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QUANTITATIVE METHODS FOR LONG-RANGE ENVIRONMENTAL FORECASTING

CONSOLIDATED ANALYSIS CENTERS, INC.

PREPARED FOR

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This report describes the status of the work being done for the Defense Advanced Research Projects Agency on the development of quantitative methods for long-range environmental forecasting. The work reported upon is principally concerned with the development of a model that examines interactive effects among five central environmental descriptors: international conflict, international alignment, economic interdependence, internal instability, and national power base. The overall purpose of the model is to acquaint national security analysts with modern long-range forecasting techniques and to provide a long-range forecast of Europe (1985-1994) using the aforementioned descriptors.

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PREFACE

This report describes the status of the work being done for the Defense Advanced Research Projects Agency on the development of quantitative methods for long-range environmental forecasting. Work on all tasks of the current contract is summarized herein. The technical research and analyses are included in the six working papers that accompany this report.

The work reported upon is principally concerned with the development of a model that examines interactive effects among five central environmental descriptors: international conflict, international alignment, economic interdependence, internal instability, and national power base. The overall purpose of the model is to acquaint national security analysts with modern long-range forecasting techniques and to provide a long-range forecast of Europe (1985-1994) using the five aforementioned descriptors.

STUDY PARTICIPANTS

This report was prepared by Dr. Robert Franco and Dr. Herman Weil.

Contributors to the working papers are as follows:

1.	"National Power Base as a Component of a Long-Range Forecasting Model"	Mr. Aaron Greenberg Dr. Michael R. Leavitt
2.	" The Use of International Alignment in a Long-Range Forecasting Model"	Dr. Herman Weil
3.	"International Conflict as a Central Environmental Descriptor in a Long-Range Forecasting Model"	Mr. Robert Escavich Mr. Larry German
4.	"A Preliminary Analysis of Internal Instability in a Long-Range Forecasting Model"	Dr. Herman Weil
5.	"An Elasticity Approach to Forecast Dyadic Trade and Economic Interdependence"	Dr. Robert Franco
6.	"Dynamic Modeling of Central Environmental Descriptors for Eastern and Western Europe"	Dr. Herman Weil Dr. Michael R. Leavitt

The study team would like to acknowledge the help and guidance received from Dr. Robert A. Young in the preparation of all the papers. Furthermore, the team would like to thank COL. James St. Cin and COL. William Steinberg, JCS/J5, for having read and provided suggestions in the preparation of the working papers.

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SUMMARY

This Interim Technical Report describes technical work undertaken by the Policy Sciences Division of C.A.C.I. on the study entitled "Quantitative Methods for Long-Range Environmental Forecasting: Phase II."

Under the first phase of the project, C.A.C.I. undertook the following tasks.[1] First, a survey of forecasting methods and techniques especially applicable to long-range environmental forecasting was carried out. Second, a forecasting model that integrated qualitative techniques with quantitative techniques was developed. Third, a long-range forecast of three central environmental descriptors -- international conflict, international alignment, and internal stability -- was generated for twenty Indian Ocean countries. Central environmental descriptors are key concepts that characterize the long-range environment and are consequently of interest to the national security community. The overall learning outcome of the first phase of the project was that central environmental descriptors are interrelated and require the use of interactive models for their forecast. Moreover, questions arose regarding the applicability of the integrated approach to developed countries. In response to these queries, the follow-on project was undertaken.

[1] C.A.C.I., "Quantitative Methods for Long-Range Environmental Forecasting" (Arlington, Va., February 1973); and C.A.C.I., "A General Handbook for Long-Range Environmental Forecasting," Volumes I and II (Arlington, Va., February 1973).

The major tasks to be performed by C.A.C.I. under this contract are:[2]

Task I	Expand the number of long-range environmental descriptors.
Task II	Examine the interactive effects among central environmental descriptors.
Task III	Test the generality of the long-range forecasting models.
Task IV	Forecast the long-range environment for additional selected areas.
Task V	Develop a long-range forecasting research guide.
Task VI	Prepare the Final Report.

The study will yield three main products:

1. A Final Report that describes all the research undertaken in this project, to be delivered by 28 February 1974. It will contain extensive discussions of the five central environmental descriptors used in the analysis. It will also contain the structure of an interactive model that is being developed at the present time to forecast values of the central descriptors. The third component of the Final Report will be an actual forecast of the descriptors for the European environment.

2. A research guide that develops a step-by-step procedure to undertake long-range forecasting. The research guide is designed to complement the "General Handbook for Long-Range Environmental Forecasting" that was developed under the first phase of the study. The Handbook presented eleven techniques that can be used to generate long-range forecasts. The research guide will develop the manner whereby these

[2] See C.A.C.I.'s unsolicited proposal entitled "Quantitative Methods for Long-Range Environmental Forecasting II" (Arlington, Va., January 1973).

techniques are to be used in long-range forecasts. For all practical purposes, the guide is a research design for long-range forecasting. A draft of the guide was completed in May 1973 and is presently undergoing revisions. The final version of the guide will be available upon completion of the study.

3. A series of briefings to the national security community. The research team will generate a series of briefings for the community that will deal primarily with the approach to long-range forecasting developed under this contract, and will present selected experimental results.

I. SCOPE AND CURRENT STATEMENT OF WORK

A. TASK I: EXPAND THE NUMBER OF LONG-RANGE ENVIRONMENTAL DESCRIPTORS

The first task calls for an expansion of the number of long-range environmental descriptors from three to five. Under the first phase of the research completed on the project, three central descriptors that were of interest to the national security community and that lent themselves to long-range forecasting were identified. The descriptors were international conflict, internal instability, and alignment. For the second phase of the study, two additional descriptors, economic interdependence and national power base, are being considered. Both of these descriptors also possess the aforementioned characteristics. Another descriptor, "power blocs," which is of interest to the national security community, may be generated by properly combining economic interdependence and alignment.

Enclosed herewith and included as part of this Interim Technical Report are six working papers, five of which are discussed under this task. They are as follows:

Working Paper No. 1: "National Power Base as a Component of a Long-Range Forecasting Model"

Working Paper No. 2: "The Use of International Alignment in a Long-Range Forecasting Model"

Working Paper No. 3: "International Conflict as a Central Environmental Descriptor in a Long-Range Forecasting Model"

Working Paper No. 4: "A Preliminary Analysis of Internal Instability in a Long-Range Forecasting Model"

Working Paper No. 5: "An Elasticity Approach to Forecast Dyadic Trade and Economic Interdependence"

The sixth working paper entitled "Dynamic Modeling of Central Environmental Descriptors for Eastern and Western Europe" is also included with this Interim Technical Report but will be discussed under Tasks II through IV.

The working papers are fairly technical in nature. Measurement procedures and sets of predictor variables for each descriptor are suggested. In order to undertake these tasks efficiently, a review of the literature of the descriptors is also presented. Succinct summaries of the papers are presented below.

1. National Power Base[3]

National power base is viewed as the material and human resources that are available to a nation. These resources are divided into a military dimension and an economic dimension. The military dimension is the nation's realized military power, that is, those resources, skills, and political will available at a given time to engage in military conflict. A nation's military power base index is constructed from the nation's total military expenditures, number of men in the armed forces, and military expenditures per soldier. The economic dimension contributes

[3] Aaron Greenberg and Michael Leavitt, "National Power Base as a Component of a Long-Range Forecasting Model," Working Paper No. 1 (Arlington, Va.: C.A.C.I., August 1973).

to the nation's power base as a longer term potential for military power and as a basis for exercising power in itself. The economic power base index is constructed from the nation's population, its energy consumption, its GNP, and its GNP per capita. Future values of national power base are determined by two broad categories of variables. The first category includes variables external to the forecasting model, such as increases in population and growth in GNP, that have an impact on a nation's power base. The second category includes relationships with other central environmental descriptors that are expected to have an impact on the index. In the paper, international conflict, international alignment, and internal instability are the three descriptors that affect the rates at which military and economic power base change.

2. International Alignment[4]

International alignment is defined as the degree to which two nations share similar attitudes or patterns of behavior with respect to some mutually salient third nation or group of nations. In the European context, the United States and the Soviet Union are the most plausible salient nations. The nations of Europe will be considered aligned to the extent that they behave similarly toward the two major powers.

In addition, a modified bipolar schema will be used to determine the extent to which the European nations are aligned with the United States or with the Soviet Union. Forecasts of nations' alignments with these two powers will suggest the degree to which the present divisions of the

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[4] Herman Weil, "The Use of International Alignment in a Long-Range Forecasting Model, " Working Paper No.2 (Arlington, Va.: C.A.C.I., August 1973).

European continent are expected to continue in the future. These forecasts will be used to infer the potential for European nations to act, in unison, as a third major power.

Predictors of alignment patterns include the degree of internal turmoil and revolution, nations' economic and military power bases, their total international conflict, and their comparative levels of conflict with the United States and the Soviet Union. In addition, expected patterns of trade with these two major powers will serve as a predictor of European nations' alignment patterns. Predictors of alignment patterns include comparative distances from the United States and the Soviet Union and nations' polity types.

3. International Conflict[5]

International conflict is defined as "negative" interactions between nations, that is, hostile actions taken by one nation toward another nation. Those interactions include a continuum of conflict types ranging from verbal accusations to military action. Thus international conflict is not restricted to military encounters. The index of conflict that has been developed is intended to indicate the proportion of conflictual interaction within nation pairs or dyads. The index attempts to place conflict interaction in perspective by accounting for both positive and negative interaction between nations.

The regression model that will be used to forecast international conflict contains five exogenous (externally determined) and four endogenous

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[5] Robert Escavich and Larry German, "International Conflict as a Central Environmental Descriptor in a Long-Range Forecasting Model," Working Paper No. 3 (Arlington, Va.: C.A.C.I., August 1973).

(internally determined) predictors. Exogenous predictors include geographic proximity/contiguity, number of treaties, defense as a percent of GNP, social distance, and level of interaction. Endogenous predictors are previous levels of conflict between dyad members, military power base, alignment, and internal instability.

4. Internal Instability[6]

Acts of internal instability are defined as those events where political violence is used to alter governmental policies or practices. Instability is defined in terms of two dimensions, turmoil and revolution, which correspond to the two classes of destabilizing acts described above. Turmoil is measured by occurrences of riots and demonstrations, while revolution is measured by armed attacks. Each of these measures is weighted for severity by deaths due to domestic violence.

Several endogenous and exogenous predictors are used to forecast turmoil and revolution. These endogenous predictors include a nation's trade, its trade concentration, the size of its economic and military power bases, and the extent of its major power alignments. Among the exogenous predictors of internal instability are population, the nation's history of negative government sanctions, and its history of regular power transfers.

Forecasts of the internal instability descriptor will indicate which European nations are most likely to experience severe turmoil and revolutionary activity in the period 1985-1994, and will detail the reasons behind these expectations. These forecasts will be grouped by current

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[6] Herman Weil, "A Preliminary Analysis of Internal Instability in a Long-Range Forecasting Model," Working Paper No. 4 (Arlington, Va.: C.A.C.I., August 1973).

and expected future NATO and Warsaw Pact membership, and will compute expected levels of instability for NATO nations, Warsaw Pact nations, and other likely groupings of nations.

5. Economic Interdependence[7]

Economic interdependence is defined as the relative proportion of a country's total trade with another country. To forecast economic interdependence in the 1985-1994 period, forecasts of dyadic trade must first be made. In the working paper, an elasticity approach is used to generate these forecasts. The income elasticity of imports for a particular country is defined as the ratio of the percent change in its imports divided by the percent change in its GNP. Import elasticities are important concepts of international economics and their use in forecasting economic interdependence is particularly useful since elasticities can yield future dyadic trade.

B. TASK II: EXAMINE THE INTERACTIVE EFFECTS AMONG CENTRAL ENVIRONMENTAL DESCRIPTORS

The second task to be performed under this contract entails examining the interaction effects among the central environmental descriptors. In the first phase of the study, single equation models were used to forecast values of three central environmental descriptors -- international conflict, alignment, and internal instability -- for countries that border the Indian Ocean region. These models, however, did not account for any interaction between the descriptors; that is, any impact that

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[7] Robert Franco, "An Elasticity Approach to Forecast Dyadic Trade and Economic Interdependence," Working Paper No. 5 (Arlington, Va.: C.A.C.I., August 1973).

alignment might have had on international conflict was not considered. There are theoretical and empirical reasons, however, that suggest that central environmental descriptors are interrelated and determine the long-range environment simultaneously.[8]

Included with this report is a working paper entitled "Dynamic Modeling of Central Environmental Descriptors for Eastern and Western Europe"[9] that examines such interactions among the five central environmental descriptors. The paper lays down the theoretical structure of a simultaneous model that is composed of nine equations for nine endogenous variables. Each endogenous variable in the model is either a central environmental descriptor or a component of a descriptor. Thus, for example, the internal instability descriptor is described by two equations. The first equation specifies the level of revolutionary activity directed against the government per period, while the second equation predicts the level of internal turmoil. Similarly, international alignment is described in the structure of the model by two equations. The first equation predicts the extent of alignment with the major powers, the U.S. and the Soviet Union, while the second predicts the distribution of that alignment between those two major powers. The power base descriptor is characterized by three equations in the model. The first equation predicts economic power properly adjusted by political factors; the second predicts military expenditures; and the third predicts military manpower. The economic interdependence and the international conflict descriptors are each described by one equation in the structure of this model.

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[8] Some of the empirical reasons were discovered under the first phase of the project.

[9] Herman Weil and Michael R. Leavitt, "Dynamic Modeling of Central Environmental Descriptors for Eastern and Western Europe," Working Paper No. 6 (Arlington, Va.: C.A.C.I., August 1973).

In the model, each descriptor variable or its components are expressed as a function of other descriptor variables and a function of exogenous variables. Thus, for example, one of the instability equations is specified as follows:

$$I(t) = f(I_{(t-1)}, Y_1, Y_2, Y_3, Y_4, Y_5, Y_6)$$

where:

$I_{(t)}$	represents the level of instability at period t
$I_{(t-1)}$	represents the level of instability at period t-1
Y_1	represents the ratio of economic interdependence to power base
Y_2	represents the ratio of alignment to power base
Y_3	represents the level of power base
Y_4	represents the number of negative government sanctions
Y_5	represents the number of regular power transfers
Y_6	represents the population level

As stated earlier, there will be nine such equations in the structure of the model and these will simultaneously determine the European environment in the 1985-1994 period.

C. TASK III: TEST THE GENERALITY OF THE LONG-RANGE FORECASTING MODELS

This task requires testing the generality of the long-range forecasting models. Since international conflict, international alignment, and internal instability models have only been applied experimentally to the

countries of the Indian Ocean area in the first phase of the study, a test of the generality of these three models will be made by applying them to other selected areas of the world. The three models will be tested by forecasting values of the three descriptors for the European environment.

The parameters of the model will be estimated by the two-stage least squares technique.[10] This technique involves a two-step procedure. First, each endogenous predictor variable is regressed against all the exogenous variables of the model. In this manner the single-stage coefficients are estimated using ordinary least squares. From these, estimated values of the endogenous predictor variables can be obtained. As a result, the endogenously determined portion of these variables is purged and the exogenously determined portion retained. Second, these estimates are plugged into the structure of the model and ordinary least squares is employed to yield the two-stage least squares coefficients of the model. While the research design for this task has been formulated, actual estimation is not scheduled to begin until 1 September 1973.

D. TASK IV: FORECAST THE LONG-RANGE ENVIRONMENT FOR ADDITIONAL SELECTED AREAS

This task requires forecasting the long-range environment for additional selected geographical areas that were not studied under the first part of the forecast study. In the previous study, a forecast of three central descriptors for twenty Indian Ocean countries was generated. After considerable consultation with the user (JCS/J5), it was decided that the additional selected areas for the forecast study should involve

[10] For a thorough discussion of two-stage least squares, see J. Johnston, Econometric Methods (New York, 1960), pp. 249-252.

the European nations. There are three basic reasons for this choice:

1. Europe is composed mainly of developed countries;

2. European nations are quantitatively and qualitatively well endowed with data;

3. The European environment was of special interest to JCS/J5.

Forecasts of the five descriptors for the following twenty-seven countries will be generated:

Albania, Austria, BLEU (Belgium/Luxembourg), Bulgaria, Czechoslovakia, Denmark, Finland, France, East and West Germany, Great Britain, Greece, Hungary, Iceland, Ireland, Italy, Netherlands, Norway, Poland, Portugal, Rumania, Spain, Sweden, Switzerland, Turkey, USSR, and Yugoslavia.

E. TASK V: DEVELOP A LONG-RANGE FORECASTING RESEARCH GUIDE

This task calls for the development of a long-range forecasting research guide. The research guide will complement the two volume document entitled "A General Handbook for Long-Range Environmental Forecasting" which was published by C.A.C.I. in February 1973. The Handbook discusses important techniques that are applicable to long-range environmental forecasting and presents a bibliography and a list of data file descriptions that may be of use to long-range forecasters in the national security community.

The research guide will discuss a step-by-step procedure for making long-range forecasts of the international environment and will use the

techniques presented in the Handbook. The guide itself will not contain technique descriptions; rather, it will develop a research design for empirical research in the social sciences. The research guide is designed to be used in conjunction with the Handbook.

A draft copy of the research guide was completed in May 1973 and is presently undergoing revisions based on extensive discussion with JCS/J5 personnel. The final copy of the guide will be prepared by February 1974.

F. TASK VI: PREPARE THE FINAL REPORT

This task involves the preparation of the Final Report that is due on 28 February 1974. According to the task scheduling in the contract, this task is expected to begin in the middle of December 1973. The report will include portions of the working papers, research memoranda, etc., that are being prepared throughout the length of the research effort.

One of the purposes of this research effort is to demonstrate to national security analysts that advanced methods can be used in long-range environmental forecasts. In the forthcoming section, the manner in which C.A.C.I.'s research in this area is relevant to long-range strategic forecasts will be discussed.

II. LONG-RANGE ENVIRONMENTAL FORECASTING IN LONG-RANGE STRATEGIC STUDIES

The Joint Long-Range Strategic Forecast (JLRSS) is intended to:

- Determine the strategic implications of world environmental trends.
- Determine the relationships of national objectives, policies, and military constraints to world and regional trends.
- Determine probable major world-power groupings, including alternative power alignments and possible conflict situations.
- Determine the U.S. military capabilities required in the long-range time frame.

Such responsibilities can be met only if long-range strategic forecasters have plausible forecasts of the environment or milieu in which those strategies must be carried out. Ultimately, the plausibility of an environmental forecast must be decided by the strategic forecasters who utilize it in making long-range strategic forecasts. Supporting previous contentions, the research on long-range environmental forecasting by C.A.C.I. demonstrates that only forecasts based on realistic assumptions about that environment are of genuine use to strategic forecasters.

A. CENTRAL FOCUS AND ASSUMPTIONS

Long-range environmental forecasting is concerned with several central environmental descriptors that are of special interest to strategic

forecasters and can be forecast over the long run with some credibility. Those under consideration include:

- National Power Base
- Internal Instability
- International Economic Interdependence
- International Alignment
- International Conflict

Three assumptions about the nature of these descriptors are made for these forecasts.

- The central environmental descriptors are related to one another so that changes in one or more of them produce changes in others. Moreover, these descriptors are related to other important variables in the environment so that changes in the other variables have an impact on one or more of the descriptors, usually simultaneously.
- Past trends of the central environmental descriptors guide our expectations about their future values. The conditions that produced these past trends may change, however, so that future trends may not be the same as those past trends.
- Therefore, an examination of the interrelationships among the central environmental descriptors and among those descriptors and other important variables in the environment provides the basis for more plausible forecasts than simple extensions of past trends.

Furthermore, environmental forecasting is more plausible when qualitative judgments about the relative importance of various factors in the environment and their relationship to national security are combined with quantitative analyses of both relationships among these factors.

B. INTEGRATING QUANTITATIVE WITH QUALITATIVE METHODS

Combining qualitative and quantitative analyses in forecasting the national security environment enables the forecaster to explicitly evaluate the implications of the basic assumptions about the environment. Quantitative methods enable the forecaster to more explicitly recognize the assumptions upon which the forecast rests, and to evaluate how these assumptions affect the forecasts generated. Quantitative methods also enable the environmental forecaster to state clearly the interrelationships among the central environmental descriptors of interest to the national security community, and to estimate the impact of these relationships upon the forecast. Qualitative judgments suggest where to look for these interrelationships; quantitative methods evaluate the impact of the relationships upon forecasts for the national security community. Quantitative methods, then, permit us to utilize qualitative information on the ties between important factors in the national security environment in order to improve the quality of the forecasts and to interpret their results.

The output from C.A.C.I.'s long-range forecast study will provide the national security community, and especially JCS/J5, with information on new applications of long-range forecasting techniques (through the research guide) and an environmental forecast of Eastern and Western Europe for 1985-1994 (through the interactive model). In the forthcoming section, a sample study output is presented. The output describes the manner in which the Final Report will be written. All analyses and highly technical discussions will be incorporated in appendices.

III. SAMPLE STUDY OUTPUT

A. NATIONAL POWER BASE

Forecasts of the national power base descriptor will rank the European nations by the potential economic and military power they are expected to have in the 1985-1994 period. These rankings will be produced for all nations, and for nations grouped by their alignment with NATO or the Warsaw Pact. In addition, forecasts of the relative power bases of those two groups will be provided, for the same period, along with forecasts of the relative power bases of other plausible power groupings within Europe.

B. INTERNAL INSTABILITY

Forecasts of the internal instability descriptor will suggest which European nations are most likely and which are least likely to experience severe internal instability in the 1985-1994 period, and will present the reasons behind these expectations. In addition, these forecasts will be grouped by current and future NATO and Warsaw Pact membership. The output will also contain forecasts of internal instability for the NATO nations, Warsaw Pact nations, and other power groupings in comparison with one another.

C. ECONOMIC INTERDEPENDENCE

Two aspects of interdependence will be forecast. First, measures of the extent to which European nations will trade with one another will be

provided. The patterns of trade within Europe will be analyzed to forecast those nations that will trade extensively with one another. In addition, forecasts of the dependence of each nation on its bloc members will be provided.

D. ALIGNMENT

Forecasts of the alignment descriptor will identify the probable major groupings of nations in the 1985-1994 period. This information will appear in three forms:

- Nations will be grouped according to whether they are expected to be aligned with a major power (in this case, the U.S. or the USSR) or unaligned with a major power.
- Forecasts will be made of the division of each nation's major power alignment between the U.S. and the USSR.
- Patterns of alignment among the European nations themselves will be forecast.

E. INTERNATIONAL CONFLICT

Output from the forecasts of the international conflict descriptor will suggest where the national security community can look for conflict between nations in the European environment of the 1985-1994 period. Specifically, this output will rank pairs of nations according to whether or not they are likely to be involved in conflict with each other.

One example of hypothetical output from C.A.C.I.'s Long-Range Environmental Forecasting project is drawn from the internal instability descriptor. In this example, only four European nations are forecast to experience very high levels of protest during the 1985-1994 period: West Germany,

France, Italy, and Spain. Most of the protest in France, West Germany, and Italy is expected to be non-violent, but in Spain protest is forecast to be accompanied by substantial violence. Revolutionary activity in Europe is expected to be concentrated in Greece and Spain where struggles over control of the government could last throughout most of that time frame. Table 1 shows rankings of the NATO, Warsaw Pact, and unaligned nations for protest; the nations having higher rankings are forecast to experience more extensive protest than those lower on the scale.

Table 2 shows hypothetical patterns of alignment with the United States and the Soviet Union, and ranks nations within each group according to the degree to which they are forecast to experience protest. Nations expected to be aligned with the U.S. are forecast to experience significantly more internal protest than those expected to be aligned with the USSR. All four of the nations forecast to experience very high levels of protest -- France, West Germany, Italy, and Spain -- are expected to remain aligned with the United States. Those nations forecast to remain aligned with the USSR -- Czechoslovakia, Poland, and Yugoslavia -- are expected to have the highest levels of protest. This forecast is based on the fact that very high levels of suppression tend to prevent overt protest, and, of the nations to be aligned with the USSR, these three are expected to have the lowest levels of such suppression.

TABLE 1

RANKINGS ON PROTEST

AMONG CURRENT NATO AND WARSAW PACT MEMBERS

	NATO	Non-Members	Warsaw Pact
Most Likely To Experience Protest	W. Germany Italy France* Portugal Great Britain Greece Turkey Belgium Netherlands	Spain Ireland	Czechoslovakia Poland Yugoslavia Albania Bulgaria
Least Likely To Experience Protest	Denmark Iceland Norway	Sweden Switzerland Austria Finland	E. Germany Hungary Rumania USSR

*France is not part of the military alliance of NATO.

TABLE 2

RANKINGS ON PROTEST BY EXPECTED ALIGNMENT

WITH U.S. AND WITH USSR

Aligned with U.S.	Aligned with USSR
Spain	Czechoslovakia
West Germany	Poland
Italy	Yugoslavia
France	Sweden
Portugal	Albania
Ireland	Austria
Great Britain	Bulgaria
Greece	Finland
Turkey	East Germany
Belgium	Hungary
Netherlands	Iceland
Switzerland	Norway
Denmark	Rumania