.S.S.R., China, Cuba, Brazil, India, Egypt, Israel, Poland, and Indonesia.

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INTRODUCTION

This third quarterly report is divided into seven sections. The first describes the analyses initiated and completed during the quarter; the results of special significance are highlighted. Methodological problems faced during the analyses along with any computer programs that have been written or revised during the quarter are discussed in the second section. In this and the previous section, technical terms and discussions are avoided where possible. The third section describes the data collections begun and completed during the quarter. Current personnel and personnel commitments made are discussed in the fifth section, and the sixth section covers project publications, research reports and monographs in preparation and completed. The final section delineates changes in the DON budget, status of subcontracts, and expenditures to date.

I. ANALYSES

1.1 The Field of Nations. During the quarter the manuscript National Attributes and Behavior was completed (see below, Section 6.1). The most general findings can be put into a series of propositions.

1. The major patterns of cross-national, cross-time variation in national attributes are along the wealth, totalitarian, authoritarian, power, domestic conflict, density and Catholic culture dimensions.

2. The wealth dimension is consistently the largest pattern of national attributes, spanning the literacy, communications, nutrition, housing, GNP per capita and bureaucratization of national societies. It is partially an economic development or modernization dimension, but includes other aspects of national societies. Wealth is the most pervasive and strongest pattern of covariance in national attributes in time and space, and at its center is the magnitude of energy consumption per capita.

3. Energy also enters into the power dimension. Energy production times population is the best indicator of a nation's power pattern. Thus, energy consumption per person marks a distinctive pattern of wealth; energy production weighted by the number of people indexes a nation's power.

4. The total foreign conflict of a nation is highly correlated with its power; the more the power, the more the conflict behavior of a nation.



5. National governments either vary from liberal democratic to totalitarian or to authoritarian. Totalitarianism and authoritarianism are the two major political dimensions of nations.

6. The major independence patterns of behavior between nations comprise transactions, alignment, international organizations, relative exports, negative communications and military violence.

7. Conflict behavior between nations is in space and time independent of their level of transactions, comemberships in organization, exports and political alignments. In other words, the level of cooperation between two nations does not indicate much about their conflict behavior, and vice versa.

8. Moreover, the political alignments of nations, insofar as reflected by UN voting or bloc memberships, does not indicate much about their transactions or conflict behavior.

9. Almost half the variation in behavior between nations can be explained statistically by their various economic, political and sociocultural distances from each other. Around ninety percent of the variation in specific behaviors can be explained by such distances.

10. The behavior most generally dependent on distances is comemberships in international organizations. Actors are inclined to join organizations with open, democratic nations that are densely populated and wealthy.

11. Nations are inclined to align with and export relatively less to the unstable, weak, poor, non-Catholic nations with diverse populations.

12. Nations are disposed to transact less and have more conflict with those that are small, non-Catholic and diverse.

13. In general, we cannot explain conflict behavior alone by differences in wealth, power, totalitarianism and so on. Differences do explain conflict behavior, but their direction and weight of effect depend on the actor involved.

14. However, there are groups of actors sharing similar linkages between distances and behavior. And some do show a linkage between foreign conflict and differences in wealth, power and totalitarianism. For one group involving the U.S., the U.K., the Netherlands and Brazil, the wealthier and less totalitarian the other nation, the more transactions, alignment and organization comembership with, and the less conflict behaviors towards it. For another group involving China and Poland as central members, the weaker and more democratic the other nation, the fewer transactions with and negative communication towards it and the more anti-foreign (or unofficial) conflict behavior. And a group involving Egypt, Jordan, Cuba and China are disposed to transact more and conflict less with poorer, homogeneous states.

15. In sum, there is a simple equation linking behavior and distances. It is

$$w_{i \rightarrow j, k} = \sum_l \alpha_l d_{l, i-j},$$

where  $w$  is the behavior  $k$  of nation  $i$  to  $j$ ,  $\Sigma$  is the summation sign,  $d$  is the distance vector (difference) between  $i$  and  $j$  on the  $l$ th dimension of the nations' attributes, and  $\alpha$  is a parameter weighting the distances specifically for actor  $i$ .

1.2 U.S. Foreign Relations, 1963, and Random Numbers. The previous Quarterly Technical Report (No. 3) summarized our results of analyzing the 1963 foreign relations of the U.S. (Section 1.1). The results showed that almost fifty percent of the variance in American foreign policy behavior was dependent on object-nation socio-economic and political distances from the U.S., and that some particular equations predicting cooperation and conflict, in terms of economic, power and political distance accounted for over ninety percent of the variance.

Tests of significance show the odds of getting such results to be well over a million to one. They are, in the words of one colleague, "too good to be true." Accordingly, our concern is to test for any possibility of error in the results. One possible source of error lies in the nature of the canonical model and the form of our data. The nature of our data matrices could force certain restraints (necessary relations) upon the canonical results. To test for this, all the U.S. behavioral data were replaced with random numbers and the analyses rerun, keeping all the analysis parameters the same. The results showed that for random numbers the amount of variance in "behavior" accounted for was almost nine percent (compared to about fifty percent for the real data), with the best equation accounting for about twenty-five percent of the variance (compared to over ninety-percent for real data). This analysis shows that the finding of a high dependency of U.S. behavior on distances cannot be attributed to forced or artifactual relationships.

## II. METHODOLOGY AND COMPUTER PROGRAMS

There were no new developments during the quarter.

## III. DATA

There were no new developments during the quarter.

## IV. PERSONNEL

4.1 Project Director. During the quarter, the project director was involved in a number of activities, as follows.



4.1.1 A Second NSF Proposal. During the previous quarter, an NSF proposal was submitted to NSF-RANN to extend our data collection and analysis of international social indicators back to 1820. The purpose is to develop a reliable longitudinal base for long-range forecasting. During this quarter a second proposal was submitted to NSF-Political Science to determine the relationship between political systems and war over the same period. The basic hypothesis to be tested is that democracies or republican systems virtually never make war on each other, while authoritarian-totalitarian regimes have the greatest probability of war between them.

4.1.2 National Attributes and Behavior. The director (with Sang-Woo Rhee, Peter Sybinsky, and George Omen) completed and submitted to Sage Publications the manuscript on National Attributes and Behavior: Data, Dimensions, and Linkages 1950-1965. This book presents in quantitative summary form the major results of the five-year ARPA contract completed in 1972, as well as the attribute data on 90 variables for all nations for 1950, 1955, 1960, 1963, and 1965; and the dyadic data on fifty behavioral variables for 180 dyads (including US-USSR, USSR-China, China-US, US-Cuba, Israel-Egypt) for the same years.

It extends considerably in time and space the results given in Dimensions of Nations (published in 1972) and, especially, provides for the first time the systematic linkages between the dimensions of national societies and their mutual interaction.

4.2 Research Assistants. In the last three quarters, George Omen, Edward Schwerin, and Peter Sybinsky passed their Ph.D. comprehensive examinations. All three are now embarked on their Ph.D. dissertations. Mr. Schwerin is particularly well along on his dissertation concerned with the stability of nuclear deterrence and the probability of nuclear war.

V. DON ACTIVITIES

5.1 Staff Meetings. Two-hour weekly meetings were continued throughout the quarter as a way of acquainting project staff with the fundamental research and scholarly literature related to our efforts.

VI. PUBLICATIONS AND REPORTS

6.1 Books. One book was completed and submitted to Sage Publications. This is National Attributes and Behavior: Data, Dimensions and Linkages, and presents the major results and data of the five-year ARPA research program completed in 1972.

6.2 Manuscripts. Work on The Sociological Field has continued during the quarter. This manuscript will analyze the field of power and conflict comprising social systems and in particular reference to the international social system.

## VII. BUDGET

7.1 At the conclusion of this quarter, the expenditures of DON were in line with those budgeted.

7.2 Amount Funded. The maximum amount available for reimbursement is \$50,000.00.

7.3 Estimated Expenditures and Commitments. Total expenditures to date (07-01-73 to 06-30-74): \$49,587.30. Total estimated expenditures (07-01-73 through 06-30-74): \$50,000.00.

7.4 Estimated Additional Funds Required. None. All funds have been or will be expended under the contract.