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碩 士 論 文

IMD 國家競爭力排名方法之改進與視覺化模型

Ranking and Displaying Models for IMD World Competitiveness

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摘　　要

IMD 出版之國家競爭力年鑑素來被認定為最具公信力的研究報告之一。然而 IMD 採用過多指標，又給予相同權重，乃可議之處，另者，沒有全球性的趨勢分析亦為其遺憾；本研究提出一個 Estimation Model，試圖找出少數的關鍵指標及其適當權重，將可使評估國家競爭力的過程更為簡便，也可找出影響一國競爭力的重要指標。我們以 2001 到 2003 年的資料實驗，並以該實驗結果預測 2004 年的國家排名，結果與 IMD 2004 所公佈之排名相當近似，証實此一模式具高可靠度。此外，本研究中也提出一個 Visualization Model，在 3D 球面上觀察國家之間的相似性與群聚性。結果發現，國家排名由高往低，在球面上呈現螺旋狀上升，可解釋一國由落後到先進的發展過程。

關鍵字：國家競爭力、IMD 世界競爭力年鑑、排名

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ABSTRACT

IMD World Competitiveness Yearbook is one of the well-known reports about the world economic competitiveness. However, IMD yearbook has the following disadvantages. First of all, too many criteria are used. Second, all criteria are regarded equal important in scoring a nation's competitiveness. Thirdly, there's no further pattern displaying for global competitiveness. This study proposes a new scoring model, the "Estimation Model", to estimate the national competitiveness. The Estimation Model works well in finding out significant criteria and predicating next year's ranks. On top of that, a Visualization Model is developed to display nations on the surface of a 3D ball. The results reveal a finding of the "spiral evolvement phenomenon" when nations improving themselves.

Keyword: National competitiveness, IMD World Competitiveness Yearbook, Ranking

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Tong-Yun Ko

June, 2004

OM Lab, NCTU, Hsinchu Taiwan

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1. Introduction

1.1. Background

World competitiveness provides a frame of reference to access how nations manage their economic future. It does not merely measure the economic performance, but also take the abstract concepts, such as living standard, into consideration. Competitiveness itself is multifaceted.

International Institute for Management Development (IMD) is an academic research organization in Switzerland, which publishes a global competitiveness report every year to score and rank the competitiveness of each country. The report is entitled World Competitiveness Yearbook (WCY), which is one of the best competitiveness reports currently.

However, there're still some flaws for IMD WCY.

(1) Too Many Criteria Used.

(2) Equal Weights

(3) Lack of Visualization Tools

(4) Lack of Global Trend Observation

1.2. Objectives

To fix the flaws in IMD WCY, the "Estimation Model" is proposed.

The motivation behind the Estimation Model is use far less criteria to compute the national competitiveness and hoping the resulted scores are close to those in IMD WCY.

The objectives of the Estimation Model are summarized as follow.

(1) To find a few significant criteria

(2) To find the correspondent importance for the significant criteria

(3) To make the score-computing process easier

(4) To make the predication for next year's ranks more accurate and more feasible.

1.3. Organization of Study

The organization of study is arranged in the following order.

Chapter 1 introduces the concept of national competitiveness, the background of IMD WCY, and the objectives of this study.

Chapter 2 reviews the methodology of IMD World Yearbooks, displaying how these criteria are organized. And its strong points and weaknesses are explored as well.

Chapter 3 formulates the Estimation Model. First, a number of indicators were selected as candidate criteria. The Estimation Model is performed with the candidates

on the data of 2001, 2002, and 2003. Then, a set of significant criteria were got, along with their correspondent weights. With the significant criteria found, the data of 2004 is used for verification.

Chapter 4 proposes the Visualization Model, which displays the competitiveness of nations on a 3D ball. This not merely visualizes the similarity among nations, but also reveals an interesting finding, the "Spiral Evolvement" phenomenon we called. The Spiral Evolvement explains the stages a nation would go through when they improve their competitiveness.

Conclusion is presented in Chapter 5. Based on the outcomes of Estimation Model, a number of criteria are found significant and crucial in national competitiveness. And the Visualization Model proves the evolvement of a nation does follow certain pattern.

2. Review of IMD WCY

2.1. IMD World Competitiveness Yearbooks

Competitiveness research has been an important issue since the professor of Harvard Business School, Michael Porter, published a book entitled "The Competitive Advantage of Nations" in 1990s. Not merely the academic circle but also the political and industrial circles were noting the progress on the competitiveness research area.

IMD publishes a competitiveness report annually, called WCY (World Competitiveness Yearbook). IMD WCY takes up to three hundred criteria to compute the competitiveness score for each nation.
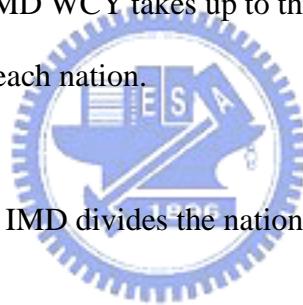
In terms of methodology, IMD divides the national competitiveness into four main competitiveness factors:

- ❑ Economic Performance
- ❑ Government Efficiency
- ❑ Business Efficiency
- ❑ Infrastructure

Each of these four factors has been broken down into five sub-factors, as Figure 1.1 shows. Each sub-factor highlights different facets of competitiveness. Altogether, the WCY features 20 such sub-factors. Some sub-factors have been further divided into categories that define competitiveness issues more explicitly. Each sub-factor contains many indicators, and the numbers of indicators every sub-factor contained

are not necessarily the same. The indicator is the smallest unit in scoring a nation's competitiveness. Every single indicator usually means the performance the nations show in certain aspect. For example, under the sub-factor "Economic Performance" are several categories, "domestic economy", "international trade", "international investment", and "employment". Within the category "domestic economy" exists an indicator GDP.

These 20 sub-factors are equipped with the same weight, namely, a weight of 5%. And the 5% is equally split by all indicators within one sub-factor. That is, all indicators in the same sub-factor have the same weights.

Economic Performance	Government Efficiency	Business Efficiency	Infrastructure
Domestic Economy			Basic Infrastructure
International Trade	Public Finance	Productivity	Technological Infrastructure
International Investment	Fiscal Policy	Labor Market	
	Institutional Framework	Finance	Scientific Infrastructure
Employment	Business Legislation	Management Practices	Health and Environment
Prices	Societal Framework	Attitudes and Values	Education

Figure 2.1   Competitiveness Factors Organization

Totally, IMD uses two hundred to three hundred indicators. The reason why the number of indicators varies from year to year is the fact IMD changes its indicators every year in order to catch up with this fast-moving time.

IMD adopts not merely objective data (hard data) like GDP, but also questionnaire data (soft data), which is used to quantify abstract resource, such as

customer satisfaction. Besides these two types, IMD lists another kind of indicator as well, called background data. This kind of data is not used when calculating the scores, but it does provide some essential information about the nation.

An essential building block for IMD ranking is the use of standardized data for all indicators. In most case, a higher value is better. After all countries' statistics are transformed into the standardized value, they could be aggregated to compute the indices. The index value is exactly the final competitiveness score of a nation. Based on these scores, ranking is done. Each indicator has equal weight within the same sub-factor. But each sub-factor weighs equally, regardless of how many indicators they contain. The score is calculated by the additive form.
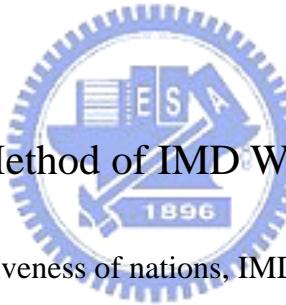
2.2. Data Processing Method of IMD WCY

To measure the competitiveness of nations, IMD World Competitiveness Yearbook takes a huge amount of data into as the input factors. Data is separated into two kinds. Hard data is for quantifiable information, while soft data is for qualitative information. To compute the national competitiveness scores, IMD developed the following procedures.
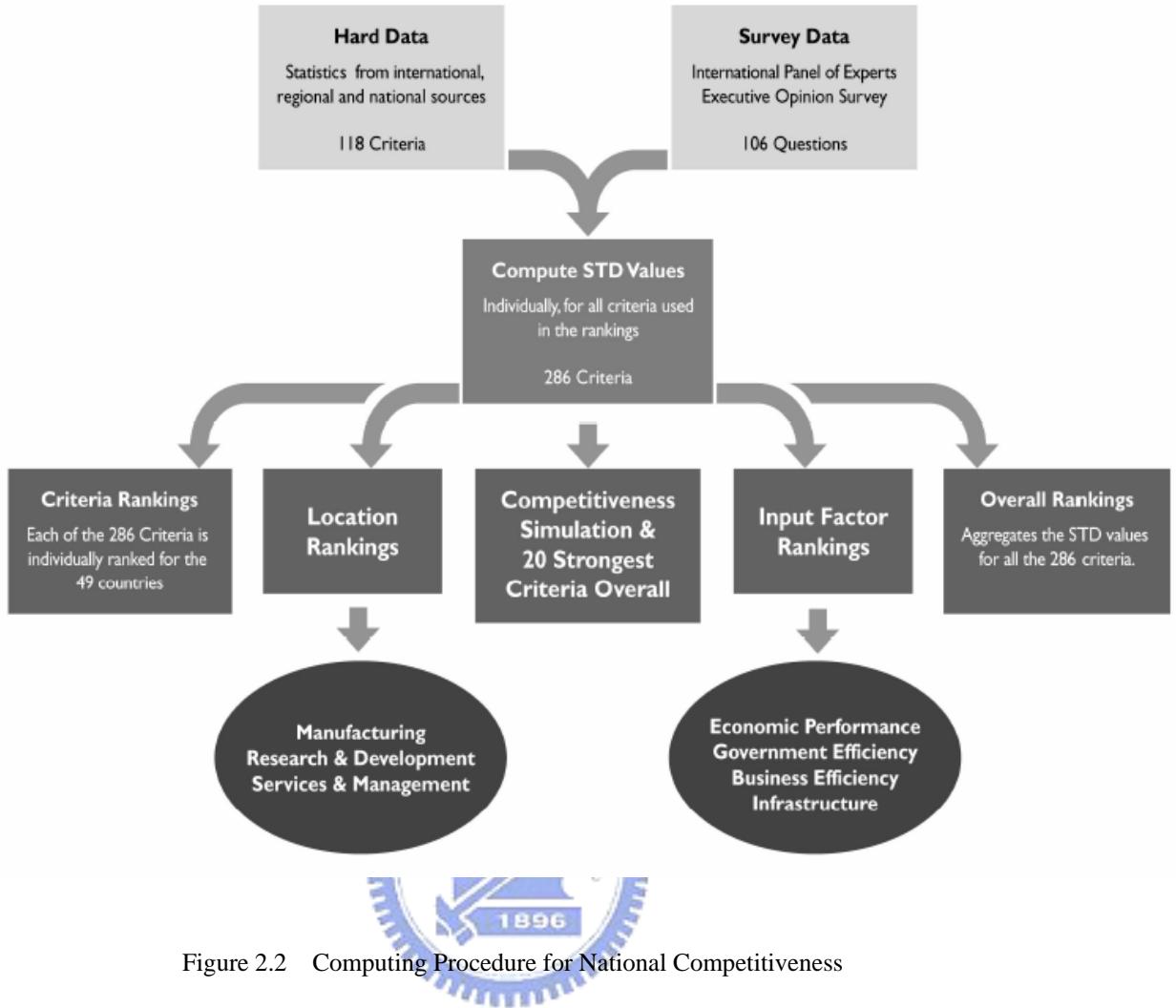
Figure 2.2   Computing Procedure for National Competitiveness

Since every criterion is scaled differently, it's necessary to standardize the data for each criterion. Take IMD WCY 2001 for example. There're 286 criteria, of which 224 are used to calculate the overall competitiveness rankings. The remaining 62 criteria are presented as background information only.

Each year, IMD conducts a survey to quantify issues relating to competitiveness for which there are no hard statistics. The questionnaire is sent to top and middle managers globally. In 2001, there were 3678 executives returned the survey. They answer questions only about the region they work in. Therefore, the results reflect the in-depth knowledge about the regions.

To overcome the different unit and scaling of each criterion, The Standard

Deviation Method (SDM) is used. The SDM measures the relative difference between nations' performance. Therefore, each country's relative position in the final ranking is more accurately assessed.

First, for each criterion, the average of all the nations' is computed. Then, the standard deviation is calculated using the following formula:

$$S = \sqrt{\frac{\sum (X - \overline{X})^2}{N}}$$

where S means the standard deviation

       N means the number of nations

       X is original value about the performance the nation shows

       $\overline{X}$ is the average value of all nations

Finally, IMD computes each nation's standardized value (STD) for the 224 ranked criteria. The formula is as follow.

$$\text{STD value} = \frac{X - \overline{X}}{S}$$

The STD values are computed for each criterion. Based on the results, countries are ranked in the 224 criteria that are used in overall ranking. The sub-factor rankings are the average of the STD values of all the ranked criteria which make up each sub-factor. This average is found by dividing the sum of the STD values by the number of criteria in the sub-factor. This could lock the weight of 20 sub-factors independently of the number of criteria they contain. If the performance of a nation is unavailable, its STD value will be replaced with zero. Then, the sub-factor rankings are aggregated to determine the "Input Factor Rankings" The same methodology is applied to obtain the overall ranking.

2.3. Weakness of Methodology in IMD WCY

The scoring methodology of IMD WCY has following weakness:

❑ Too many indicators

This leads to an exhausting calculating process. Furthermore, some indicators are in a trade-off relationship. So, a reduction on criteria can help a nation's administration to focus their limited budget for elevating themselves.

❑ Equal weights

IMD gives each indicator within the same sub-factor the same weights. But generally speaking, the importance of these indicators is not actually the same. We believe some indicators may play major roles compared with some other indicators.

❑ Without similarity observation

IMD WCY is well-known in scoring the competitiveness of nations, but the score is merely a 1D observation. Two countries may have similar scores, but largely different in culture or economy. To further describe the clustering condition among nations, we proposed the "visualization model" for displaying the similarity situation and placing nations on a 3D ball.

2.4. Possible Improvement on Scoring Methodology

In light of those weak points mentioned above, we figured out a new model. The purpose of this model is to use far less indicators, by giving these indicators different weights, an "estimated score" would be gotten. And this estimated score will be very close to the original score calculated by hundreds of indicators in IMD WCY. On the other hand, the weights of these significant criteria can reflect their importance.

Moreover, we presented another model, called "visualization model", to show the clustering among nations. Nations within the same clustering have high similarity. Thus, if a nation tries to elevate her position, taking USA as a reference is not necessarily suitable for herself. The better way to do is refer to the advanced nations within her group because of the similar culture and background.

3. Estimation Model

3.1. Data Source

Chosen Countries

Because the list of nations in IMD WCY varies every year, we chose countries which has constantly involved in IMD WCY in every year and have had complete data in the candidate criteria.

The nations for the source of Estimation Model are listed below.

(1) Argentina	(16) Hungary	(31) Russia
(2) Australia	(17) Iceland	(32) Singapore
(3) Austria	(18) India	(33) Slovak
(4) Belgium	(19) Ireland	(34) Slovenia
(5) Brazil	(20) Israel	(35) South Africa
(6) Canada	(21) Italy	(36) Spain
(7) Chile	(22) Japan	(37) Sweden
(8) China	(23) Korea	(38) Switzerland
(9) Colombia	(24) Malaysia	(39) Taiwan
(10) Czech-Republic	(25) Mexico	(40) Turkey
(11) Denmark	(26) Netherlands	(41) United Kingdom
(12) Finland	(27) New Zealand	(42) USA
(13) France	(28) Norway	
(14) Germany	(29) Philippines	
(15) Hong Kong	(30) Portugal	

Chosen Criteria

To choose a pool of candidate criteria, we refer to IMD WCY where 14 criteria are marked the "Major Indicators". Thus, the 14 are chosen as the candidate members for the Estimation Model.

The following is the list of Major Indicators.

1. GDP per capita

2. Real GDP Growth

3. Private Final Consumption Expenditure

4. Current Account Balance

5. Exports of Goods and Commercial Services

6. Directed Investment Flows Abroad

7. Directed Investment Flows Inward

8. Unemployment Rate

9. Consumer Price Inflation

10. Overall Productivity

11. Compensation Levels

12. Stock Market Capitalization

13. Listed Domestic Companies

14. Computers per capita
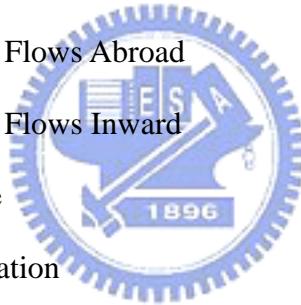
The 14 criteria above focus on economic performance. To supplement that, another 10 criteria were chosen into the candidate pool as well. The selection of these 10 criteria was based on the Diamond Model, which had been proposed by Michael Porter. This model explains the composition of national competitiveness.

In his book, "The Competitive Advantage of Nations", Porter indicated the

competitiveness of a nation is composed of four main sources, as Figure 2.1 shows:
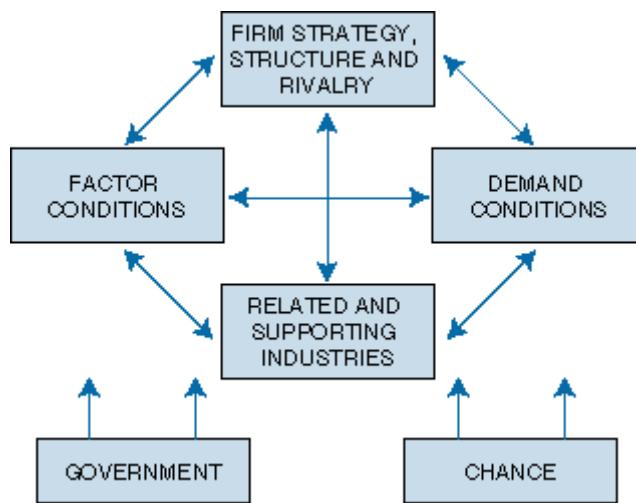
Figure 3.1   Competitiveness Factors Organization

Four sources form a nation's competitiveness:

❑   Firm strategy, structure and rivalry

❑   Related and supporting industries

❑   Factor condition

❑   Demand condition

These four elements affect each other; meanwhile, they are also affected by two

elements which not actually form the national competitiveness:

❑   Government

❑   Chance

Based on diamond model, we chose 10 candidate criteria.

➢   The criteria selected to represent "Factor Condition".

❑   Distribution Infrastructure

It's the infrastructure of road, trains, plane etc.

- ❑ Stock Market

    This indicator measures the performance nations show in "Providing adequate financing to companies".

- ➢ The criteria selected to represent "Demand Condition"

    - ❑ Government & Private Final Consumption on Expenditure

        This well represents the demand condition within a nation.

    - ❑ Export of Good and Commercial Services

        This well represents the demand from other countries.

- ➢ Firm Strategy, Structure and Rivalry

    - ❑ Technological Cooperation

        It measures the degree a company cooperates with other companies.

    - ❑ Total Expenditure on R&D per capita
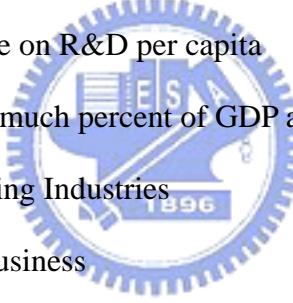
        It measures how much percent of GDP a nation spends on R&D.

- ➢ Related and Supporting Industries

    - ❑ Ease of Doing Business

        This is questionnaire data in IMD WCY. By sending questionnaires to business runners in a nation, the result from these business managers would show if the nation is a business-friendly environment.

    - ❑ Total Public Expenditure on Education

        This is selected to represent the "related and supporting industries" for human resource is a kind resource. If a nation spends a lot of money on education, it's reasonable it would have high quality human resource.

- ➢ Government

    - ❑ Government Decision

        This is a questionnaire data, which measures the degree the government can execute its policy "efficiently".

➢ Chance

❑ GDP growth per capita

If the GDP grows a lot, we believe, the business would run pretty well,

and people of the nation could earn a lot of money. That's why it

represents "chance".

Among the 10, "Export of Goods and Commercial Services" and "GDP Growth

Per Capita" are overlapped with the 14 major indicators. Hence, 22 indicators in total

are selected as candidate criteria.

3.2. Normalization of Data

Since each criterion is scaled differently, the normalization is required.

By preprocessing data with the normalization formula, the weight of each criterion

could represent the importance of themselves.

To normalize the data, the following formula is applied.

$$\overline{R_k} = \frac{\sum_{i=1}^{42} R_{ik}}{42}$$

$$\sigma_k = \frac{\sqrt{\sum_{i=1}^{42} \left(R_{ik} - \overline{R_k}\right)^2}}{42}$$

$$C_{ik} = \frac{R_{ik} - \overline{R_k}}{\sigma_k}$$

R_{ik} = the raw data of the performance nation i shows in criterion k

$\overline{R_k}$ = the average value of all nations' performance in criterion k

σ_k = the standard deviation for criterion k

C_{ik} = the normalized value for nation i in the criterion k

The raw data for each criterion is shown in Appendix A.

The normalized data is displayed in Table 3.1, 3.2, 3.3, and 3.4 for each year.

Table 3.1   Normalized Data for 2001

Nation \ Criterion	Exports of Goods & Commercial Services	Computers per capita	GDP per capita	Listed domestic companies	Stock market capitalization	Compensation levels	Overall productivity	Consumer price inflation	Unemployment rate	Direct investment flows inward	Direct investment flows abroad	Real GDP Growth	Current account balance	Private final consumption expenditure	Stock Markets	Distribution	Private & Government Final Consumption Expenditure	Technological Cooperation	Total Expenditure on RnD per capita	Bureaucracy	Company-University cooperation	Government Decision
ARGENTINA	-0.60	-1.07	-0.60	-0.45	-0.26	-0.57	-0.39	-0.75	1.05	0.12	-0.42	-2.28	-0.07	-0.17	-1.58	-0.87	-0.18	-0.98	-0.74	-0.66	-0.72	-1.29
AUSTRALIA	-0.33	1.40	0.47	0.32	-0.12	0.59	0.47	-0.11	-0.25	-0.30	-0.53	-0.27	-0.20	-0.14	1.18	0.84	-0.14	0.89	0.07	1.07	0.84	1.21
AUSTRIA	-0.26	0.61	0.67	-0.47	-0.28	1.21	0.75	-0.36	-0.57	-0.37	-0.39	-0.66	-0.01	-0.26	-0.33	1.31	-0.26	0.66	0.58	0.50	0.66	0.99
BELGIUM	0.36	0.62	0.63	-0.42	-0.22	1.33	1.04	-0.33	0.01	0.47	0.38	-0.44	0.20	-0.24	0.68	0.41	-0.24	0.44	0.51	-0.43	0.44	-0.09
BRAZIL	-0.43	-1.07	-0.95	-0.20	-0.20	-0.42	-1.07	0.07	0.23	0.34	-0.41	-0.27	-0.30	-0.04	-0.79	-1.18	-0.03	-0.68	-0.75	-0.67	-0.82	-0.21
CANADA	0.88	1.36	0.63	2.10	0.03	0.77	0.56	-0.31	-0.23	0.16	-0.02	-0.01	0.27	0.02	1.07	0.94	0.04	1.13	0.16	0.86	1.05	0.92
CHILE	-0.66	-1.02	-0.86	-0.34	-0.27	-0.67	-0.83	-0.16	0.18	-0.22	-0.34	0.24	0.07	-0.32	-0.46	0.03	-0.33	-0.41	-0.78	0.26	-0.47	-0.09
CHINA	0.68	-1.36	-1.18	0.13	-0.17	-1.26	-1.32	-0.59	-0.81	0.48	-0.41	1.36	0.32	0.11	-0.39	-0.16	0.11	-1.48	-0.84	-0.90	-1.05	-0.12
COLOMBIA	-0.69	-1.19	-1.08	-0.43	-0.29	-1.03	-1.17	0.40	1.97	-0.41	-0.45	-0.78	0.08	-0.31	-1.82	-1.79	-0.31	-1.36	-0.84	-0.97	-0.74	-0.85
CZECH	-0.57	-0.59	-0.84	-0.42	-0.29	-1.04	-0.94	-0.17	0.10	-0.32	-0.45	-1.00	0.04	-0.33	-1.92	-0.45	-0.34	-0.71	-0.66	-0.57	-0.65	-0.87
DENMARK	-0.42	1.42	1.27	-0.37	-0.25	1.34	1.42	-0.29	-0.48	-0.24	-0.21	-0.83	0.13	-0.28	0.91	1.47	-0.28	0.53	1.17	1.14	0.64	1.38
FINLAND	-0.51	1.49	0.71	-0.43	-0.16	1.13	0.83	-0.24	0.23	-0.36	-0.34	0.33	0.22	-0.30	1.37	1.50	-0.30	2.60	1.56	2.06	2.69	1.78
FRANCE	1.24	0.45	0.57	0.14	0.30	0.77	0.97	-0.44	0.25	0.48	2.17	-0.70	0.42	0.32	0.72	1.24	0.43	0.11	0.82	-1.13	-0.30	0.29
GERMANY	2.56	0.47	0.69	0.12	0.29	1.72	0.79	-0.40	-0.07	0.80	1.97	-0.74	-0.33	0.70	1.37	1.41	0.78	0.94	1.07	0.33	0.70	1.04
HONG-KONG	0.50	0.68	0.76	-0.04	-0.05	-0.60	0.75	-1.08	-0.51	0.11	0.03	2.43	0.24	-0.27	1.19	1.63	-0.28	0.24	-0.68	1.74	0.14	0.55
HUNGARY	-0.57	-0.52	-0.86	-0.49	-0.29	-1.08	-0.89	0.53	-0.23	-0.39	-0.45	0.33	0.05	-0.33	-0.50	-0.65	-0.35	-0.14	-0.76	-0.13	0.56	0.06
ICELAND	-0.75	1.48	1.24	-0.50	-0.30	0.58	0.93	-0.04	-1.10	-0.44	-0.45	-0.36	0.07	-0.35	0.34	0.88	-0.37	1.36	0.95	1.99	0.84	1.30
INDIA	-0.46	-1.39	-1.21	3.57	-0.22	-1.25	-1.34	-0.12	-0.38	-0.39	-0.45	0.50	-0.02	-0.08	0.04	-1.85	-0.10	-0.93	-0.86	-0.90	-1.11	-1.44
IRELAND	-0.28	0.65	0.82	-0.48	-0.28	0.25	0.93	0.03	-0.68	0.01	-0.32	2.17	0.08	-0.32	0.81	-1.05	-0.33	0.71	0.08	1.55	1.29	0.79
ISRAEL	-0.54	0.34	0.23	-0.08	-0.27	0.30	0.56	-0.49	0.10	-0.38	-0.43	0.20	0.05	-0.30	0.51	-0.48	-0.29	1.72	0.62	0.42	2.43	-0.04
ITALY	0.80	0.14	0.32	-0.37	0.00	0.61	0.80	-0.33	0.42	-0.28	-0.29	-0.87	0.01	0.25	-0.16	-1.33	0.28	-0.95	-0.20	-0.98	-1.17	-1.00
JAPAN	2.08	0.55	1.90	1.19	1.56	1.64	1.73	-0.72	-0.56	-0.15	0.09	-1.34	1.86	2.24	-0.23	0.54	2.39	1.08	2.64	-0.54	-0.52	-1.09
KOREA	0.28	0.16	-0.44	-0.03	-0.17	-0.16	-0.47	-0.37	-0.65	-0.22	-0.35	1.70	0.25	-0.10	-0.19	-0.43	-0.12	-0.59	-0.20	-0.13	0.24	-0.64
MALAYSIA	-0.18	-0.85	-0.94	-0.01	-0.24	-1.06	-1.00	-0.45	-0.83	-0.40	-0.20	1.62	0.20	-0.32	-0.04	0.21	-0.33	-0.59	-0.82	-0.08	-0.34	-0.19
MEXICO	0.18	-1.09	-0.76	-0.40	-0.23	-1.03	-0.86	0.49	-0.95	-0.16	-0.13	0.93	-0.19	0.02	-1.10	-0.71	-0.02	-1.45	-0.80	-0.61	-1.29	-0.13
NETHERLANDS	0.64	0.95	0.66	-0.29	-0.01	1.11	0.58	-0.33	-0.86	0.37	0.61	-0.44	0.29	-0.18	1.24	0.41	-0.16	1.19	0.65	0.90	1.03	0.72
NEW-ZEALAND	-0.67	1.04	-0.16	-0.46	-0.29	-0.27	-0.20	-0.33	-0.33	-0.42	-0.44	-0.57	0.02	-0.33	0.20	0.69	-0.34	0.30	-0.25	0.65	-0.17	0.66
NORWAY	-0.37	1.48	1.78	-0.40	-0.27	1.70	1.67	-0.28	-0.77	-0.35	-0.39	-0.74	0.37	-0.29	0.67	-0.05	-0.29	0.02	0.95	-0.25	-0.11	0.04

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PHILIPPINES	-0.52	-1.31	-1.16	-0.38	-0.28	-1.08	-1.27	-0.13	0.49	-0.43	-0.46	-0.40	0.18	-0.31	-0.62	-1.71	-0.32	-0.42	-0.86	-0.97	-0.02	-1.21
PORTUGAL	-0.59	-0.49	-0.36	-0.45	-0.27	-0.62	-0.44	-0.29	-0.65	-0.41	-0.38	-0.70	-0.09	-0.30	0.10	-0.18	-0.30	-1.29	-0.66	-0.81	-1.06	-0.77
RUSSIA	-0.17	-1.09	-1.11	-0.39	-0.27	-1.26	-1.23	1.84	0.83	-0.36	-0.40	1.23	0.46	-0.25	-1.49	-0.93	-0.26	-0.61	-0.82	-1.12	-0.98	-0.32
SINGAPORE	0.10	0.81	0.67	-0.29	-0.22	-0.37	0.47	-0.48	-0.81	-0.27	-0.36	2.17	0.41	-0.32	0.67	1.72	-0.33	1.06	0.38	2.28	1.49	2.50
SLOVAK	-0.70	-0.31	-0.95	0.06	-0.30	-1.12	-1.01	0.79	1.68	-0.43	-0.46	-1.30	0.07	-0.35	-1.90	-0.54	-0.36	-0.05	-0.79	-1.29	0.29	-0.33
SLOVENIA	-0.70	-0.03	-0.48	-0.52	-0.30	-0.64	-0.44	0.66	-0.14	-0.44	-0.45	-0.23	0.07	-0.35	-1.36	-0.25	-0.36	-0.49	-0.39	-1.22	-1.62	-1.07
SOUTH-AFRICA	-0.58	-1.07	-1.01	-0.07	-0.19	-0.61	-0.67	-0.01	4.51	-0.41	-0.43	-0.74	0.07	-0.28	0.54	0.11	-0.29	-0.35	-0.81	-0.61	-0.38	-0.97
SPAIN	0.12	-0.38	-0.07	-0.03	-0.12	0.08	0.25	-0.23	0.95	-0.22	0.41	-0.36	-0.18	-0.04	0.39	0.12	-0.04	-0.43	-0.44	0.40	-0.79	0.53
SWEDEN	-0.21	1.50	0.90	-0.34	-0.15	1.30	0.93	-0.52	-0.56	0.97	0.03	-0.53	0.21	-0.25	1.35	1.03	-0.23	1.82	2.24	1.51	1.04	1.23
SWITZERLAND	-0.20	1.05	1.57	-0.37	-0.01	1.50	1.22	-0.45	-0.99	-0.20	0.39	-0.61	0.54	-0.22	1.00	1.64	-0.23	0.73	2.71	1.36	1.16	1.36
TAIWAN	0.10	0.28	-0.08	-0.21	-0.14	-0.48	-0.01	-0.49	-0.83	-0.37	-0.35	0.50	0.22	-0.17	0.76	0.50	-0.18	1.06	-0.03	0.38	0.73	-0.89
TURKEY	-0.53	-1.25	-0.99	-0.34	-0.25	-0.86	-0.99	5.89	-0.30	-0.42	-0.44	1.02	-0.07	-0.25	-0.55	-0.40	-0.26	-0.71	-0.82	-0.84	-0.48	-0.41
UNITED-KINGDOM	1.25	0.82	0.74	0.83	0.90	0.76	0.77	-0.29	-0.43	1.58	4.51	-0.83	-0.26	0.54	0.85	-1.12	0.57	0.25	0.49	-0.17	-0.03	0.19
USA	4.69	1.52	1.78	4.82	6.49	1.26	1.73	-0.23	-0.67	6.12	3.25	0.07	-6.50	6.25	1.73	0.81	6.16	1.67	1.92	0.23	1.88	0.82

Table 3.2   Normalized Data for 2002

Criterion / Nation	Exports of Goods & Commercial Services	Computers per capita	GDP per capita	Listed domestic companies	Stock market capitalization	Compensation levels	Overall productivity	Consumer price inflation	Unemployment rate	Direct investment flows inward	Direct investment flows abroad	Real GDP Growth	Current account balance	Private final consumption expenditure	Stock Markets	Distribution	Private & Government Final Consumption Expenditure	Technological Cooperation	Total Expenditure on RnD per capita	Bureaucracy	Company-University cooperation	Government Decision
ARGENTINA	-0.60	-1.12	-0.62	-0.47	-0.22	-0.54	-0.37	-0.78	1.93	-0.28	-0.48	-1.68	-0.01	-0.17	-1.82	-1.14	-0.18	-1.37	-0.75	-1.45	-1.48	-2.09
AUSTRALIA	-0.33	1.27	0.37	0.37	-0.13	0.41	0.35	-0.11	-0.25	-0.29	-0.40	0.10	-0.10	-0.15	1.21	0.75	-0.15	0.64	0.04	0.93	0.75	1.21
AUSTRIA	-0.23	0.55	0.73	-0.49	-0.28	1.26	0.78	-0.33	-0.81	-0.33	-0.44	-0.23	-0.03	-0.25	-0.37	1.17	-0.25	1.20	0.40	0.40	0.56	0.71
BELGIUM	0.33	0.67	0.66	-0.43	-0.21	1.48	1.08	-0.37	-0.19	1.14	1.69	-0.27	0.26	-0.23	0.06	0.65	-0.23	0.31	0.59	-0.42	0.37	-0.47
BRAZIL	-0.41	-1.07	-1.01	-0.23	-0.19	-1.12	-1.12	0.30	0.30	0.12	-0.46	-0.11	-0.31	-0.06	-1.00	-1.00	-0.05	-0.93	-0.79	-0.65	-0.77	0.09
CANADA	0.85	1.36	0.67	2.22	0.09	0.81	0.61	-0.33	-0.17	0.68	0.32	-0.31	0.37	0.03	1.23	0.97	0.05	1.19	0.40	0.58	1.20	0.67
CHILE	-0.65	-0.95	-0.92	-0.37	-0.27	-0.63	-0.90	-0.33	0.25	-0.44	-0.41	0.27	0.05	-0.31	-0.02	0.27	-0.32	-0.14	-0.79	0.30	0.25	0.29
CHINA	0.83	-1.32	-1.18	0.20	-0.03	-1.22	-1.33	-0.56	-0.79	0.23	-0.49	2.29	0.40	0.14	-0.22	-0.42	0.15	-1.37	-0.85	-0.42	-0.62	0.05
COLOMBIA	-0.69	-1.18	-1.09	-0.47	-0.29	-1.00	-1.18	0.33	1.80	-0.46	-0.50	-0.44	0.04	-0.30	-1.75	-1.69	-0.31	-1.23	-0.85	-0.84	-1.06	-0.97
CZECH	-0.55	-0.60	-0.79	-0.46	-0.29	-1.01	-0.88	-0.06	0.06	-0.42	-0.50	0.72	0.02	-0.32	-1.76	-0.27	-0.33	0.54	-0.67	-0.35	-0.02	-0.06
DENMARK	-0.38	1.38	1.35	-0.40	-0.25	1.40	1.18	-0.36	-0.59	0.14	0.04	-0.19	0.19	-0.28	0.80	1.65	-0.27	0.85	1.19	1.40	0.51	1.65
FINLAND	-0.50	1.40	0.74	-0.45	-0.16	1.27	0.83	-0.33	0.21	-0.35	-0.06	-0.56	0.19	-0.30	1.35	1.50	-0.30	2.22	1.48	2.07	2.57	1.93
FRANCE	1.39	0.51	0.64	0.01	0.36	0.86	0.98	-0.44	0.17	0.32	2.84	0.10	0.39	0.32	0.92	1.10	0.42	0.08	0.56	-0.69	-0.02	-0.37
GERMANY	2.73	0.58	0.67	0.16	0.28	1.72	0.79	-0.35	-0.03	3.10	0.52	-0.48	-0.14	0.68	1.07	1.30	0.75	0.79	0.82	-0.50	0.05	0.15
HONG-KONG	0.49	0.37	0.80	-0.01	-0.01	-0.54	0.76	-0.84	-0.52	0.72	0.74	-0.69	0.26	-0.26	1.44	1.48	-0.28	0.56	-0.52	1.05	0.37	0.05
HUNGARY	-0.58	-0.61	-0.82	-0.51	-0.29	-1.00	-0.81	0.48	-0.37	-0.48	-0.49	0.84	0.05	-0.32	-0.98	-0.70	-0.34	-0.28	-0.76	0.04	-0.01	0.47
ICELAND	-0.75	1.35	1.00	-0.51	-0.30	0.42	0.68	0.14	-1.20	-0.50	-0.50	0.06	0.06	-0.35	-0.23	0.49	-0.36	1.22	1.41	1.60	1.47	0.70
INDIA	-0.44	-1.39	-1.22	3.58	-0.23	-1.19	-1.35	-0.19	0.46	-0.46	-0.50	1.26	0.01	-0.07	-0.06	-1.30	-0.09	-0.90	-0.87	-0.86	-0.97	-1.22
IRELAND	-0.23	0.70	1.09	-0.50	-0.26	0.35	1.15	-0.04	-0.69	-0.07	-0.43	1.34	0.04	-0.31	0.31	-1.46	-0.32	0.49	0.04	1.11	0.91	0.92
ISRAEL	-0.54	0.26	0.19	-0.10	-0.27	0.40	0.70	-0.51	0.39	-0.42	-0.45	-0.97	-0.01	-0.29	0.21	-0.43	-0.29	1.51	0.57	0.12	1.84	-0.72
ITALY	0.84	0.17	0.35	-0.35	0.05	0.63	0.79	-0.30	0.30	-0.26	-0.27	0.02	0.12	0.27	-0.57	-1.48	0.30	-0.94	-0.23	-1.08	-1.00	-0.16
JAPAN	1.78	0.56	1.53	1.23	1.14	1.35	1.40	-0.73	-0.58	-0.35	0.12	-0.93	1.60	1.88	-0.26	0.43	2.02	0.55	2.68	-0.37	-1.04	-0.68
KOREA	0.20	0.41	-0.49	0.36	-0.22	-0.33	-0.54	-0.14	-0.76	-0.34	-0.40	0.51	0.20	-0.12	0.35	0.16	-0.14	-0.12	-0.08	-0.30	0.30	-0.35
MALAYSIA	-0.22	-0.84	-0.94	0.00	-0.24	-0.93	-1.00	-0.47	-0.78	-0.48	-0.30	-0.56	0.18	-0.32	0.57	1.02	-0.33	-0.10	-0.82	0.65	0.24	0.37
MEXICO	0.16	-1.07	-0.72	-0.43	-0.23	-0.98	-0.74	0.13	-0.98	-0.25	-0.23	-0.85	-0.40	0.06	-0.92	-0.92	0.03	-1.55	-0.81	-0.72	-1.20	-0.68
NETHERLANDS	0.75	0.92	0.79	-0.39	-0.01	1.29	0.92	-0.09	-1.00	0.53	0.97	-0.27	0.29	-0.18	1.35	0.09	-0.15	1.25	0.67	0.95	0.99	0.62
NEW-ZEALAND	-0.68	0.96	-0.16	-0.45	-0.29	-0.28	-0.23	-0.33	-0.48	-0.45	-0.49	0.14	0.02	-0.33	0.42	0.44	-0.34	0.23	-0.28	0.61	0.27	0.82
NORWAY	-0.38	1.38	1.84	-0.42	-0.27	1.63	1.75	-0.28	-0.83	-0.39	-0.34	-0.15	0.45	-0.29	0.36	0.26	-0.28	0.44	0.90	0.46	0.12	0.42

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PHILIPPINES	-0.57	-1.30	-1.18	-0.39	-0.27	-1.05	-1.29	0.10	0.57	-0.47	-0.51	0.68	0.11	-0.30	-0.66	-1.64	-0.32	-0.52	-0.87	-0.99	0.21	-1.02
PORTUGAL	-0.60	-0.60	-0.29	-0.48	-0.27	-0.67	-0.39	-0.11	-0.72	-0.39	-0.36	0.02	-0.09	-0.29	-0.64	-0.07	-0.30	-1.11	-0.61	-1.18	-1.21	-1.22
RUSSIA	-0.16	-1.07	-1.07	-0.38	-0.28	-1.23	-1.19	1.99	0.19	-0.45	-0.44	1.34	0.61	-0.21	-1.23	-1.13	-0.22	-0.71	-0.82	-1.20	-0.71	-0.73
SINGAPORE	0.03	1.25	0.52	-0.26	-0.23	-0.33	0.41	-0.52	-0.85	-0.38	-0.42	-1.55	0.35	-0.32	0.98	1.78	-0.33	1.25	0.44	2.47	1.67	2.39
SLOVAK	-0.69	-0.37	-0.95	0.03	-0.30	-1.10	-1.00	0.25	2.02	-0.47	-0.50	0.64	0.04	-0.34	-1.83	-0.49	-0.35	-0.62	-0.80	-1.34	-0.05	-0.99
SLOVENIA	-0.71	-0.12	-0.46	-0.53	-0.30	-0.68	-0.51	0.38	-0.30	-0.50	-0.50	0.80	0.06	-0.34	-1.03	-0.52	-0.35	-0.92	-0.46	-0.96	-1.04	-0.49
SOUTH-AFRICA	-0.59	-1.06	-1.04	-0.12	-0.20	-0.58	-0.72	0.26	3.93	-0.49	-0.49	0.18	0.06	-0.29	0.78	0.04	-0.29	-0.52	-0.81	-0.36	-0.20	-0.89
SPAIN	0.11	-0.36	0.00	0.16	-0.07	0.13	0.31	-0.20	0.94	0.18	0.54	0.43	-0.19	-0.03	0.43	0.00	-0.02	-0.92	-0.49	0.16	-0.83	0.48
SWEDEN	-0.26	1.46	0.77	-0.35	-0.15	1.13	0.76	-0.33	-0.70	-0.08	0.29	-0.27	0.15	-0.25	1.40	0.72	-0.24	1.57	2.27	1.36	1.16	1.26
SWITZERLAND	-0.19	1.34	1.68	-0.38	0.06	1.59	1.30	-0.52	-1.00	-0.17	0.31	-0.19	0.55	-0.21	1.20	1.48	-0.22	0.97	2.59	1.36	0.94	1.40
TAIWAN	0.00	0.39	-0.18	-0.18	-0.18	-0.46	-0.10	-0.64	-0.62	-0.41	-0.37	-1.51	0.37	-0.18	0.84	0.46	-0.20	0.72	-0.01	0.51	1.04	-0.19
TURKEY	-0.50	-1.18	-1.06	-0.33	-0.27	-0.83	-1.05	6.00	0.48	-0.49	-0.49	-4.04	0.12	-0.25	-0.81	-0.05	-0.27	-1.27	-0.82	-0.91	-0.89	-0.36
UNITED-KINGDOM	1.24	0.84	0.79	0.77	0.88	0.75	0.81	-0.42	-0.52	1.97	4.62	0.22	-0.20	0.53	0.99	-1.42	0.56	0.19	0.50	-0.39	0.17	0.32
USA	4.65	1.52	1.81	4.69	6.58	1.40	1.87	-0.30	-0.58	4.98	2.51	-0.23	-6.55	6.37	1.76	1.35	6.30	1.57	1.97	0.70	1.93	0.91

Table 3.3   Normalized Data for 2003

Criterion / Nation	Exports of Goods & Commercial Services	Computers per capita	GDP per capita	Listed domestic companies	Stock market capitalization	Compensation levels	Overall productivity	Consumer price inflation	Unemployment rate	Direct investment flows inward	Direct investment flows abroad	Real GDP Growth	Current account balance	Private final consumption expenditure	Stock Markets	Distribution	Private & Government Final Consumption Expenditure	Technological Cooperation	Total Expenditure on RnD per capita	Bureaucracy	Company-University cooperation	Government Decision
ARGENTINA	-0.68	-0.63	-0.65	-0.71	-0.25	-0.67	-0.55	1.70	1.31	-0.49	-0.54	-3.13	0.19	-0.38	-1.95	-1.36	-0.40	-0.96	-0.50	-1.36	0.76	-1.85
AUSTRALIA	-0.45	1.90	0.95	-0.03	-0.18	0.98	0.87	-0.45	-0.53	-0.45	-0.13	0.28	-0.09	-0.26	1.66	1.35	-0.26	1.40	0.43	1.90	0.99	1.78
BRAZIL	-0.50	-0.56	-0.67	-0.54	-0.26	-0.58	-0.71	0.45	0.14	0.22	-0.46	-0.24	0.01	-0.23	-1.05	-0.42	-0.23	-0.08	-0.54	-0.33	0.19	0.16
CANADA	0.48	1.98	1.26	1.45	-0.05	1.20	1.10	-0.52	-0.30	0.40	0.70	0.19	0.21	-0.12	1.25	1.47	-0.12	1.80	0.85	1.08	0.85	0.64
CHINA	0.79	-0.81	-0.83	-0.13	-0.12	-0.83	-0.89	-0.80	-0.89	1.02	-0.30	1.24	0.27	-0.02	-0.09	-0.20	-0.02	-1.32	-0.61	0.07	-2.27	0.37
COLOMBIA	-0.75	-0.67	-0.74	-0.71	-0.32	-0.61	-0.75	-0.07	1.16	-0.52	-0.54	-0.01	0.07	-0.39	-0.74	-0.69	-0.40	-0.91	-0.61	0.21	0.54	1.44
FRANCE	1.02	0.95	1.32	-0.34	0.14	1.37	1.58	-0.55	-0.14	1.32	2.36	-0.36	0.38	0.14	0.87	1.63	0.22	0.78	1.03	-0.04	0.90	0.88
GERMANY	2.29	1.23	1.34	-0.23	0.10	2.38	1.26	-0.60	-0.22	0.55	0.95	-0.54	0.57	0.43	0.86	1.78	0.49	1.71	1.33	-0.77	-0.02	-0.29
INDIA	-0.50	-0.89	-0.87	2.44	-0.29	-0.85	-0.92	-0.32	0.12	-0.52	-0.53	0.41	0.12	-0.20	0.49	-1.05	-0.22	0.11	-0.63	-0.59	1.51	-0.80
ITALY	0.57	0.46	0.99	-0.61	-0.12	1.07	1.39	-0.49	-0.10	-0.06	0.22	-0.49	0.02	0.09	-0.56	-0.74	0.12	-0.64	0.05	-0.46	-0.25	-0.09
JAPAN	1.34	1.21	2.02	0.60	0.56	1.69	1.77	-0.82	-0.67	-0.38	0.80	-0.51	1.27	1.26	-0.35	1.01	1.36	1.22	3.21	0.00	0.36	-0.78
KOREA	0.05	0.61	0.00	0.01	-0.24	0.23	-0.03	-0.47	-1.04	-0.49	-0.45	0.85	0.16	-0.22	0.05	-0.26	-0.24	-0.39	0.27	0.18	-0.82	0.19
MALAYSIA	-0.32	-0.32	-0.56	-0.33	-0.28	-0.53	-0.54	-0.56	-0.97	-0.59	-0.53	0.37	0.17	-0.40	0.82	1.44	-0.41	0.95	-0.57	2.22	0.28	1.31
MEXICO	-0.04	-0.54	-0.34	-0.68	-0.28	-0.60	-0.31	-0.25	-1.10	0.30	0.24	-0.38	-0.07	-0.11	-0.78	-0.45	-0.14	-0.97	-0.55	-0.28	-0.39	-0.50
PHILIPPINES	-0.66	-0.82	-0.82	-0.65	-0.31	-0.79	-0.86	-0.43	0.10	-0.54	-0.55	0.60	0.12	-0.39	-0.81	-1.37	-0.41	-0.06	-0.64	-0.47	0.59	-0.82
RUSSIA	-0.29	-0.59	-0.69	-0.64	-0.30	-0.82	-0.74	0.69	-0.40	-0.52	-0.45	0.35	0.45	-0.32	-0.98	-1.20	-0.32	-0.79	-0.53	-1.33	0.24	-0.39
SOUTH-AFRICA	-0.66	-0.56	-0.70	-0.47	-0.27	-0.19	-0.62	0.22	3.16	-0.35	-0.67	0.10	0.10	-0.38	1.09	0.28	-0.39	0.09	-0.57	0.24	-1.15	-0.40
SPAIN	-0.02	0.07	0.61	0.03	-0.14	0.66	0.78	-0.40	0.29	0.18	0.43	-0.13	-0.08	-0.15	0.66	0.64	-0.15	-0.45	-0.16	0.81	0.42	0.86
TAIWAN	-0.14	0.48	0.25	-0.45	-0.21	-0.07	0.32	-0.75	-0.71	-0.46	-0.35	0.22	0.36	-0.30	1.16	0.88	-0.32	1.15	0.29	1.07	-0.13	-0.25
TURKEY	-0.59	-0.70	-0.67	-0.60	-0.31	-0.44	-0.57	3.49	0.16	-0.49	-0.52	1.19	0.07	-0.34	-0.73	0.12	-0.35	-0.75	-0.57	-0.84	0.60	0.31
UNITED-KINGDOM	0.91	1.43	1.50	0.29	0.55	1.39	1.41	-0.57	-0.72	1.71	0.65	-0.22	-0.04	0.32	0.71	-0.13	0.35	0.36	0.89	0.41	-1.71	0.08
USA	3.48	2.39	2.50	2.75	5.15	1.87	2.40	-0.58	-0.61	4.19	3.92	-0.06	-5.12	4.96	1.81	1.69	4.91	2.44	2.77	1.40	0.31	1.02
AUSTRIA	0.48	0.33	0.33	-0.52	-0.67	0.95	0.41	-0.36	-0.71	-0.23	-0.37	-0.83	-0.43	0.67	-0.66	0.95	0.60	0.71	0.15	-0.18	0.81	0.08
BELGIUM	2.15	0.49	0.24	-0.34	0.27	1.16	0.69	-0.43	0.16	3.21	4.17	-0.71	0.75	0.96	0.39	0.59	0.99	0.49	0.24	-0.71	-0.08	-0.51
CHILE	-0.73	-1.47	-1.44	0.06	-0.46	-1.29	-1.54	-0.53	0.62	-0.34	-0.49	-0.01	-0.33	-0.56	-0.13	0.14	-0.63	-0.53	-1.04	0.34	1.27	-0.24
CZECH	-0.48	-1.01	-1.20	-0.61	-0.77	-1.20	-1.38	-0.36	0.13	-0.31	-0.58	0.05	-0.61	-0.67	-2.14	0.09	-0.63	-0.04	-0.90	-0.76	0.57	-0.85
DENMARK	0.10	1.24	0.93	-0.12	-0.20	1.29	0.87	-0.07	-0.60	-0.13	0.10	-0.21	0.16	0.11	0.35	1.30	0.28	0.69	0.81	1.01	0.33	1.37
FINLAND	-0.37	1.26	0.35	-0.36	0.44	1.02	0.50	-0.46	0.65	-0.42	0.01	-0.19	0.56	-0.17	1.20	1.18	-0.12	1.99	1.11	1.90	1.52	2.03

HONG-KONG	2.24	0.11	0.25	2.67	2.53	-0.91	0.28	-2.83	0.16	1.15	0.22	0.19	1.28	0.24	1.79	1.07	0.04	0.49	-0.73	1.29	-0.25	-0.58
HUNGARY	-0.46	-1.30	-1.25	-0.76	-0.76	-1.28	-1.28	1.43	-0.30	-0.50	-0.56	0.80	-0.51	-0.58	-1.42	-1.11	-0.68	-0.68	-0.98	-0.12	0.49	-0.28
ICELAND	-0.98	1.20	0.68	-0.75	-0.81	0.17	0.43	1.41	-1.14	-0.68	-0.56	-1.40	-0.28	-1.21	0.36	0.60	-1.16	1.36	1.18	1.95	1.11	1.24
IRELAND	0.44	0.53	0.79	-0.72	-0.33	0.16	1.04	1.10	-0.63	0.08	-0.20	1.85	-0.30	-0.36	0.32	-2.13	-0.40	-0.32	-0.24	0.08	0.46	0.01
ISRAEL	-0.48	-0.12	-0.46	1.72	-0.36	-0.08	0.02	1.65	1.00	-0.44	-0.51	-1.76	-0.89	-0.28	-0.73	-0.07	-0.15	1.81	0.23	-0.69	1.19	-1.51
NETHERLANDS	2.93	0.98	0.41	-0.24	2.22	0.94	0.38	0.45	-1.09	3.27	2.25	-0.94	0.51	2.20	0.90	0.31	2.39	0.19	0.19	-0.06	-1.70	-0.57
NEW-ZEALAND	-0.78	0.80	-0.54	-0.39	-0.71	-0.51	-0.66	0.11	-0.41	-0.55	-0.57	0.74	-0.44	-0.73	0.49	0.26	-0.73	-0.01	-0.68	0.10	-1.00	0.49
NORWAY	0.01	1.24	1.78	-0.21	-0.37	1.64	1.83	-0.61	-0.76	-0.52	-0.67	-0.54	2.08	0.15	0.13	-0.21	0.27	0.25	0.54	0.66	0.49	0.44
PORTUGAL	-0.58	-1.06	-0.76	-0.59	-0.52	-0.95	-0.95	0.58	-0.46	-0.23	-0.02	-0.88	-1.12	-0.16	-1.64	-0.70	-0.18	-2.23	-0.86	-1.12	-0.97	-0.33
SINGAPORE	1.02	0.93	-0.01	0.65	-0.05	-0.59	-0.07	-1.49	-0.63	0.16	0.10	0.18	1.39	-0.66	1.04	1.64	-0.66	0.96	0.12	1.61	0.64	2.56
SLOVAK	-0.82	-1.18	-1.40	2.61	-0.83	-1.31	-1.53	0.42	3.22	-0.53	-0.59	1.44	-0.43	-1.06	-2.11	-0.97	-1.03	-0.58	-1.04	-1.18	0.46	-1.21
SLOVENIA	-0.87	-0.43	-0.89	-0.85	-0.81	-0.92	-0.99	1.91	-0.09	-0.65	-0.58	0.74	-0.28	-1.10	-0.61	-1.47	-1.06	-1.73	-0.75	-1.03	-2.00	-0.97
SWEDEN	0.35	1.39	0.49	0.21	0.72	0.84	0.53	-1.04	-0.49	0.32	-0.09	-0.19	0.61	0.66	1.43	0.58	0.92	1.19	1.82	0.70	0.06	0.81
SWITZERLAND	0.49	1.16	1.33	0.12	2.63	1.35	0.90	-0.94	-1.01	-0.02	0.20	-1.07	2.56	1.44	1.16	1.15	1.17	0.45	1.38	1.07	0.48	0.98

Table 3.4   Normalized Data for 2004

Nation \ Criterion	Exports of Goods & Commercial Services	Computers per capita	GDP per capita	Listed domestic companies	Stock market capitalization	Compensation levels	Overall productivity	Consumer price inflation	Unemployment rate	Direct investment flows inward	Direct investment flows abroad	Real GDP Growth	Current account balance	Private final consumption expenditure	Stock Markets	Distribution	Private & Government Final Consumption Expenditure	Technological Cooperation	Total Expenditure on RnD per capita	Bureaucracy	Company-University cooperation	Government Decision
ARGENTINA	-0.61	-1.09	-0.99	-0.55	-0.21	-0.95	-0.97	1.55	1.43	-0.65	-0.46	1.82	0.14	-0.28	-2.28	-1.47	-0.30	-1.39	-0.91	-1.38	-1.27	-1.12
AUSTRALIA	-0.31	1.35	0.46	0.36	-0.01	0.71	0.45	-0.23	-0.48	0.56	-0.10	-0.09	-0.35	-0.12	1.69	0.77	-0.12	0.89	0.01	1.36	1.05	1.56
AUSTRIA	-0.09	0.73	0.88	-0.54	-0.25	1.37	0.52	-0.47	-0.78	-0.64	-0.15	-0.60	0.05	-0.21	-0.04	1.33	-0.22	1.02	0.55	0.80	1.30	0.76
BELGIUM	0.72	0.87	0.75	-0.50	-0.19	1.57	1.18	-0.43	-0.05	0.42	0.18	-0.50	0.14	-0.19	0.79	0.93	-0.18	0.90	0.51	-0.50	1.13	-0.66
BRAZIL	-0.34	-0.99	-1.03	-0.32	-0.19	-0.89	-1.12	1.77	0.42	0.63	-0.30	-0.92	0.09	-0.08	-1.01	-1.65	-0.07	-0.82	-0.82	-0.99	-0.61	-0.89
CANADA	0.82	1.36	0.63	2.08	0.12	0.65	0.55	-0.23	-0.15	0.95	0.99	-0.28	0.28	0.14	1.66	0.78	0.14	1.39	0.34	1.20	1.48	0.76
CHILE	-0.64	-0.80	-0.91	-0.43	-0.24	-0.92	-0.88	-0.22	0.03	-0.58	-0.40	0.20	0.04	-0.31	0.24	0.59	-0.33	0.03	-0.87	0.99	0.10	0.89
CHINA	1.68	-1.23	-1.14	0.28	0.04	-1.06	-1.26	-0.50	-0.80	3.30	-0.30	2.04	0.50	0.23	-0.38	-0.86	0.24	-1.06	-0.90	-1.08	-0.74	-0.08
COLOMBIA	-0.69	-1.09	-1.10	-0.53	-0.27	-0.91	-1.17	0.50	1.14	-0.55	-0.39	0.30	0.02	-0.31	-1.13	-1.14	-0.32	-0.73	-0.91	0.01	-0.26	0.73
CZECH	-0.53	-0.38	-0.65	-0.55	-0.27	-0.84	-0.71	-0.67	-0.11	0.04	-0.41	0.07	-0.04	-0.31	-2.07	0.09	-0.32	-0.10	-0.67	-0.61	-0.27	-0.81
DENMARK	-0.28	1.47	1.43	-0.46	-0.22	1.74	1.33	-0.35	-0.54	-0.19	-0.17	-0.72	0.12	-0.26	0.57	1.46	-0.25	1.16	1.21	2.25	0.93	1.87
FINLAND	-0.50	1.48	0.87	-0.50	-0.18	1.42	1.01	-0.55	0.13	-0.05	-0.04	-0.25	0.16	-0.27	0.75	1.37	-0.27	1.98	1.48	2.03	2.56	1.52
FRANCE	1.64	0.47	0.76	-0.05	0.39	0.93	1.14	-0.35	0.21	3.52	2.65	-0.82	0.25	0.62	0.66	1.17	0.76	0.15	0.66	-0.26	-0.06	0.13
GERMANY	3.57	0.77	0.74	-0.10	0.20	1.84	0.82	-0.53	0.19	2.32	0.82	-0.89	0.72	1.06	0.68	1.37	1.15	0.86	0.89	-0.72	0.29	-0.69
HONG-KONG	0.61	0.55	0.35	0.09	0.04	-0.55	0.35	-1.13	-0.09	0.07	0.43	0.20	0.26	-0.27	1.67	1.33	-0.29	1.07	-0.53	1.59	0.54	-0.67
HUNGARY	-0.54	-0.68	-0.68	-0.57	-0.27	-0.92	-0.61	0.08	-0.50	-0.65	-0.41	0.07	-0.03	-0.30	-1.14	-0.26	-0.32	0.08	-0.74	-0.50	0.16	-0.82
ICELAND	-0.74	1.49	1.22	-0.57	-0.27	0.56	0.96	-0.36	-1.01	-0.70	-0.41	0.42	0.03	-0.35	0.55	1.27	-0.37	2.03	1.81	2.24	2.00	1.49
INDIA	-0.39	-1.33	-1.18	3.43	-0.19	-1.09	-1.28	-0.05	0.39	-0.47	-0.40	1.72	0.11	-0.03	0.81	-0.76	-0.06	-0.37	-0.93	-0.19	0.03	-0.10
IRELAND	-0.14	0.78	1.42	-0.56	-0.22	0.66	1.59	-0.12	-0.74	1.29	-0.28	-0.06	0.00	-0.29	0.44	-1.23	-0.30	0.11	0.00	0.54	0.86	-0.12
ISRAEL	-0.55	0.49	-0.14	-0.17	-0.25	0.13	0.26	-1.02	0.46	-0.58	-0.36	-0.44	-0.04	-0.29	-0.18	0.28	-0.29	1.30	1.32	-0.50	1.75	-0.87
ITALY	1.03	0.05	0.48	-0.40	0.05	0.64	0.95	-0.25	0.07	0.48	0.42	-0.76	-0.25	0.53	-1.04	-1.52	0.58	-1.38	-0.33	-0.79	-1.06	-0.91
JAPAN	1.98	0.76	1.05	1.58	1.19	0.89	1.00	-0.73	-0.60	0.02	1.14	0.00	1.80	2.10	0.23	0.53	2.23	1.01	2.11	-0.19	0.10	-0.48
KOREA	0.37	0.27	-0.37	0.48	-0.10	-0.17	-0.39	-0.12	-0.98	-0.56	-0.29	0.13	0.21	-0.03	0.16	-0.45	-0.04	-0.42	-0.06	-0.02	-0.73	-0.63
MALAYSIA	-0.17	-0.69	-0.94	0.01	-0.19	-0.84	-0.95	-0.53	-0.98	-0.45	-0.33	0.80	0.16	-0.31	0.93	0.60	-0.32	0.45	-0.85	1.16	0.54	1.15
MEXICO	0.15	-0.98	-0.81	-0.49	-0.21	-0.92	-0.81	0.06	-1.00	0.47	-0.38	-0.38	-0.08	0.07	-1.41	-1.25	0.03	-1.71	-0.86	-0.95	-1.25	-1.44
NETHERLANDS	1.02	1.30	0.90	-0.48	0.00	1.44	1.16	-0.33	-0.90	1.61	1.24	-1.08	0.18	-0.10	0.99	0.74	-0.06	0.58	0.43	0.45	0.55	0.03
NEW-ZEALAND	-0.66	1.05	0.07	-0.50	-0.26	-0.03	-0.01	-0.40	-0.72	-0.65	-0.41	0.10	0.00	-0.31	0.34	0.27	-0.33	0.40	-0.46	0.20	0.11	0.62
NORWAY	-0.31	1.46	2.05	-0.48	-0.23	1.93	2.03	-0.28	-0.78	-0.63	-0.20	-0.66	0.41	-0.26	0.46	0.06	-0.25	1.35	0.88	0.98	1.01	0.86

PHILIPPINES	-0.56	-1.26	-1.15	-0.44	-0.25	-1.06	-1.24	-0.18	0.34	-0.63	-0.42	0.58	0.06	-0.30	-0.90	-2.09	-0.32	-0.86	-0.94	-0.88	-0.73	-1.53
PORTUGAL	-0.58	-0.43	-0.26	-0.56	-0.25	-0.65	-0.32	-0.14	-0.39	-0.37	-0.24	-1.11	-0.06	-0.28	-0.61	0.02	-0.29	-1.29	-0.60	-0.83	-1.32	-0.57
RUSSIA	0.00	-0.99	-1.03	-0.47	-0.19	-1.04	-1.11	1.58	0.11	-0.47	-0.26	1.37	0.46	-0.19	-1.33	-1.28	-0.18	-0.90	-0.85	-0.89	-0.86	-0.92
SINGAPORE	0.12	0.86	0.25	-0.30	-0.21	-0.39	0.21	-0.61	-0.72	-0.25	-0.24	-0.51	0.40	-0.32	1.14	1.70	-0.33	1.45	0.44	1.93	1.93	2.70
SLOVAK	-0.67	-0.55	-0.81	-0.35	-0.28	-0.90	-0.82	0.74	1.72	-0.39	-0.42	0.55	0.04	-0.34	-1.50	-0.64	-0.35	-0.46	-0.86	-0.30	-0.39	0.30
SLOVENIA	-0.70	-0.07	-0.32	-0.58	-0.27	-0.46	-0.30	0.24	-0.42	-0.56	-0.42	-0.03	0.04	-0.34	-0.77	-0.46	-0.36	-1.56	-0.55	-0.83	-1.11	-1.08
SOUTH-AFRICA	-0.58	-0.97	-0.98	-0.29	-0.15	-0.79	-0.83	0.27	4.50	-0.66	-0.44	-0.25	0.02	-0.26	0.74	0.08	-0.27	0.19	-0.88	-0.11	-0.28	-0.59
SPAIN	0.33	-0.39	0.17	1.53	0.04	0.30	0.39	-0.19	0.58	1.02	0.49	-0.08	-0.25	0.13	0.36	0.02	0.14	-1.08	-0.52	0.44	-0.89	0.97
SWEDEN	-0.13	1.59	1.06	-0.41	-0.15	1.28	1.05	-0.34	-0.54	0.25	0.04	-0.35	0.28	-0.21	1.31	1.06	-0.18	1.61	2.25	1.18	1.30	0.84
SWITZERLAND	-0.10	1.37	1.62	-0.42	0.11	1.63	1.20	-0.60	-0.84	-0.42	0.07	-1.01	0.46	-0.20	1.04	1.35	-0.21	1.47	1.73	0.95	1.65	1.06
TAIWAN	0.12	-0.08	-0.36	-0.15	-0.10	-0.59	-0.31	-0.74	-0.66	-0.60	-0.18	0.18	0.41	-0.18	1.16	0.76	-0.20	0.69	-0.07	1.07	0.96	0.19
TURKEY	-0.51	-1.14	-1.00	-0.40	-0.25	-0.78	-0.96	4.04	0.42	-0.63	-0.42	0.86	-0.05	-0.24	-0.95	-0.45	-0.25	-0.97	-0.88	-0.79	-0.73	0.34
UNITED-KINGDOM	1.42	0.92	0.80	0.61	1.01	0.76	0.80	-0.48	-0.66	1.58	-0.06	-0.15	-0.36	0.82	0.75	0.10	0.88	-0.23	0.43	-0.44	-0.58	-0.36
USA	4.33	1.75	1.30	3.46	7.34	0.98	1.37	-0.31	-0.46	2.51	6.33	0.13	-6.92	6.97	1.69	1.24	6.87	1.36	1.98	0.94	1.78	0.82

3.3. Formula of Estimation Model

The purpose of this model is to deduct the number of criteria used by IMD WCY. By giving criteria different weights, we would get a few criteria which are really influential on the national competitiveness.

Initially, we chose a number of candidate criteria (C_k). Then, goal programming skill was applied on these criteria to find out the suitable weights for each criterion.

$$\text{Min} \quad \sum_{i=1}^{42} \left(S_i - \widehat{S}_i \right)^2$$

$$\text{s.t.} \quad \widehat{S}_i = \sum_{k=0}^{22} W_k C_{ik}$$

$$C_{ik} = 1 \qquad \forall k = 0$$

S_i = the competitiveness score of nation i calculated by IMD

$\widehat{S}_i$ = the estimated competitiveness score of nation i calculated by our model

W_k = the weight of each criteria, which are determined by our model.

C_{ik} = the performance of nation i in criterion C_k

To minimize the difference between S_i and $\widehat{S}_i$, each candidate criterion will be given the most appropriate weight to explain the competitiveness scores. If the result shows certain criterion is always accomplished by huge weights each year, it's obvious this criterion plays an important role.

3.4. Estimation Results

The Estimation Model was performed on each year (2001, 2002, and 2003) individually.

The estimated scores generated by the Estimation Model for each nation are shown in Table 3.5, Table 3.6 and Table 3.7, which represent the results of 2001, 2002, and 2003 respectively.

The last column represents the error ($\frac{\left|S_i - \bar{S}_i\right|}{S_i}$) of every nation. In Table 3.5, there's no nation's error less than 0.13, which means these criteria are well accountable in national competitiveness. In Table 3.6, all errors are less than 0.17, and in the case of 2003, except Mexico and Ireland have 0.263 and 0.216 errors respectively, all the other nations' errors are less than 0.19. The results are well satisfying.
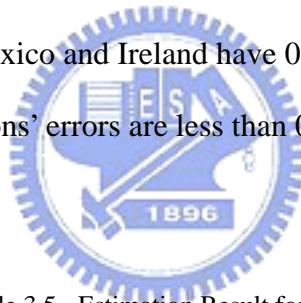
Table 3.5   Estimation Result for 2001

Nation	S_i	$\bar{S}_i$	$S_i - \bar{S}_i$	$\frac{\left|S_i - \bar{S}_i\right|}{S_i}$
ARGENTINA	37.505	41.769	-4.264	0.114
AUSTRALIA	75.874	75.335	0.539	0.007
AUSTRIA	72.539	68.835	3.704	0.051
BELGIUM	66.026	63.481	2.545	0.039
BRAZIL	49.661	45.815	3.846	0.077
CANADA	76.941	76.859	0.082	0.001
CHILE	59.837	52.514	7.323	0.122
CHINA	49.530	49.530	0.000	0.000

COLOMBIA	32.837	32.837	0.000	0.000
CZECH-REPUBLIC	46.676	44.739	1.937	0.041
DENMARK	71.788	76.853	-5.065	0.071
FINLAND	83.380	87.615	-4.235	0.051
FRANCE	59.556	60.085	-0.529	0.009
GERMANY	74.043	74.043	0.000	0.000
HONG-KONG	79.549	77.038	2.511	0.032
HUNGARY	55.638	53.621	2.017	0.036
ICELAND	73.747	79.755	-6.008	0.081
INDIA	40.410	40.410	0.000	0.000
IRELAND	79.199	72.674	6.525	0.082
ISRAEL	67.924	67.924	0.000	0.000
ITALY	49.581	44.204	5.377	0.108
JAPAN	57.520	57.520	0.000	0.000
KOREA	51.081	57.076	-5.995	0.117
MALAYSIA	50.029	54.879	-4.850	0.097
MEXICO	43.675	44.840	-1.165	0.027
NETHERLANDS	79.549	76.190	3.359	0.042
NEW-ZEALAND	61.728	66.294	-4.566	0.074
NORWAY	63.101	63.101	0.000	0.000
PHILIPPINES	40.595	40.595	0.000	0.000
PORTUGAL	48.363	47.926	0.437	0.009
RUSSIA	34.575	35.938	-1.363	0.039
SINGAPORE	87.657	85.753	1.904	0.022
SLOVAK-REPUBLIC	43.590	41.487	2.103	0.048
SLOVENIA	42.485	40.855	1.630	0.038
SOUTH-AFRICA	38.615	38.615	0.000	0.000
SPAIN	60.135	55.382	4.753	0.079
SWEDEN	77.862	84.930	-7.068	0.091
SWITZERLAND	76.812	80.203	-3.391	0.044
TAIWAN	64.837	64.837	0.000	0.000
TURKEY	35.438	35.438	0.000	0.000
UNITED-KINGDOM	64.781	66.562	-1.781	0.027
USA	100.000	100.000	0.000	0.000

Table 3.6   Estimation Result for 2002

Nation	S_i	$\bar{S}_i$	$S_i - \bar{S}_i$	$\dfrac{\left| S_i - \bar{S}_i \right|}{S_i}$
ARGENTINA	26.015	28.655	-2.640	0.101
AUSTRALIA	74.106	74.106	0.000	0.000
AUSTRIA	74.665	69.518	5.147	0.069
BELGIUM	66.734	63.786	2.948	0.044
BRAZIL	47.638	48.145	-0.507	0.011
CANADA	79.013	76.147	2.866	0.036
CHILE	65.606	57.950	7.656	0.117
CHINA	52.199	55.544	-3.345	0.064
COLOMBIA	38.077	35.437	2.640	0.069
CZECH-REPUBLIC	55.322	53.556	1.766	0.032
DENMARK	80.429	81.322	-0.893	0.011
FINLAND	84.351	88.957	-4.606	0.055
FRANCE	61.641	61.641	0.000	0.000
GERMANY	70.942	70.942	0.000	0.000
HONG-KONG	77.761	69.186	8.575	0.110
HUNGARY	56.702	56.702	0.000	0.000
ICELAND	74.695	74.695	0.000	0.000
INDIA	40.733	40.733	0.000	0.000
IRELAND	76.218	73.839	2.379	0.031
ISRAEL	60.485	60.485	0.000	0.000
ITALY	51.856	50.968	0.888	0.017
JAPAN	54.347	54.347	0.000	0.000
KOREA	56.827	56.827	0.000	0.000
MALAYSIA	59.692	59.692	0.000	0.000
MEXICO	41.397	41.394	0.003	0.000
NETHERLANDS	82.802	73.315	9.487	0.115
NEW-ZEALAND	66.542	66.542	0.000	0.000
NORWAY	67.687	68.320	-0.633	0.009

PHILIPPINES	41.503	42.583	-1.080	0.026
PORTUGAL	49.318	40.962	8.356	0.169
RUSSIA	39.033	39.923	-0.890	0.023
SINGAPORE	81.155	87.500	-6.345	0.078
SLOVAK-REPUBLIC	45.714	43.568	2.146	0.047
SLOVENIA	45.499	46.238	-0.739	0.016
SOUTH-AFRICA	43.984	43.984	0.000	0.000
SPAIN	61.519	59.864	1.655	0.027
SWEDEN	76.193	78.421	-2.228	0.029
SWITZERLAND	79.472	81.310	-1.838	0.023
TAIWAN	61.307	60.801	0.506	0.008
TURKEY	27.965	27.965	0.000	0.000
UNITED-KINGDOM	68.930	69.498	-0.568	0.008
USA	100.000	100.000	0.000	0.000

Table 3.7 Estimation Result for 2003
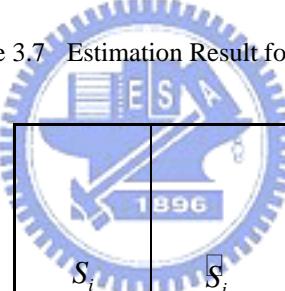
Nation	S_i	$\bar{S}_i$	$S_i - \bar{S}_i$	$\dfrac{\left|S_i - \bar{S}_i\right|}{S_i}$
ARGENTINA	12.464	12.464	0.000	0.000
AUSTRALIA	86.547	81.293	5.254	0.061
BRAZIL	40.667	40.667	0.000	0.000
CANADA	84.123	77.072	7.051	0.084
CHINA-MAINLAND	50.813	51.256	-0.443	0.009
COLOMBIA	44.499	42.981	1.518	0.034
FRANCE	66.407	66.407	0.000	0.000
GERMANY	69.768	59.917	9.851	0.141
INDIA	42.181	41.480	0.701	0.017
ITALY	44.310	44.310	0.000	0.000
JAPAN	56.303	58.796	-2.493	0.044
KOREA	46.476	53.383	-6.907	0.149
MALAYSIA	72.872	72.872	0.000	0.000

MEXICO	33.337	42.118	-8.781	0.263
PHILIPPINES	37.851	37.851	0.000	0.000
RUSSIA	24.584	28.896	-4.312	0.175
SOUTH-AFRICA	43.877	43.877	0.000	0.000
SPAIN	59.758	59.758	0.000	0.000
TAIWAN	69.283	65.049	4.234	0.061
TURKEY	29.803	29.803	0.000	0.000
UNITED-KINGDOM	66.489	65.073	1.416	0.021
USA	100.000	100.000	0.000	0.000
AUSTRIA	82.579	67.310	15.269	0.185
BELGIUM	74.557	75.420	-0.863	0.012
CHILE	61.542	58.232	3.310	0.054
CZECH-REPUBLIC	45.554	44.604	0.950	0.021
DENMARK	92.363	87.273	5.090	0.055
FINLAND	100.000	100.000	0.000	0.000
HONG-KONG	90.311	96.951	-6.640	0.074
HUNGARY	42.463	42.463	0.000	0.000
ICELAND	83.377	83.377	0.000	0.000
IRELAND	79.355	62.197	17.158	0.216
ISRAEL	43.567	43.567	0.000	0.000
NETHERLANDS	86.475	80.700	5.775	0.067
NEW-ZEALAND	72.198	67.429	4.769	0.066
NORWAY	75.761	77.190	-1.429	0.019
PORTUGAL	35.174	31.149	4.025	0.114
SINGAPORE	98.159	102.374	-4.215	0.043
SLOVAK-REPUBLIC	30.288	30.288	0.000	0.000
SLOVENIA	29.170	29.170	0.000	0.000
SWEDEN	87.142	91.291	-4.149	0.048
SWITZERLAND	89.730	91.318	-1.588	0.018

The weights of these 3 years are summarized in Table 3.8.

The most dominant criteria in 2001 are "Computers per capita", "Directed investment flows abroad", "Bureaucracy" and "Company-University cooperation".

"Company-University cooperation" still plays an important role in 2002, and "Government Decision" comes to be the most significant as well.

In 2003, the most dominant criteria are "Bureaucracy", "Directed investment flows inward", "Consumer price inflation" and "Computers per capita".

Table 3.8   The weights through 2001 to 2003

Criterion	2001	2002	2003
Exports of goods & commercial services	0	0	0
Computers per capita	3.0525	1.2502	2.89
GDP per capita	0	0	0
Listed domestic companies	0.2373	0.5133	0.255
Stock market capitalization	0	0.3682	0
Compensation levels	0	0	0.664
Overall productivity	0	2.5802	0
Consumer price inflation	-1.723	-1.657	-2.86
Unemployment rate	-2.208	-0.639	-1.38
Directed investment flows inward	3.4091	2.5065	3.042
Directed investment flows abroad	0	0.22036	0
Real GDP growth	0	1.6721	1.92
Current account balance	0	0	0
Private final consumption expenditure	0	0	0
Stock markets	1.5547	0	1.936
Distribution	1.9023	1.3996	2.067
Private & government final consumption	0	0	0.8523
Technological cooperation	0.7608	0	1.753
Total expenditure on R&D	0	0	0
Bureaucracy	3.9919	1.9436	6.777
Company-university cooperation	2.8048	3.9399	0.916
Government Decision	2.1104	6.3205	1.5837

To verify the result, we need a set of fixed weights. Thus, we merged the data of three years, and tried to perform the Estimation Model on them. Based on the increase in the amount of data, the set of weights obtained is more reliable. The 3-year-merged

weights is as Table 3.9 show.

Table 3.9   The 3-year-merged Weights

Criterion List	Weight
C_0：constant	57.0791
C_1：Exports of Goods & Commercial Services	0
C_2：Computers per capita	1.9786
C_3：GDP per capita	0
C_4：Listed domestic companies	0
C_5：Stock market capitalization	1.0274
C_6：Compensation levels	0
C_7：Overall productivity	0.9086
C_8：Consumer price inflation	-1.6386
C_9：Unemployment rate	-1.5842
C_{10}：Direct investment flows inward	2.5376
C_{11}：Direct investment flows abroad	0
C_{12}：Real GDP Growth	1.1814
C_{13}：Current account balance	0.0225
C_{14}：Private final consumption expenditure	0
C_{15}：Stock Markets	3.1329
C_{16}：Distribution	0.8552
C_{17}：Private & Government Final Consumption Expenditure	0
C_{18}：Technological Cooperation	2.8604
C_{19}：Total Expenditure on R&D per capita	0
C_{20}：Bureaucracy	4.0417
C_{21}：Company-University cooperation	0
C_{22}：Government Decision	3.5363

3.5. Verification with 2004

We used the data of 2004 for verification.

The result shows in Table 3.10.

Obviously, most nations got a predicted rank which is very close to their actual rank in IMD WCY 2004. About 21% countries were predicted the same rank with their actual rank in IMD WCY 2004. More than half nations got a predicted rank that is very close to their actual rank in IMD WCY 2004. The prediction correctness diagrams are shown in Appendix B, along with the detailed statistics data.

Hence, these criteria are proved accountable in national competitiveness.

Table 3.10   The Verification Result of 2004

Nation	S_i	$\bar{S}_i$	$S_i - \bar{S}_i$	$\dfrac{\left\|S_i - \bar{S}_i\right\|}{S_i}$	Simulated Rank	Actual Rank
ARGENTINA	36.937	27.658	9.279	0.251	#42	#42
AUSTRALIA	86.046	82.089	3.957	0.046	#6	#4
BRAZIL	78.933	68.245	10.688	0.135	#16	#12
CANADA	70.324	62.388	7.936	0.113	#22	#22
CHINA-MAINLAND	48.130	36.760	11.370	0.236	#40	#39
COLOMBIA	86.626	80.492	6.134	0.071	#7	#3
FRANCE	69.901	62.006	7.895	0.113	#23	#23
GERMANY	70.725	56.753	13.972	0.198	#25	#21
INDIA	57.370	45.944	11.426	0.199	#29	#31
ITALY	56.440	44.848	11.592	0.205	#32	#33
JAPAN	84.378	83.145	1.233	0.015	#5	#7
KOREA	83.636	83.744	-0.108	0.001	#4	#8
MALAYSIA	67.673	70.568	-2.895	0.043	#13	#24
MEXICO	73.435	65.395	8.040	0.109	#18	#18
PHILIPPINES	85.765	74.438	11.327	0.132	#10	#6
RUSSIA	57.209	45.528	11.681	0.204	#30	#32
SOUTH-AFRICA	86.015	84.471	1.544	0.018	#3	#5
SPAIN	62.971	53.095	9.876	0.157	#28	#27
TAIWAN	80.303	66.827	13.476	0.168	#17	#9

TURKEY	63.458	55.302	8.156	0.129	#26	#26
UNITED-KINGDOM	50.307	43.798	6.509	0.129	#34	#37
USA	71.915	64.576	7.339	0.102	#20	#20
AUSTRIA	62.201	54.211	7.990	0.128	#27	#28
BELGIUM	75.919	70.345	5.574	0.073	#14	#15
CHILE	43.239	37.147	6.092	0.141	#38	#41
CZECH-REPUBLIC	78.613	72.823	5.790	0.074	#12	#14
DENMARK	74.394	64.559	9.835	0.132	#21	#17
FINLAND	75.468	73.243	2.225	0.029	#11	#16
HONG-KONG	49.666	36.010	13.656	0.275	#41	#38
HUNGARY	58.485	43.291	15.194	0.260	#35	#29
ICELAND	52.140	36.914	15.226	0.292	#39	#36
IRELAND	89.008	86.226	2.782	0.031	#2	#2
ISRAEL	57.462	43.925	13.537	0.236	#33	#30
NETHERLANDS	55.498	40.707	14.791	0.267	#36	#34
NEW-ZEALAND	53.786	45.108	8.678	0.161	#31	#35
NORWAY	67.414	61.831	5.583	0.083	#24	#25
PORTUGAL	79.578	80.007	-0.429	0.005	#8	#10
SINGAPORE	78.809	77.252	1.557	0.020	#9	#13
SLOVAK-REPUBLIC	79.543	68.777	10.766	0.135	#15	#11
SLOVENIA	43.459	37.701	5.758	0.132	#37	#40
SWEDEN	72.186	65.057	7.129	0.099	#19	#19
SWITZERLAND	100.000	93.865	6.135	0.061	#1	#1

4. Visualization Model

4.1. Motivation of Visualization

In the field of national competitiveness, most researches are dedicated to scoring and ranking the competitiveness of a nation. But the score is a one-dimension value. Though it can provide a simple and concrete concept about the competitiveness, it is unable to show the clustering condition among nations. Sometimes, two countries may be close in scores, but extremely different in background or culture.

In order to find out the grouping situation of all these nations, we used another formula to equip each nation a triple of (x, y, z) values. And y-value represents the transformed score.

With the triples, we are able to put the nations on the surface of a 3D ball. This provides a better scope about the clustering condition.
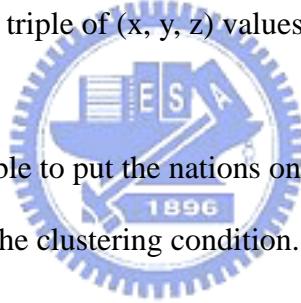
4.2. Formula of Visualization Model

Using the Estimation Model we proposed, we have got $\hat{S}_i$, which means the estimated score of nation i, and a list of significant indicators.

With the $\hat{S}_i$ we got, we tried to visualize the clustering condition of all nations on a 3D ball; the visualization would be done on the basis of those significant criteria we found.

All nations would be represented as a point scattering on the surface of the 3D ball; meanwhile the Y-value of the nation stands for the rough competitiveness score

of the nation.

The formula to visualize is as follow:

$$\text{Min} \quad \sum_{j<i} \left| \left(X_i - X_j \right)^2 + \left(Y_i - Y_j \right)^2 + \left(Z_i - Z_j \right)^2 - d_{ij}^{\;2} \right| \tag{4.1}$$

$$\text{s.t.} \quad d_{ij} = \sqrt{2} \left(\sum_{k=1}^{m} \frac{W_k}{\sum_{k=1}^{m} W_k} \square \frac{\left| C_{ik} - C_{jk} \right|}{\overline{C_k} - \underline{C_k}} \right) \quad \forall i, j \tag{4.2}$$

$$d_{i*} = \sqrt{2} \left(\sum_{k=1}^{m} \frac{W_k}{\sum_{k=1}^{m} W_k} \square \frac{\left| \overline{C_k} - C_{jk} \right|}{\overline{C_k} - \underline{C_k}} \right) \quad \forall i \tag{4.3}$$

$$\overline{S_i} = \sum_{k=1}^{m} W_k \square \frac{\left| C_{ik} - \underline{C_k} \right|}{\overline{C_k} - \underline{C_k}} \tag{4.4}$$

$$X_i^2 + Y_i^2 + Z_i^2 = 1 \tag{4.5}$$

$$Y_i = 1 - \left(1 - \frac{\overline{S_i} - \underline{S}}{S^* - \underline{S}} \right)^2 \tag{4.6}$$

$$S^* = \sum_{k=1}^{m} W_k \square \overline{C_k} = 1 \tag{4.7}$$

$$\underline{S} = \sum_{k=1}^{m} W_k \square \underline{C_k} \tag{4.8}$$

$$\overline{S_i} = \sum_{k=1}^{m} W_k \square C_{ik} \quad \forall \; \text{nation } i \tag{4.9}$$

(X_i, Y_i, Z_i) = the location of nation i

Y_i = the transformed competitiveness scores for nation i.

d_{ij} = the dissimilarity between nation i and j

S_i = the competitiveness score of nation i calculated by IMD

$\tilde{S}_i$ = the estimated competitiveness score of nation i calculated by our model

W_k = the weight of each criteria, which are determined by our model.

C_{ik} = the performance of nation i in criterion C_k

$\overline{C_k}$ = the best value among all countries on the criterion k

$\underline{C_k}$ = the worst value among all countries on the criterion k

d_{i*} = the dissimilarity between nation i and the imagined ideal nation

S^* = the score of an imagined ideal nation, whose score was calculated by the best value of each criterion

$\underline{S}$ = the score of an imagined worst nation, whose score was got by summing up the products of every criterion's worst value and their weight.
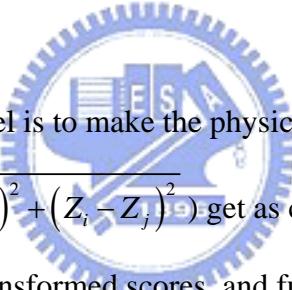
The objective of this model is to make the physical distance between nations on the ball ($\sqrt{(X_i - X_j)^2 + (Y_i - Y_j)^2 + (Z_i - Z_j)^2}$) get as closer to the dissimilarity (d_{ij}) as possible. Since Y_i is the transformed scores, and function (4.5) limited the nations on the surface of the ball, X_i and Z_i values will be determined by the function (4.1). Thus, if the error of the objective function is small, it's reasonable to believe the visualization results could display the real clustering situation among nations.

4.3. Visualization Results

With the formula above, we obtain the location, (X_i, Y_i, Z_i), for each country. Table 4.1 presents the result of year 2001, Table 4.2 for 2002, Table 4.3 for 2003. And Table 4.4 is for the result of 2004.

The detailed statistics are displayed in Appendix C.

Table 4.1   Visualized Locations for 2001

Nation	X_i	Y_i	Z_i
ARGENTINA	0.70	0.49	0.53
AUSTRALIA	0.05	0.82	-0.56
AUSTRIA	-0.29	0.77	-0.56
BELGIUM	-0.53	0.72	-0.44
BRAZIL	-0.12	0.54	0.84
CANADA	0.05	0.84	-0.55
CHILE	-0.46	0.61	0.64
CHINA	-0.43	0.58	0.69
COLOMBIA	0.76	0.37	0.54
CZECH-REPUBLIC	0.33	0.52	0.79
DENMARK	0.05	0.83	-0.55
FINLAND	0.04	0.90	-0.43
FRANCE	-0.48	0.69	-0.54
GERMANY	-0.06	0.81	-0.58
HONG-KONG	0.05	0.84	-0.55
HUNGARY	-0.43	0.63	0.65
ICELAND	0.05	0.86	-0.52
INDIA	0.38	0.47	0.80
IRELAND	0.05	0.80	-0.59
ISRAEL	-0.46	0.76	-0.45
ITALY	0.75	0.52	0.42
JAPAN	0.44	0.67	-0.60
KOREA	-0.62	0.66	0.42
MALAYSIA	-0.52	0.64	0.57
MEXICO	-0.19	0.52	0.83
NETHERLANDS	0.05	0.83	-0.56
NEW-ZEALAND	-0.49	0.75	-0.44
NORWAY	-0.43	0.72	-0.54

PHILIPPINES	0.38	0.47	0.80
PORTUGAL	-0.37	0.56	0.74
RUSSIA	0.61	0.41	0.68
SINGAPORE	0.04	0.89	-0.45
SLOVAK-REPUBLIC	0.63	0.48	0.61
SLOVENIA	0.01	0.47	0.88
SOUTH-AFRICA	0.75	0.44	0.50
SPAIN	-0.67	0.64	0.36
SWEDEN	0.04	0.89	-0.46
SWITZERLAND	0.05	0.86	-0.51
TAIWAN	-0.49	0.74	-0.47
TURKEY	0.69	0.40	0.61
UNITED-KINGDOM	-0.05	0.75	-0.66
USA	0.03	0.96	-0.28

Table 4.2   Visualized Locations for 2002
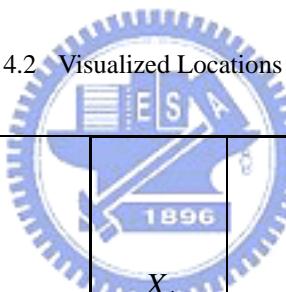
Nation	X_i	Y_i	Z_i
ARGENTINA	0.94	0.31	0.17
AUSTRALIA	-0.30	0.83	-0.48
AUSTRIA	-0.05	0.79	-0.61
BELGIUM	0.12	0.73	-0.67
BRAZIL	-0.15	0.58	0.80
CANADA	-0.18	0.85	-0.50
CHILE	-0.71	0.68	0.15
CHINA	0.02	0.66	0.75
COLOMBIA	0.62	0.42	0.67
CZECH-REPUBLIC	-0.13	0.64	0.76
DENMARK	0.02	0.87	-0.48
FINLAND	0.18	0.92	-0.34
FRANCE	-0.29	0.72	-0.63

GERMANY	-0.11	0.80	-0.59
HONG-KONG	-0.13	0.78	-0.61
HUNGARY	-0.51	0.67	0.54
ICELAND	-0.22	0.83	-0.52
INDIA	-0.06	0.49	0.87
IRELAND	0.02	0.82	-0.57
ISRAEL	0.66	0.71	-0.23
ITALY	-0.08	0.61	0.79
JAPAN	0.71	0.65	-0.28
KOREA	-0.74	0.67	-0.03
MALAYSIA	0.68	0.70	-0.20
MEXICO	-0.01	0.49	0.87
NETHERLANDS	0.01	0.82	-0.57
NEW-ZEALAND	-0.31	0.76	-0.56
NORWAY	-0.11	0.78	-0.62
PHILIPPINES	-0.02	0.51	0.86
PORTUGAL	0.18	0.48	0.86
RUSSIA	0.37	0.48	0.80
SINGAPORE	0.02	0.92	-0.40
SLOVAK-REPUBLIC	0.45	0.53	0.72
SLOVENIA	-0.36	0.55	0.76
SOUTH-AFRICA	-0.39	0.53	0.75
SPAIN	-0.71	0.70	0.01
SWEDEN	-0.35	0.86	-0.38
SWITZERLAND	-0.17	0.87	-0.45
TAIWAN	0.02	0.71	-0.70
TURKEY	0.93	0.32	0.20
UNITED-KINGDOM	0.14	0.79	-0.60
USA	-0.01	0.96	-0.27

Table 4.3   Visualized Locations for 2003

Nation	X_i	Y_i	Z_i
ARGENTINA	0.14	0.27	0.95
AUSTRALIA	-0.40	0.90	0.15
BRAZIL	0.74	0.60	-0.30
CANADA	-0.44	0.88	0.16
CHINA-MAINLAND	-0.04	0.70	-0.71
COLOMBIA	0.74	0.63	-0.25
FRANCE	-0.57	0.82	0.07
GERMANY	-0.63	0.77	-0.11
INDIA	0.79	0.61	-0.05
ITALY	0.32	0.64	-0.70
JAPAN	-0.49	0.76	-0.41
KOREA	-0.05	0.72	-0.69
MALAYSIA	-0.48	0.86	0.18
MEXICO	0.61	0.62	-0.50
PHILIPPINES	0.81	0.58	-0.07
RUSSIA	0.87	0.48	0.10
SOUTH-AFRICA	0.03	0.64	0.77
SPAIN	-0.38	0.77	-0.51
TAIWAN	-0.58	0.81	0.10
TURKEY	0.82	0.49	0.28
UNITED-KINGDOM	-0.59	0.81	0.01
USA	-0.21	0.97	0.08
AUSTRIA	-0.10	0.82	-0.56
BELGIUM	-0.31	0.87	0.38
CHILE	0.64	0.76	-0.09
CZECH-REPUBLIC	0.60	0.64	0.48
DENMARK	-0.34	0.93	0.13
FINLAND	-0.21	0.97	0.08

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HONG-KONG	-0.24	0.97	0.09
HUNGARY	0.77	0.62	0.15
ICELAND	-0.38	0.91	0.14
IRELAND	-0.21	0.79	-0.58
ISRAEL	0.22	0.63	-0.74
NETHERLANDS	-0.40	0.90	0.15
NEW-ZEALAND	0.04	0.83	-0.56
NORWAY	-0.44	0.88	-0.17
PORTUGAL	0.71	0.50	0.49
SINGAPORE	-0.19	0.98	0.07
SLOVAK-REPUBLIC	-0.16	0.49	0.85
SLOVENIA	0.70	0.48	0.52
SWEDEN	-0.30	0.95	0.11
SWITZERLAND	-0.30	0.95	0.11

Table 4.4 Visualized Locations for 2004
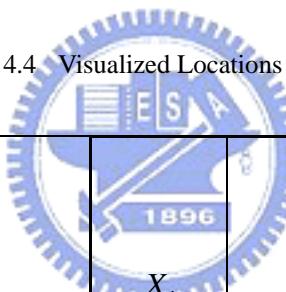
Nation	X_i	Y_i	Z_i
ARGENTINA	0.38	0.29	0.88
AUSTRALIA	-0.23	0.90	-0.38
AUSTRIA	-0.17	0.79	-0.59
BELGIUM	-0.53	0.74	-0.41
BRAZIL	0.90	0.43	0.09
CANADA	-0.35	0.89	-0.30
CHILE	-0.68	0.73	0.04
CHINA	-0.62	0.68	0.39
COLOMBIA	-0.03	0.55	0.83
CZECH-REPUBLIC	-0.14	0.54	0.83
DENMARK	-0.07	0.90	-0.43
FINLAND	-0.01	0.91	-0.42
FRANCE	-0.04	0.81	-0.58

GERMANY	-0.54	0.77	-0.34
HONG-KONG	0.18	0.84	-0.51
HUNGARY	0.09	0.55	0.83
ICELAND	-0.33	0.91	-0.25
INDIA	0.11	0.64	0.76
IRELAND	0.12	0.78	-0.61
ISRAEL	-0.67	0.66	0.33
ITALY	0.42	0.53	0.74
JAPAN	-0.53	0.76	-0.38
KOREA	0.73	0.65	0.19
MALAYSIA	-0.44	0.81	-0.38
MEXICO	0.85	0.43	0.29
NETHERLANDS	-0.40	0.83	-0.39
NEW-ZEALAND	-0.12	0.76	-0.64
NORWAY	-0.29	0.83	-0.47
PHILIPPINES	0.84	0.42	0.35
PORTUGAL	0.12	0.52	0.85
RUSSIA	0.83	0.43	0.36
SINGAPORE	-0.12	0.92	-0.37
SLOVAK-REPUBLIC	-0.09	0.53	0.85
SLOVENIA	0.54	0.48	0.69
SOUTH-AFRICA	0.81	0.54	-0.22
SPAIN	-0.66	0.73	0.14
SWEDEN	-0.40	0.88	-0.24
SWITZERLAND	-0.38	0.86	-0.34
TAIWAN	0.05	0.80	-0.60
TURKEY	0.86	0.44	0.26
UNITED-KINGDOM	0.21	0.76	-0.61
USA	-0.18	0.96	-0.24

To visualize the clustering condition, the nations are located on a 3D ball.

The following diagrams are the overview of all nations on the ball. Figure 4.1 is for 2001, while Figure 4.2, 4.3 and 4.4 are for 2002, 2003, and 2004, respectively. These four diagrams overlook the ball from the top, namely, ignoring the Y-value.

Because some points on the ball are not marked clearly, the mapping between nations and the points is displayed in Appendix D.
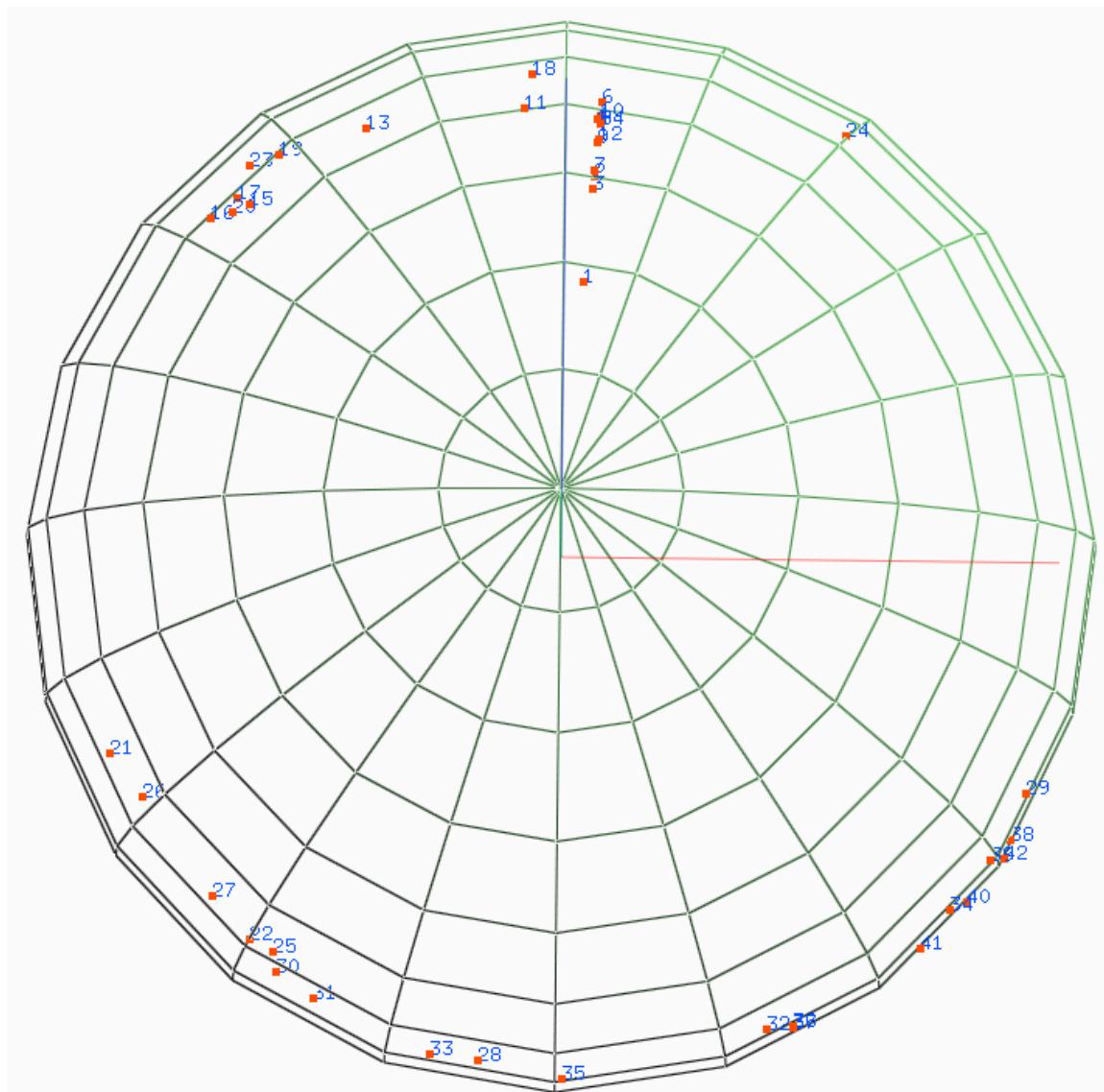
Figure 4.1   2001 Overview

1 USA	11 Germany	21 Spain	31 Portugal	41 Russia
2 Singapore	12 Iceland	22 Chile	32 Czech Republic	42 Colombia
3 Finland	13 Austria	23 France	33 Mexico	
4 Netherlands	14 Denmark	24 Japan	34 Slovak	
5 Hong Kong	15 Israel	25 Hungary	35 Slovenia	
6 Ireland	16 Belgium	26 Korea	36 Philippines	
7 Sweden	17 Taiwan	27 Malaysia	37 India	
8 Canada	18 UK	28 Brazil	38 South Africa	
9 Switzerland	19 Norway	29 Italy	39 Argentina	
10 Australia	20 New Zealand	30 China	40 Turkey	

Figure 4.2   2002 Overview

1 USA	11 Germany	21 Spain	31 Portugal	41 Russia
2 Singapore	12 Iceland	22 Chile	32 Czech Republic	42 Colombia
3 Finland	13 Austria	23 France	33 Mexico	
4 Netherlands	14 Denmark	24 Japan	34 Slovak	
5 Hong Kong	15 Israel	25 Hungary	35 Slovenia	
6 Ireland	16 Belgium	26 Korea	36 Philippines	
7 Sweden	17 Taiwan	27 Malaysia	37 India	
8 Canada	18 UK	28 Brazil	38 South Africa	
9 Switzerland	19 Norway	29 Italy	39 Argentina	
10 Australia	20 New Zealand	30 China	40 Turkey	

Figure 4.3   2003 Overview

1 USA	11 Germany	21 Spain	31 Portugal	41 Russia
2 Singapore	12 Iceland	22 Chile	32 Czech Republic	42 Colombia
3 Finland	13 Austria	23 France	33 Mexico	
4 Netherlands	14 Denmark	24 Japan	34 Slovak	
5 Hong Kong	15 Israel	25 Hungary	35 Slovenia	
6 Ireland	16 Belgium	26 Korea	36 Philippines	
7 Sweden	17 Taiwan	27 Malaysia	37 India	
8 Canada	18 UK	28 Brazil	38 South Africa	
9 Switzerland	19 Norway	29 Italy	39 Argentina	
10 Australia	20 New Zealand	30 China	40 Turkey	

Figure 4.4   2004 Overview

1 USA	11 Germany	21 Spain	31 Portugal	41 Russia
2 Singapore	12 Iceland	22 Chile	32 Czech Republic	42 Colombia
3 Finland	13 Austria	23 France	33 Mexico	
4 Netherlands	14 Denmark	24 Japan	34 Slovak	
5 Hong Kong	15 Israel	25 Hungary	35 Slovenia	
6 Ireland	16 Belgium	26 Korea	36 Philippines	
7 Sweden	17 Taiwan	27 Malaysia	37 India	
8 Canada	18 UK	28 Brazil	38 South Africa	
9 Switzerland	19 Norway	29 Italy	39 Argentina	
10 Australia	20 New Zealand	30 China	40 Turkey	

4.4. Spiral Distribution

In the pictures above, one thing worth noting is that all these nations turn out to form a "spiral" on the surface of the ball. No year is an exception.

In Figure 4.1, the nations on the upside are closer to the central point. That is, they have higher Y-value. And the left-downside nations have lower Y-value, for they are apparently far from the central point. The right-downside nations have the lowest Y-value. In other words, these nations spiral down anticlockwise.

Figure 4.2 and 4.4 show similar situation; the nations spiral down anticlockwise.

Figure 4.3 is kind of different. In 2003, the nations spiral down clockwise. This may result from the bias on the data of IMD WCY 2003[1].
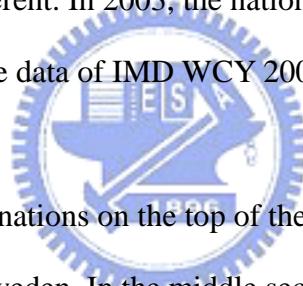
Observing the spiral, the nations on the top of the spiral are well-developed countries, such as USA and Sweden. In the middle section of the spiral, these nations are usually regarded as developing countries. Those nations in the last are mainly regarded as poor-developed countries, for example, Russia and Argentina.

We got a hypothesis that a nation will go up-spiral if she improves her competitiveness. Namely, a improving nation would move clockwise on the spiral, while the declining nations would move anticlockwise down.

To test the hypothesis, the top 4 best-improved countries and the top 4 most-declined nations between 2001 and 2004 are spotted.

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[1] IMD WCY 2003 divides nations into "big nations" and "small nation" by the population of 200 million people. The 2 groups are scored and ranked individually. This poses a difficulty when we tried to score all nations together. To overcome this, the data of big nations are timed with a variable whose most appropriate value is determined by the model.

The following table shows the comparison on the scores between 2001 and 2004.

Figure 4.5   Scores Comparison Between 2001 and 2004

Nation	2001 Score	2004 Score	difference
ARGENTINA	37.505	36.937	-0.568
AUSTRALIA	75.874	86.046	10.172
AUSTRIA	72.539	78.933	6.394
BELGIUM	66.026	70.324	4.298
BRAZIL	49.661	48.130	-1.531
CANADA	76.941	86.626	9.685
CHILE	59.837	69.901	10.064
CHINA	49.530	70.725	21.195
COLOMBIA	32.837	57.370	24.533
CZECH-REPUBLIC	46.676	56.440	9.764
DENMARK	71.788	84.378	12.590
FINLAND	83.380	83.636	0.256
FRANCE	59.556	67.673	8.117
GERMANY	74.043	73.435	-0.608
HONG-KONG	79.549	85.765	6.216
HUNGARY	55.638	57.209	1.571
ICELAND	73.747	86.015	12.268
INDIA	40.410	62.971	22.561
IRELAND	79.199	80.303	1.104
ISRAEL	67.924	63.458	-4.466
ITALY	49.581	50.307	0.726
JAPAN	57.520	71.915	14.395
KOREA	51.081	62.201	11.120
MALAYSIA	50.029	75.919	25.890
MEXICO	43.675	43.239	-0.436
NETHERLANDS	79.549	78.613	-0.936
NEW-ZEALAND	61.728	74.394	12.666
NORWAY	63.101	75.468	12.367
PHILIPPINES	40.595	49.666	9.071

PORTUGAL	48.363	58.485	10.122
RUSSIA	34.575	52.140	17.565
SINGAPORE	87.657	89.008	1.351
SLOVAK-REPUBLIC	43.590	57.462	13.872
SLOVENIA	42.485	55.498	13.013
SOUTH-AFRICA	38.615	53.786	15.171
SPAIN	60.135	67.414	7.279
SWEDEN	77.862	79.578	1.716
SWITZERLAND	76.812	78.809	1.997
TAIWAN	64.837	79.543	14.706
TURKEY	35.438	43.459	8.021
UNITED-KINGDOM	64.781	72.186	7.405
USA	100.000	100.000	0.000

The top 4 best-improved nations are China, Colombia, India and Malaysia.

Comparing Figure 4.1 and 4.4, obviously, they all move clockwise.

The top 4 most-declined nations are Brazil, Germany, Israel and Netherlands,

moving anticlockwise down in Figure 4.1 and 4.4.

Thus, the spiral theory could explain the evolvement of countries.

5. Conclusion

5.1. Best Dominant Criteria Found

The accuracy of the scoring function we proposed has been proved by the data of 2004. This offer a convenient way for computing and predicting a nation's competitiveness score. The administration could know which criterion means a lot for them, while some another doesn't worth pouring money on it.

In the aspect of criteria, we have summarized following points:

❑ "Consumer Price Inflation" and "Unemployment Rate" are two negative indicators, but affect national competitiveness constantly every year.

❑ Most soft data tend to play a more significant role than hard data. For example, "Bureaucracy", "Company-University Cooperation" and "Government Decision".

❑ Where to invest is crucial to national competitiveness. Compared with investment abroad, the criterion "Direct investment flows inward" is always equipped with large weights. That is, investing within a nation could efficiently elevate a nation's competitiveness.

❑ What surprised us is the result that "GDP per capita" is not significant at all. Its weights are all 0 from 2001 to 2003. This finding overthrows what we used to think before.

5.2. Spiral Evolvement

When visualizing countries on the ball, the spiral evolvement of national competitiveness is found.

To examine the spiral hypothesis, the best-improved nations and the most-declined nations are identified. And their movements from 2001 to 2004 have confirmed our hypothesis.

Comparing 2001, 2002 and 2004 distributions, some well-developed nations in 2001 shape a line following USA, which means most of them are dominant by USA. In other words, they perform poorer than USA in every criterion.

But in 2002 and 2004, the line collapsed. Those nations spread widely, instead of forming a line. This indicates by 2004 these well-developed nations have established their own strengths. They perform better than USA in some criteria.

The phenomenon we observed is in accord with the global trend in reality.

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Appendix A   The Raw Data

Raw Data of 2001

Criterion / Nation	Exports of Goods & Commercial Services (US$ Billion)	Computers per capita (Number of Computers per 1000 people)	GDP per capita (US$ per capita)	Listed domestic companies (Number of Listed Domestic Companies)	Stock market capitalization (US$ Billion)	Compensation levels (US$)	Overall productivity (GDP per person employed, US$)	Consumer price inflation (Average Annual Rate)	Unemployment rate (Percentage of Labor Force)	Direct investment flows inward (US$ Billion)	Direct investment flows abroad (US$ Billion)	Real GDP Growth (Percentage change, based on national currency)	Current account balance (US$ Billion)	Private final consumption expenditure (US$ Billion)	Stock Markets (Degree of providing adequate financing to companies)	Distribution (Degree of Efficiency)	Private & Government Final Consumption Expenditure	Technological Cooperation (Degree of cooperation between companies)	Total Expenditure on RnD per capita (US$ per capita)	Bureaucracy (Degree of Not hinder the business)	Company-University cooperation (Degree of sufficiency)	Government Decision (Degree of efficient implementation)
ARGENTINA	30.59	69.9	7694	129	83.9	5.58	23643	-0.94	14.7	23.58	1.22	-0.5	-9.9	197.5	2.4211	4	236.8	3.737	41.1	2.447	3.34	2.82
AUSTRALIA	81.1	555.8	20495	1217	427.7	14.258	43910	4.46	6.6	5.66	-2.88	4.2	-18.5	220.3	7.3882	7.21	289.48	5.814	297.4	4.941	5.32	6.7
AUSTRIA	95.41	401.6	22850	97	33	18.887	50724	2.29	4.6	2.83	2.8	3.3	-5.9	106.1	4.68	8.08	143.35	5.56	462.8	4.12	5.1	6.36
BELGIUM	212.12	402.4	22384	172	184.9	19.742	57552	2.55	8.2	38.39	33.86	3.8	8.1	120.4	6.4848	6.39	167.92	5.313	440.6	2.776	4.82	4.69
BRAZIL	61.86	70.8	3523	478	228	6.744	7383	5.97	9.6	32.66	1.68	4.2	-24.61	327.1	3.8571	3.43	426.86	4.071	37.2	2.429	3.21	4.5
CANADA	311.36	549	22379	3767	800.9	15.603	46124	2.73	6.7	25.13	17.84	4.8	12.6	392.3	7.1951	7.38	519.42	6.075	329.1	4.634	5.59	6.24
CHILE	19.32	80.5	4635	285	68.2	4.861	13275	4	9.3	9.22	4.86	5.4	-0.68	43.4	4.4507	5.69	51.51	4.366	28.3	3.775	3.66	4.68
CHINA	272.9	14.3	845	950	319.7	0.465	1518	0.4	3.1	38.75	1.78	8	15.67	475.9	4.5778	5.34	600.15	3.187	6.5	2.088	2.92	4.64
COLOMBIA	13.42	46.1	1948	145	11.6	2.148	5105	8.7	20.4	1.14	-0.01	3	0.18	53.2	2	2.29	70.58	3.317	9	2	3.32	3.5
CZECH	35.84	164.4	4816	164	11.8	2.061	10584	3.9	8.8	5.09	0.2	2.5	-2.37	26.3	1.8113	4.79	35.94	4.038	66.4	2.566	3.43	3.47
DENMARK	65.02	560.5	30112	233	105.3	19.838	66491	2.9	5.2	8.48	9.78	2.9	3.4	77.3	6.9014	8.37	117.09	5.408	650.6	5.042	5.07	6.96
FINLAND	48.25	573.3	23430	147	349.4	18.25	52527	3.34	9.6	3.34	4.76	5.6	9.1	59.6	7.7284	8.44	84.6	7.704	774.2	6.375	7.68	7.58
FRANCE	380.68	369.4	21751	968	1475.5	15.554	55717	1.63	9.7	38.82	106.83	3.2	22.7	698.7	6.5652	7.94	998.88	4.946	538.4	1.763	3.87	5.27
GERMANY	630.91	372.6	23098	933	1432.2	22.648	51612	2	7.7	52.23	98.84	3.1	-27	1080.9	7.7403	8.26	1433.59	5.87	619.8	3.87	5.14	6.44
HONG-KONG	239.71	414	24010	708	607	5.378	50727	-3.7	5	23.07	19.89	10.5	10.58	95.1	7.4146	8.67	110.76	5.095	57.5	5.905	4.44	5.67
HUNGARY	36.41	178	4578	66	16.3	1.769	11829	9.8	6.7	1.95	0.25	5.6	-1.67	28	4.3636	4.42	32.52	4.667	32.7	3.212	4.97	4.91
ICELAND	2.7	573	29680	56	4.8	14.179	54999	5	1.3	0.15	0.07	4	-0.78	5.1	5.8889	7.28	7.1	6.333	580	6.278	5.33	6.83
INDIA	56.34	6.5	444	5863	184.6	0.557	1033	4.3	5.8	2.17	0.08	6	-6.5	289.3	5.3333	2.18	344.04	3.793	2.4	2.091	2.85	2.59
IRELAND	91.09	408.6	24711	84	42.5	11.731	54903	5.56	3.9	19.09	5.42	9.9	-0.2	43.7	6.7273	3.68	55.06	5.607	302.2	5.643	5.89	6.04
ISRAEL	41.61	347.7	17710	644	63.8	12.089	46125	1.2	8.8	2.36	1.03	5.3	-1.92	65.2	6.1818	4.73	97.24	6.727	475.8	4	7.35	4.76
ITALY	295.78	308	18730	241	728.3	14.36	51811	2.55	10.8	6.78	6.75	2.8	-4.4	625.2	4.9744	3.14	813.48	3.769	213.1	1.974	2.77	3.28
JAPAN	539.61	389.2	37567	2470	4546.9	22.038	73825	-0.68	4.7	12.31	22.27	1.7	117.11	2660.7	4.8515	6.65	3449	6.019	1120	2.615	3.6	3.13

KOREA	197.42	313	9668	725	308.5	8.683	21709	2.27	4.1	9.33	4.2	8.8	11.04	261.9	4.9296	4.83	308.6	4.169	214	3.211	4.56	3.83
MALAYSIA	110.19	114.6	3680	757	145.4	1.958	9230	1.6	3	1.55	10.37	8.6	8.2	37.8	5.2	6.03	47.5	4.175	13	3.275	3.83	4.53
MEXICO	178.23	66.2	5817	188	154	2.141	12386	9.49	2.22	11.79	13.35	7	-17.81	384.7	3.2987	4.31	438.32	3.221	20.5	2.519	2.62	4.62
NETHERLANDS	265.93	468.3	22819	344	695.2	18.118	46620	2.58	2.8	34.15	43.5	3.8	13.6	180.2	7.5	6.4	262.75	6.145	485.6	4.694	5.56	5.94
NEW-ZEALAND	16.7	484.6	13003	114	28.4	7.832	28136	2.58	6.1	0.75	0.75	3.5	-3.8	30.4	5.6226	6.92	37.83	5.154	195.2	4.34	4.04	5.85
NORWAY	73.51	571.7	36147	195	63.7	22.502	72455	3.03	3.4	3.6	2.52	3.1	19	66	6.4783	5.54	96.57	4.848	580.7	3.032	4.11	4.88
PHILIPPINES	44.78	23.3	998	226	48.1	1.777	2739	4.29	11.2	0.57	-0.06	3.9	6.75	52.8	4.1587	2.44	62.35	4.355	0.7	2	4.23	2.94
PORTUGAL	32.18	183.8	10546	125	66.5	5.253	22483	2.89	4.1	1.11	3.07	3.2	-10.8	65.1	5.4444	5.3	85.61	3.396	66.4	2.222	2.91	3.63
RUSSIA	111.89	67.4	1697	207	72.2	0.469	3799	20.8	13.3	3.31	2.14	7.7	24.96	112.1	2.5926	3.9	143.8	4.148	13.4	1.778	3.01	4.32
SINGAPORE	162.93	439.8	22949	355	198.4	7.06	44041	1.3	3.1	6.98	3.94	9.9	21.8	36.9	6.4776	8.84	46.54	6	396.7	6.687	6.15	8.69
SLOVAK	12.31	220.3	3497	845	0.7	1.483	8983	12	18.6	0.35	-0.38	1.8	-0.71	9.9	1.8462	4.62	13.37	4.769	24.9	1.538	4.62	4.31
SLOVENIA	10.72	275	9194	28	2.2	5.049	22434	10.9	7.3	0.18	0.04	4.3	-0.73	10.1	2.8235	5.17	13.84	4.286	150.8	1.629	2.2	3.17
SOUTH-AFRICA	34.78	69.8	2864	668	264.4	5.264	17058	5.3	36.2	1.38	1.12	3.1	-0.68	80.1	6.2338	5.84	103.26	4.442	18.5	2.513	3.77	3.32
SPAIN	166.7	205.9	14077	718	431.7	10.476	38766	3.45	14.1	9.32	35.25	4	-16.8	325.7	5.9701	5.86	419.39	4.348	136.5	3.971	3.25	5.65
SWEDEN	105.11	576.1	25705	277	373.3	19.513	54957	1	4.7	59.39	19.55	3.6	8.5	113.9	7.697	7.55	173.54	6.848	991.7	5.576	5.58	6.73
SWITZERLAND	106.82	488.4	33608	239	693.1	21.001	61663	1.57	2	9.94	34.51	3.4	30.3	142.8	7.0682	8.7	176.78	5.636	1143.2	5.364	5.73	6.93
TAIWAN	162.92	336	13921	462	376	6.243	32673	1.26	2.99	2.93	4.42	6	9.32	192.8	6.6329	6.56	233.2	6	267.2	3.949	5.18	3.44
TURKEY	43.33	34.6	3045	285	112.3	3.457	9398	54.9	6.3	0.78	0.65	7.2	-9.77	114.9	4.2857	4.89	142.94	4.036	14.8	2.179	3.64	4.18
UNITED-KINGDOM	381.62	442.4	23688	1945	2933.3	15.492	51038	2.88	5.5	84.81	202.07	2.9	-22.5	916.7	6.7901	3.55	1177	5.108	434.7	3.143	4.22	5.12
USA	1035.76	580.5	36144	7651	16635.1	19.2	73888	3.39	4	275.54	150.9	5	-432.8	6758.6	8.3802	7.14	8165.9	6.678	891.7	3.733	6.65	6.1

Raw Data of 2002

Nation	Exports of Goods & Commercial Services (US$ Billion)	Computers per capita (Number of Computers per 1000 people)	GDP per capita (US$ per capita)	Listed domestic companies (Number of Listed Domestic Companies)	Stock market capitalization (US$ Billion)	Compensation levels (US$)	Overall productivity (GDP per person employed, US$)	Consumer price inflation (Average Annual Rate)	Unemployment rate (Percentage of Labor Force)	Direct investment flows inward (US$ Billion)	Direct investment flows abroad (US$ Billion)	Real GDP Growth (Percentage change, based on national currency)	Current account balance (US$ Billion)	Private final consumption expenditure (US$ Billion)	Stock Markets (Degree of providing adequate financing to companies)	Distribution (Degree of Efficiency)	Private & Government Final Consumption Expenditure	Technological Cooperation (Degree of cooperation between companies)	Total Expenditure on RnD per capita (US$ per capita)	Bureaucracy (Degree of Not hinder the business)	Company-University cooperation (Degree of sufficiency)	Government Decision (Degree of efficient implementation)
ARGENTINA	31.1	66	7403	127	166.1	5.58	23764	-1.1	18.5	11.67	1.11	-2.3	-4.9	191.9	2.06	4.11	230.8	3.89	41.1	1.27	2.5	1.24
AUSTRALIA	81.15	585	18975	1330	372.8	12.6	40331	4.4	6.6	11.53	5.29	2	-10.6	211.1	7.71	7.49	276.1	6.29	299.9	5.03	5.43	6.81
AUSTRIA	100.33	429	23201	97	29.9	18.86	50272	2.6	3.5	9.07	3.3	1.2	-5.9	107.6	4.77	8.23	143.5	6.96	419	4.19	5.19	5.96
BELGIUM	203.37	455	22355	174	182.5	20.46	57236	2.2	6.9	86.5	111.17	1.1	11.9	124	5.57	7.31	172.8	5.89	481	2.9	4.94	3.97
BRAZIL	67.07	77	2909	459	226.2	1.27	6508	7.7	9.6	32.78	2.28	1.5	-23.2	302.1	3.59	4.37	402.3	4.41	28	2.53	3.44	4.92
CANADA	299.43	604	22572	3977	841.4	15.51	46478	2.6	7	62.22	41.5	1	18.8	400.2	7.75	7.88	529.1	6.95	418.9	4.47	6.03	5.9
CHILE	21.51	103	3991	258	60.4	4.86	11538	2.6	9.3	3.68	4.78	2.4	-1	44.7	5.41	6.63	53.3	5.36	28	4.04	4.78	5.25
CHINA	296.81	22	902	1086	581	0.53	1587	0.7	3.6	38.4	0.92	7.3	21.2	518.4	5.05	5.39	659.8	3.88	8.5	2.9	3.64	4.85
COLOMBIA	15.05	54	1891	126	9.6	2.15	4991	8	17.8	2.62	0.33	0.7	-1.7	52	2.18	3.14	69.2	4.05	7.9	2.23	3.05	3.12
CZECH	40.49	179	5476	131	11	2.06	11965	4.8	8.3	4.58	0.12	3.5	-2.7	30	2.17	5.67	40.8	6.17	66.7	3	4.42	4.67
DENMARK	72.39	609	30421	225	107.7	19.88	59440	2.3	4.7	34.15	27.58	1.3	7.6	75.6	6.94	9.09	116.2	6.54	680.5	5.77	5.12	7.56
FINLAND	49.27	614	23295	154	293.6	18.9	51404	2.6	9.1	8.3	22.44	0.4	8	58.4	7.97	8.83	83.7	8.18	774.7	6.83	7.82	8.03
FRANCE	400.62	419	22169	808	1446.6	15.88	54885	1.7	8.9	43.17	169.48	2	20.5	710.5	7.18	8.11	1011.1	5.62	471.8	2.47	4.42	4.15
GERMANY	649.58	436	22504	1022	1270.2	22.28	50433	2.4	7.8	189.18	52.05	0.6	-12.9	1084.7	7.46	8.47	1434.5	6.47	559.9	2.77	4.51	5.02
HONG-KONG	232.75	389	24099	779	623.7	5.54	49780	-1.6	5.1	64.43	63.01	0.1	12	94.8	8.14	8.79	111.6	6.19	115.1	5.21	4.93	4.86
HUNGARY	34.37	176	5072	60	12	2.13	13567	9.2	5.9	1.64	0.56	3.8	-1.1	32.8	3.63	4.89	38	5.19	37.2	3.63	4.44	5.56
ICELAND	2.87	603	26369	65	5	12.67	48033	6.4	1.4	0.15	0.37	1.9	-0.3	4.3	5.02	7.02	6.1	6.98	752.9	6.09	6.38	5.95
INDIA	61.45	8	430	5937	148.1	0.78	1095	3.7	10.5	2.32	0.34	4.8	-3.5	298.4	5.34	3.82	356.9	4.45	2.4	2.2	3.18	2.71
IRELAND	100.08	461	27464	76	81.9	12.14	58876	4.9	4.2	22.78	3.98	5	-1.8	49.8	6.04	3.54	62.6	6.11	302.2	5.32	5.65	6.32
ISRAEL	43.28	366	16968	654	64.1	12.48	48577	1.1	10.1	4.39	2.8	-0.6	-5	64.5	5.85	5.38	97.2	7.33	475.8	3.75	6.87	3.55
ITALY	297.96	347	18783	291	768.4	14.21	50603	2.8	9.6	13.18	12.08	1.8	3.2	650.3	4.39	3.51	850.2	4.4	213.2	1.86	3.13	4.5
JAPAN	472.99	430	32554	2561	3157.2	19.51	64625	-0.7	4.8	8.23	31.53	-0.5	95.8	2342.7	4.96	6.91	3070	6.18	1170.5	2.97	3.08	3.62
KOREA	179.83	399	8918	1308	171.6	7.13	19763	4.1	3.8	8.73	5.26	3	8.6	241.5	6.11	6.44	285.5	5.38	260.6	3.09	4.84	4.18
MALAYSIA	102.1	127	3678	795	116.9	2.68	9203	1.4	3.7	1.55	10.1	0.4	7.2	39.6	6.51	7.97	50.3	5.4	18.9	4.59	4.76	5.4
MEXICO	172.1	76	6299	179	153	2.29	15328	6.3	2.6	13.29	13.95	-0.3	-29.2	436.1	3.73	4.51	501.1	3.67	19.9	2.42	2.87	3.62
NETHERLANDS	282.15	510	23887	234	640.5	19.05	53578	4.5	2.5	54.14	74.81	1.1	13.8	186.6	7.97	6.31	273	7.02	509.8	5.06	5.75	5.81

NEW-ZEALAND	17.51	517	12763	144	18.6	7.49	27103	2.6	5.3	3.21	0.96	2.1	-2.7	28.9	6.24	6.94	37.7	5.8	195.2	4.52	4.8	6.16
NORWAY	72.83	610	36219	191	65	21.61	72631	3	3.4	5.88	8.2	1.4	24	70.1	6.13	6.61	102.8	6.05	584.3	4.29	4.61	5.47
PHILIPPINES	37.72	28	917	230	51.6	1.78	2450	6.1	11.1	2.03	-0.1	3.4	2.8	50.2	4.22	3.23	58.9	4.9	0.7	2	4.72	3.05
PORTUGAL	32.05	178	11343	109	60.7	4.61	23280	4.4	4	6.23	7.14	1.8	-9.7	66.4	4.25	6.03	88.3	4.19	87.8	1.69	2.86	2.7
RUSSIA	112.84	77	2141	249	38.9	0.47	4769	21.6	9	2.71	3.21	5	34.2	147.8	3.15	4.14	184.6	4.67	18.7	1.66	3.52	3.54
SINGAPORE	148.41	580	20732	418	152.8	7.14	41846	1	3.3	6.39	4.28	-2	17.9	36.2	7.28	9.32	46.4	7.02	434.6	7.46	6.65	8.81
SLOVAK	14.13	228	3631	838	0.7	1.41	9218	7.3	19	2.05	0.02	3.3	-1.5	10.5	2.03	5.28	14.2	4.78	24.2	1.45	4.38	3.1
SLOVENIA	11.25	284	9306	38	3.6	4.51	20543	8.4	6.3	0.18	0.05	3.7	-0.2	10.1	3.52	5.22	14	4.42	137.9	2.04	3.08	3.94
SOUTH-AFRICA	34.21	79	2555	616	205	5.26	15651	7.4	29.5	0.96	0.58	2.2	-0.2	70.7	6.92	6.21	91.1	4.9	20.4	2.99	4.19	3.26
SPAIN	163.87	231	14726	1019	504.2	10.52	39398	3.6	13.1	36.02	52.83	2.8	-16	337.6	6.25	6.15	437	4.42	127.5	3.82	3.36	5.58
SWEDEN	95.21	626	23658	292	328.3	17.89	49912	2.6	4.1	22.13	39.96	1.1	5.3	104	8.07	7.43	158.4	7.4	1035.7	5.7	5.97	6.89
SWITZERLAND	108.48	600	34363	252	792.3	21.27	62367	1	2.5	17.9	41.32	1.3	30.5	147.1	7.69	8.78	181.9	6.68	1143.2	5.71	5.69	7.13
TAIWAN	143.12	394	12595	531	247.6	6.13	30080	0	4.57	4.93	6.7	-1.9	19	179.4	7.03	6.97	216	6.38	284	4.37	5.82	4.45
TURKEY	50.45	53	2349	315	69.7	3.45	8071	54.4	10.6	0.98	0.87	-8	3.3	107	3.94	6.06	127.9	4	18	2.13	3.28	4.16
UNITED-KINGDOM	373.34	492	23978	1904	2577	15.09	50968	1.8	5.1	129.84	259.47	2.3	-16.8	923.6	7.31	3.61	1187.9	5.75	453.2	2.94	4.67	5.31
USA	1005.47	639	35835	7524	15104	19.86	75386	2.8	4.8	287.68	152.44	1.2	-413.6	7061.2	8.74	8.55	8558.8	7.4	936.8	4.67	6.98	6.31

Raw Data of 2003

Criterion / Nation	Exports of Goods & Commercial Services (US$ Billion)	Computers per capita (Number of Computers per 1000 people)	GDP per capita (US$ per capita)	Listed domestic companies (Number of Listed Domestic Companies)	Stock market capitalization (US$ Billion)	Compensation levels (US$)	Overall productivity (GDP per person employed, US$)	Consumer price inflation (Average Annual Rate)	Unemployment rate (Percentage of Labor Force)	Direct investment flows inward (US$ Billion)	Direct investment flows abroad (US$ Billion)	Real GDP Growth (Percentage change, based on national currency)	Current account balance (US$ Billion)	Private final consumption expenditure (US$ Billion)	Stock Markets (Degree of providing adequate financing to companies)	Distribution (Degree of Efficiency)	Private & Government Final Consumption Expenditure	Technological Cooperation (Degree of cooperation between companies)	Total Expenditure on RnD per capita (US$ per capita)	Bureaucracy (Degree of Not hinder the business)	Company-University cooperation (Degree of sufficiency)	Government Decision (Degree of efficient implementation)
ARGENTINA	29.25	68	2875	111	192.5	1.75	9496	25.9	17.8	3.21	-0.12	-11.2	9.306	63.6	1.66	3.725	77.4	4.18	41.1	1.317	7.88	1.345
AUSTRALIA	80.72	630	19965	1334	374.3	13.82	42471	2.96	6.3	4.39	11.61	3.8	-17.76	235.9	7.79	7.818	306.9	6.643	309.9	4.877	8.189	6.737
AUSTRIA	111.65	476	25002	114	24.5	20.42	53573	1.8	4.1	5.9	3.05	0.5	-1.66	116.6	4.46	8.361	155.5	6.852	446.4	3.541	8.138	5.311
BELGIUM	236.74	509	23981	156	165.8	22.16	59553	1.65	7.3	50.46	66.38	0.7	11.6	133.9	6	7.939	188.4	6.615	478.9	2.687	7.091	4.545
BRAZIL	69.08	83	2591	428	186.2	2.43	5870	12.53	10.5	22.64	2.26	1.52	-7.662	268.2	3.19	5.151	355.4	5.096	28	2.438	7.139	4.329
CANADA	288.17	647	23262	4004	700.8	15.47	47714	2.24	7.7	27.44	35.57	3.4	11.027	415.8	7.09	8	533	7.062	434.5	3.976	8	5.049
CHILE	21.8	120	3878	249	56.3	2.05	10986	1.47	9	4.48	1.43	1.9	-0.553	42.9	5.24	7.414	51.4	5.517	23.4	4.379	8.69	4.897
CHINA	358.47	27	963	1160	524	0.59	1678	-0.8	4	44.24	6.88	8	17.405	554.8	4.82	5.48	712.2	3.8	9.9	2.88	3.878	4.646
COLOMBIA	14.39	59	1878	123	13.2	2.2	4980	6.99	16.9	2.33	0.04	2.5	-2.125	52	3.71	4.743	69.2	4.229	7.9	3.03	7.6	6.235
CZECH-REPUBLIC	40.29	211	6767	94	9.3	2.86	14410	1.8	7.2	4.92	0.1	2	-3.708	36.7	2.29	7.349	51.6	6.048	72.4	2.605	7.86	4.093
DENMARK	83.71	658	32183	208	95	23.23	63396	2.36	4.5	7.24	9.63	1.56	4.92	83.1	5.94	8.769	128.2	6.831	680.2	5.455	7.569	7
FINLAND	48.67	662	25303	152	190.5	20.99	55523	1.6	9.1	3.43	8.36	1.6	9.403	66.3	7.19	8.63	94.7	8.243	785.3	6.892	8.986	7.865
FRANCE	409.35	419	23939	791	1174.4	16.71	58822	1.85	8.7	52.5	83.19	1	27.91	778.7	6.45	8.238	1110.6	6	486.7	2.762	8.075	5.405
GERMANY	691.89	480	24123	988	1071.7	24.07	51359	1.4	8.2	31.53	42.75	0.2	46.07	1170.5	6.43	8.476	1550.1	6.971	571.7	1.962	6.854	3.657
HONG-KONG	243.05	434	24003	857	506.1	5.22	50541	-3	7.3	23.78	11.34	2.25	17.483	90.9	8.04	8.5	107.7	6.622	135.5	5.911	6.884	4.444
HUNGARY	41.97	153	6186	57	10.4	2.13	16515	5.28	5.6	2.44	0.34	3.3	-2.6	41.9	3.35	5.941	47.7	5.353	46	3.636	7.758	4.848
ICELAND	2.97	649	29156	61	3.6	14.02	53958	5.24	2.5	0.15	0.37	-0.48	0.008	4.6	5.95	7.951	6.7	7.561	810.5	6.976	8.5	6.829
INDIA	70.43	9	445	5795	110.4	0.43	1103	4.3	10.34	2.32	0.34	4.37	2.5	316.4	5.8	4.205	378.9	5.295	3.7	2.159	8.874	2.909
IRELAND	108.6	516	30514	68	75.3	13.98	67213	4.63	4.4	9.87	5.41	5.1	-0.17	54.8	5.89	4.741	71	5.741	306	3.963	7.731	5.222
ISRAEL	40.3	387	15541	636	70.3	12.01	44873	5.7	10.4	3.22	1.14	-1.1	-6.797	59.8	4.36	7.163	91.8	8.045	475.8	2.727	8.591	3.227
ITALY	308.97	310	20447	288	527.4	14.49	54332	2.5	9	14.87	21.76	0.4	-6.77	709	4.02	4.667	936.6	4.516	199.7	2.301	6.549	3.957
JAPAN	479.66	477	31368	2471	2251.8	19.01	63132	-0.99	5.4	6.19	38.5	0.3	113.76	2284.5	4.37	7.301	2997.7	6.462	1119.4	2.8	7.359	2.925
KOREA	192.07	342	9797	1409	220	8.35	21499	2.77	3.1	3.2	2.6	6.3	6.09	286.8	5.06	5.388	337.1	4.776	263.8	3	5.796	4.367
MALAYSIA	109.69	137	3814	809	120	2.78	9900	1.8	3.5	0.55	0.27	4.2	7.208	41.9	6.36	7.956	55.4	6.176	18.9	5.222	7.258	6.044
MEXICO	173.34	88	6161	168	126.3	2.27	15091	5.06	2.7	24.73	22.37	0.9	-15.235	439.3	3.64	5.105	508.6	4.171	25.1	2.495	6.365	3.352
NETHERLANDS	295.03	605	25963	180	458.2	20.32	52827	3.37	2.7	51.24	39.66	0.3	8.91	207.3	6.74	7.607	306.4	6.295	458.6	3.738	5.161	4.459

Country																						
NEW-ZEALAND	17.9	571	14583	145	17.8	8.51	30107	2.7	5.2	1.73	0.3	3.2	-1.73	33.2	6.15	7.547	43.3	6.077	150.9	4	6	5.849
NORWAY	77.03	657	42241	186	69.1	26.06	84407	1.3	3.9	2.17	-1.09	1	26.45	85.6	5.61	7	127.7	6.357	584.5	4.893	7.769	5.786
PHILIPPINES	35.25	25	977	232	41.5	0.85	2548	3.2	10.2	1.79	-0.16	5.2	2.484	53.2	3.6	3.72	63	5.12	0.7	2.286	7.667	2.875
PORTUGAL	32.59	201	12014	97	46.3	4.85	23882	3.61	5	5.95	7.87	0.4	-9.33	67.1	3.03	6.419	89.8	3.677	87.1	2.033	6.032	4.774
RUSSIA	117.76	77	2408	236	76.2	0.65	5219	15.1	7.1	2.47	2.53	4.1	34.575	154.1	3.3	3.97	198.4	4.356	30.6	1.343	7.2	3.507
SINGAPORE	151.95	596	20906	386	117.3	7.78	43109	-0.4	4.4	10.95	9.55	2.24	18.704	37.4	6.95	9.169	48.6	7.125	436.5	6.431	7.938	8.554
SLOVAK-REPUBLIC	15.09	178	4378	844	0.7	1.95	11151	3.3	18.6	2.05	0.02	4.4	-1.633	13.1	2.34	6.102	17.8	5.458	24.8	1.932	7.729	3.627
SLOVENIA	11.19	327	10465	38	2.8	5.14	23035	6.21	6.4	0.5	0.13	3.2	-0.014	11.2	4.53	5.516	15.7	4.22	125.8	2.176	4.813	3.934
SOUTH-AFRICA	33.82	84	2293	542	139.8	5.26	7897	10.1	29.4	7.16	-3.69	3	0.312	64.7	6.82	6.208	84.8	5.273	20.5	3.065	5.36	3.5
SPAIN	176.34	224	16282	1458	468.2	11.46	40229	3.5	11.4	21.54	27.7	2	-16.75	378.9	6.09	6.743	493.9	4.714	138.9	3.686	7.441	5.371
SWEDEN	102.51	687	26921	285	232.6	19.52	56143	0.47	4.9	13.09	6.96	1.6	10.01	116	7.52	7.931	182.5	7.379	1035.7	4.967	7.25	6.267
SWITZERLAND	112.77	641	36937	263	521.2	23.69	64151	0.67	3	8.63	11.05	0.08	31.84	162.3	7.13	8.6	203.2	6.575	880.4	5.556	7.75	6.494
TAIWAN	150.56	314	12500	584	292.6	6.13	29777	-0.2	5.17	4.11	5.48	3.54	25.73	177.7	6.94	7.111	213.1	6.389	270.6	3.972	6.704	3.718
TURKEY	51.11	52	2631	310	47.2	3.46	9045	45	10.6	3.27	0.5	7.78	-1.789	122.4	3.73	5.961	148.1	4.392	19	1.882	7.68	4.549
UNITED-KINGDOM	384.3	526	25894	1923	2217.3	16.81	54775	1.63	5.1	63.11	34.24	1.6	-13.03	1014.2	6.17	5.585	1323.9	5.556	444.8	3.253	4.627	4.217
USA	956.9	739	36552	6355	13810.4	20.32	77812	1.55	5.8	130.8	127.84	2.3	-503.4	7300.9	8.04	8.337	8921.8	7.74	991.2	4.333	7.287	5.608

Raw Data of 2004

Nation	Exports of Goods & Commercial Services (US$ Billion)	Computers per capita (Number of Computers per 1000 people)	GDP per capita (US$ per capita)	Listed domestic companies (Number of Listed Domestic Companies)	Stock market capitalization (US$ Billion)	Compensation levels (US$)	Overall productivity (GDP per person employed, US$)	Consumer price inflation (Average Annual Rate)	Unemployment rate (Percentage of Labor Force)	Direct investment flows inward (US$ Billion)	Direct investment flows abroad (US$ Billion)	Real GDP Growth (Percentage change, based on national currency)	Current account balance (US$ Billion)	Private final consumption expenditure (US$ Billion)	Stock Markets (Degree of providing adequate financing to companies)	Distribution (Degree of Efficiency)	Private & Government Final Consumption Expenditure	Technological Cooperation (Degree of cooperation between companies)	Total Expenditure on RnD per capita (US$ per capita)	Bureaucracy (Degree of Not hinder the business)	Company-University cooperation (Degree of sufficiency)	Government Decision (Degree of efficient implementation)
ARGENTINA	28.15	66.7	3300	83	103.4	1.75	10395	13.4	15.6	0.775	-0.643	8.4	7.85	77.4	1.98	4.25	92.8	4.3	10.5	1.14	3.41	2.94
AUSTRALIA	87.11	650.3	24880	1355	381	18.55	52239	2.79	5.9	15.682	6.637	2.4	-30.15	235.9	8.18	7.84	306.9	7.03	313.8	5.11	6.08	6.99
AUSTRIA	131.05	500.7	31162	91	31.7	25.2	54124	1.34	4.4	0.886	5.501	0.8	0.7	143.6	5.48	8.74	190.6	7.19	492.1	4.3	6.37	5.78
BELGIUM	289.48	534.6	29301	143	127.6	27.24	73526	1.59	8.1	13.899	12.402	1.1	8.09	165.6	6.77	8.1	234.2	7.05	478	2.41	6.17	3.63
BRAZIL	81.92	90.4	2757	399	123.8	2.44	5870	14.75	10.5	16.566	2.482	-0.2	4.05	280.2	3.96	3.96	375	4.98	37.3	1.7	4.17	3.28
CANADA	308.32	651.7	27417	3756	575.3	17.97	55081	2.8	7.6	20.501	28.86	1.8	18.42	494.5	8.14	7.86	631.5	7.63	422.6	4.89	6.58	5.78
CHILE	22.79	135.9	4548	254	47.6	2.05	13012	2.859	8.5	1.713	0.574	3.3	-0.25	45	5.91	7.56	54.1	6	22.3	4.58	4.99	5.97
CHINA	477.75	32.5	1091	1235	463.1	0.66	1894	1.2	4.3	49.308	2.518	9.1	35.42	586.4	4.94	5.22	753.5	4.69	12.1	1.57	4.02	4.5
COLOMBIA	13.78	65.3	1734	114	9.7	2.2	4425	7.131	14.16	1.974	0.782	3.64	-1.39	53.1	3.78	4.78	69.9	5.09	7.9	3.16	4.58	5.73
CZECH	45.43	236.1	8398	78	15.9	2.86	18094	0.14	7.8	9.323	0.281	2.9	-6.12	45.3	2.31	6.75	63.9	5.85	88.5	2.25	4.56	3.4
DENMARK	93.36	679.8	39343	201	76.8	29.02	78001	2.091	5.6	6.41	5.152	0.43	6.42	100.4	6.43	8.95	156.5	7.36	711.2	6.41	5.95	7.46
FINLAND	50.93	680	31081	147	138.8	25.77	68524	0.89	9	8.156	7.801	1.9	9.16	84.6	6.71	8.8	120.4	8.34	798.2	6.09	7.82	6.92
FRANCE	470.57	440.3	29335	772	967	20.81	72302	2.09	9.4	52.02	62.73	0.1	16.61	972.4	6.57	8.49	1398	6.14	527	2.77	4.8	4.83
GERMANY	848	510.9	29141	715	686	29.98	62905	1	9.3	37.3	25.3	-0.1	52.89	1409.2	6.6	8.8	1874	7	603.9	2.1	5.21	3.59
HONG-KONG	267.09	458.7	23322	968	463.1	5.84	49152	-2.6	7.9	9.682	17.463	3.3	17.41	90.6	8.16	8.75	107.3	7.25	135.5	5.45	5.49	3.61
HUNGARY	42.07	164.3	7904	48	13.1	2.13	20830	4.67	5.8	0.854	0.264	2.9	-5.15	53.7	3.76	6.19	62.6	6.06	65.6	2.42	5.06	3.39
ICELAND	3.28	683.8	36261	57	6.3	17	67021	2.02	3.2	0.135	0.271	4	-0.59	5.8	6.4	8.64	8.6	8.4	907.2	6.4	7.17	6.88
INDIA	72.77	10	522	5650	131	0.37	1294	3.851	10.34	3.03	0.453	8.1	5.13	327.3	6.81	5.38	390.8	5.52	3.7	2.86	4.91	4.47
IRELAND	120.83	514.8	39289	62	75.3	18.03	85557	3.45	4.6	24.697	2.969	2.5	-2.99	71.7	6.23	4.63	93.5	6.1	311	3.93	5.86	4.44
ISRAEL	39.88	444.9	15978	615	45.4	12.65	46460	-1.9	10.7	1.649	1.232	1.3	-6	65.9	5.26	7.05	99.1	7.53	746	2.42	6.89	3.32
ITALY	349.6	338.8	25286	295	477.1	17.84	66654	2.7	8.7	14.7	17.25	0.3	-22.52	881.8	3.92	4.16	1175	4.31	199.9	2	3.66	3.25
JAPAN	536.84	509.4	33708	3058	2126.1	20.34	68114	-0.2	5.3	9.09	32.02	2.7	136.58	2448.5	5.9	7.46	3202	7.18	1006.2	2.87	4.99	3.9
KOREA	221.41	391.2	12638	1526	249.6	9.62	27357	3.46	3.4	1.972	2.674	3.1	13.14	326.1	5.79	5.88	406.9	5.46	290.7	3.11	4.04	3.67
MALAYSIA	115.48	161.5	4118	865	123.9	2.9	11023	1	3.4	3.203	1.905	5.2	9.68	44.7	7	7.57	58.9	6.51	27.5	4.82	5.5	6.37
MEXICO	177.8	92.9	6008	166	103.1	2.13	15125	4.55	3.3	14.622	0.969	1.5	-9.15	426.2	3.34	4.6	494.4	3.92	25.4	1.76	3.44	2.46
NETHERLANDS	347.54	638.4	31473	180	401.5	25.98	72826	2.17	3.8	28.534	33.951	-0.7	11.15	253	7.09	7.8	381.2	6.66	453.6	3.8	5.51	4.68

NEW-ZEALAND	19.6	577.1	19160	149	21.7	11.1	38470	1.77	4.7	0.823	0.376	3	-3.44	44.4	6.08	7.04	57.8	6.44	156.7	3.43	5	5.56
NORWAY	87.25	675.3	48579	179	67.3	30.9	98517	2.48	4.38	1.008	4.588	0.6	28.63	102	6.26	6.7	151.8	7.59	602.4	4.56	6.04	5.93
PHILIPPINES	39.3	25.1	991	235	39	0.7	2550	3.1	10.1	1.111	0.085	4.5	1.85	55.1	4.14	3.24	64.3	4.93	0.7	1.86	4.04	2.32
PORTUGAL	35.34	223.7	14227	63	42.8	4.85	29361	3.33	6.4	4.235	3.679	-0.8	-7.49	73.6	4.58	6.64	99.5	4.42	110.1	1.94	3.36	3.76
RUSSIA	148.2	90.4	2780	196	124.2	0.88	6197	13.6	8.9	2.956	3.284	7	32.81	172.8	3.46	4.55	231.4	4.89	29.9	1.85	3.89	3.24
SINGAPORE	171.08	533.7	21825	434	101.9	7.48	44914	0.5	4.7	5.73	3.699	1.09	28.19	39.4	7.33	9.33	50.3	7.71	455.7	5.95	7.1	8.7
SLOVAK-REPUBLIC	17.13	195.2	6049	354	1.9	2.32	14874	8.59	17.1	4.012	0.005	4.4	-0.28	18.4	3.19	5.57	24.9	5.41	26	2.7	4.43	5.08
SLOVENIA	11.76	309.3	13324	35	4.6	6.7	29954	5.607	6.2	1.865	0.117	2.6	0.07	14.2	4.34	5.86	19.8	4.09	127.1	1.93	3.6	2.99
SOUTH-AFRICA	34.11	94	3444	450	184.6	3.4	14404	5.8	31.2	0.739	-0.399	1.9	-1.34	99.2	6.7	6.73	129.7	6.19	19.6	2.98	4.55	3.74
SPAIN	213.99	232.7	20621	2986	461.6	14.4	50292	3.05	11.3	21.284	18.66	2.43	-22.27	486.3	6.1	6.64	636.9	4.67	139	3.78	3.85	6.1
SWEDEN	123.41	706.2	33865	278	177.1	24.29	69583	2.11	5.6	11.828	9.41	1.6	18.84	147.9	7.59	8.31	233.5	7.9	1052.2	4.85	6.37	5.9
SWITZERLAND	128.45	655.8	42191	258	553.8	27.87	74033	0.57	4.1	3.599	10.069	-0.5	32.71	162.3	7.17	8.77	203.2	7.73	882.2	4.52	6.77	6.23
TAIWAN	171.76	308.8	12657	638	261.5	5.43	29888	-0.28	4.99	1.445	4.886	3.24	28.57	179.7	7.35	7.82	216.3	6.79	288.2	4.7	5.98	4.92
TURKEY	49.29	53.6	3179	288	34	3.46	10573	28.28	10.5	1.037	0.176	5.38	-6.81	121.7	4.06	5.88	147.3	4.8	19	2	4.03	5.14
UNITED-KINGDOM	427.02	546.5	29989	1701	1864.1	19.08	62343	1.3	4.98	28.18	7.46	2.2	-30.75	1173.1	6.71	6.77	1549	5.69	453	2.51	4.21	4.09
USA	996.64	744.8	37483	5685	11052.4	21.33	79104	2.29	6	39.63	137.84	3.1	-541.8	7300.9	8.18	8.59	8922	7.6	964.7	4.51	6.92	5.86

Appendix B   Verification Results

	Weight	57.08	1.98	1.03	0.91	-1.64	-1.58	2.54	1.18	0.02	3.13	0.86	2.86	4.04	3.54						
		C_0	Computers per capita	Stock market capitalization	Overall productivity	Consumer price inflation	Unemployment rate	Direct investment flows inward	Real GDP Growth	Current account balance	Stock Markets	Distribution	Technological Cooperation	Bureaucracy	Government Decision	Score	ScoreHat	S - S^	$\|S - S^\wedge\| / S$	Simulated Rank	2004 IMD Rank
ARGENTINA		1	-1.09	-0.21	-0.97	1.55	1.43	-0.65	1.82	0.14	-2.28	-1.47	-1.39	-1.38	-1.12	36.94	27.66	9.28	0.25	#42	#42
AUSTRALIA		1	1.35	-0.01	0.45	-0.23	-0.48	0.56	-0.09	-0.35	1.69	0.77	0.89	1.36	1.56	86.05	82.09	3.96	0.05	#6	#4
AUSTRIA		1	0.73	-0.25	0.52	-0.47	-0.78	-0.64	-0.60	0.05	-0.04	1.33	1.02	0.80	0.76	78.93	68.24	10.69	0.14	#16	#12
BELGIUM		1	0.87	-0.19	1.18	-0.43	-0.05	0.42	-0.50	0.14	0.79	0.93	0.90	-0.50	-0.66	70.32	62.39	7.94	0.11	#22	#22
BRAZIL		1	-0.99	-0.19	-1.12	1.77	0.42	0.63	-0.92	0.09	-1.01	-1.65	-0.82	-0.99	-0.89	48.13	36.76	11.37	0.24	#40	#39
CANADA		1	1.36	0.12	0.55	-0.23	-0.15	0.95	-0.28	0.28	1.66	0.78	1.39	1.20	0.76	86.63	80.49	6.13	0.07	#7	#3
CHILE		1	-0.80	-0.24	-0.88	-0.22	0.03	-0.58	0.20	0.04	0.24	0.59	0.03	0.99	0.89	69.90	62.01	7.89	0.11	#23	#23
CHINA		1	-1.23	0.04	-1.26	-0.50	-0.80	3.30	2.04	0.50	-0.38	-0.86	-1.06	-1.08	-0.08	70.73	56.75	13.97	0.20	#25	#21
COLOMBIA		1	-1.09	-0.27	-1.17	0.50	1.14	-0.55	0.30	0.02	-1.13	-1.14	-0.73	0.01	0.73	57.37	45.94	11.43	0.20	#29	#31
CZECH-REPUBLIC		1	-0.38	-0.27	-0.71	-0.67	-0.11	0.04	0.07	-0.04	-2.07	0.09	-0.10	-0.61	-0.81	56.44	44.85	11.59	0.21	#32	#33
DENMARK		1	1.47	-0.22	1.33	-0.35	-0.54	-0.19	-0.72	0.12	0.57	1.46	1.16	2.25	1.87	84.38	83.15	1.23	0.01	#5	#7
FINLAND		1	1.48	-0.18	1.01	-0.55	0.13	-0.05	-0.25	0.16	0.75	1.37	1.98	2.03	1.52	83.64	83.74	-0.11	0.00	#4	#8
FRANCE		1	0.47	0.39	1.14	-0.35	0.21	3.52	-0.82	0.25	0.66	1.17	0.15	-0.26	0.13	67.67	70.57	-2.89	0.04	#13	#24
GERMANY		1	0.77	0.20	0.82	-0.53	0.19	2.32	-0.89	0.72	0.68	1.37	0.86	-0.72	-0.69	73.44	65.40	8.04	0.11	#18	#18
HONG-KONG		1	0.55	0.04	0.35	-1.13	-0.09	0.07	0.20	0.26	1.67	1.33	1.07	1.59	-0.67	85.77	74.44	11.33	0.13	#10	#6
HUNGARY		1	-0.68	-0.27	-0.61	0.08	-0.50	-0.65	0.07	-0.03	-1.14	-0.26	0.08	-0.50	-0.82	57.21	45.53	11.68	0.20	#30	#32
ICELAND		1	1.49	-0.27	0.96	-0.36	-1.01	-0.70	0.42	0.03	0.55	1.27	2.03	2.24	1.49	86.02	84.47	1.54	0.02	#3	#5
INDIA		1	-1.33	-0.19	-1.28	-0.05	0.39	-0.47	1.72	0.11	0.81	-0.76	-0.37	-0.19	-0.10	62.97	53.10	9.88	0.16	#28	#27
IRELAND		1	0.78	-0.22	1.59	-0.12	-0.74	1.29	-0.06	0.00	0.44	-1.23	0.11	0.54	-0.12	80.30	66.83	13.48	0.17	#17	#9
ISRAEL		1	0.49	-0.25	0.26	-1.02	0.46	-0.58	-0.44	-0.04	-0.18	0.28	1.30	-0.50	-0.87	63.46	55.30	8.16	0.13	#26	#26
ITALY		1	0.05	0.05	0.95	-0.25	0.07	0.48	-0.76	-0.25	-1.04	-1.52	-1.38	-0.79	-0.91	50.31	43.80	6.51	0.13	#34	#37
JAPAN		1	0.76	1.19	1.00	-0.73	-0.60	0.02	0.00	1.80	0.23	0.53	1.01	-0.19	-0.48	71.92	64.58	7.34	0.10	#20	#20
KOREA		1	0.27	-0.10	-0.39	-0.12	-0.98	-0.56	0.13	0.21	0.16	-0.45	-0.42	-0.02	-0.63	62.20	54.21	7.99	0.13	#27	#28
MALAYSIA		1	-0.69	-0.19	-0.95	-0.53	-0.98	-0.45	0.80	0.16	0.93	0.60	0.45	1.16	1.15	75.92	70.35	5.57	0.07	#14	#15
MEXICO		1	-0.98	-0.21	-0.81	0.06	-1.00	0.47	-0.38	-0.08	-1.41	-1.25	-1.71	-0.95	-1.44	43.24	37.15	6.09	0.14	#38	#41
NETHERLANDS		1	1.30	0.00	1.16	-0.33	-0.90	1.61	-1.08	0.18	0.99	0.74	0.58	0.45	0.03	78.61	72.82	5.79	0.07	#12	#14

NEW-ZEALAND	1	1.05	-0.26	-0.01	-0.40	-0.72	-0.65	0.10	0.00	0.34	0.27	0.40	0.20	0.62	74.39	64.56	9.84	0.13	#21	#17
NORWAY	1	1.46	-0.23	2.03	-0.28	-0.78	-0.63	-0.66	0.41	0.46	0.06	1.35	0.98	0.86	75.47	73.24	2.22	0.03	#11	#16
PHILIPPINES	1	-1.26	-0.25	-1.24	-0.18	0.34	-0.63	0.58	0.06	-0.90	-2.09	-0.86	-0.88	-1.53	49.67	36.01	13.66	0.27	#41	#38
PORTUGAL	1	-0.43	-0.25	-0.32	-0.14	-0.39	-0.37	-1.11	-0.06	-0.61	0.02	-1.29	-0.83	-0.57	58.49	43.29	15.19	0.26	#35	#29
RUSSIA	1	-0.99	-0.19	-1.11	1.58	0.11	-0.47	1.37	0.46	-1.33	-1.28	-0.90	-0.89	-0.92	52.14	36.91	15.23	0.29	#39	#36
SINGAPORE	1	0.86	-0.21	0.21	-0.61	-0.72	-0.25	-0.51	0.40	1.14	1.70	1.45	1.93	2.70	89.01	86.23	2.78	0.03	#2	#2
SLOVAK-REPUBLIC	1	-0.55	-0.28	-0.82	0.74	1.72	-0.39	0.55	0.04	-1.50	-0.64	-0.46	-0.30	0.30	57.46	43.93	13.54	0.24	#33	#30
SLOVENIA	1	-0.07	-0.27	-0.30	0.24	-0.42	-0.56	-0.03	0.04	-0.77	-0.46	-1.56	-0.83	-1.08	55.50	40.71	14.79	0.27	#36	#34
SOUTH-AFRICA	1	-0.97	-0.15	-0.83	0.27	4.50	-0.66	-0.25	0.02	0.74	0.08	0.19	-0.11	-0.59	53.79	45.11	8.68	0.16	#31	#35
SPAIN	1	-0.39	0.04	0.39	-0.19	0.58	1.02	-0.08	-0.25	0.36	0.02	-1.08	0.44	0.97	67.41	61.83	5.58	0.08	#24	#25
SWEDEN	1	1.59	-0.15	1.05	-0.34	-0.54	0.25	-0.35	0.28	1.31	1.06	1.61	1.18	0.84	79.58	80.01	-0.43	0.01	#8	#10
SWITZERLAND	1	1.37	0.11	1.20	-0.60	-0.84	-0.42	-1.01	0.46	1.04	1.35	1.47	0.95	1.06	78.81	77.25	1.56	0.02	#9	#13
TAIWAN	1	-0.08	-0.10	-0.31	-0.74	-0.66	-0.60	0.18	0.41	1.16	0.76	0.69	1.07	0.19	79.54	68.78	10.77	0.14	#15	#11
TURKEY	1	-1.14	-0.25	-0.96	4.04	0.42	-0.63	0.86	-0.05	-0.95	-0.45	-0.97	-0.79	0.34	43.46	37.70	5.76	0.13	#37	#40
UNITED-KINGDOM	1	0.92	1.01	0.80	-0.48	-0.66	1.58	-0.15	-0.36	0.75	0.10	-0.23	-0.44	-0.36	72.19	65.06	7.13	0.10	#19	#19
USA	1	1.75	7.34	1.37	-0.31	-0.46	2.51	0.13	-6.92	1.69	1.24	1.36	0.94	0.82	100.00	93.86	6.14	0.06	#1	#1

2004 Score Correctness

Rank Correctness

| Real rank - Predicted rank | = 0
21%

0 < | Real rank - predicted rank | <= 2
33%

5 < | Real rank - Predicted rank |
7%

2 < | Real rank - Predicted rank | <= 5
39%

Legend:
- □ | Real rank - Predicted rank | = 0
- ▨ 0 < | Real rank - predicted rank | <= 2
- ▨ 2 < | Real rank - Predicted rank | <= 5
- ■ 5 < | Real rank - Predicted rank |
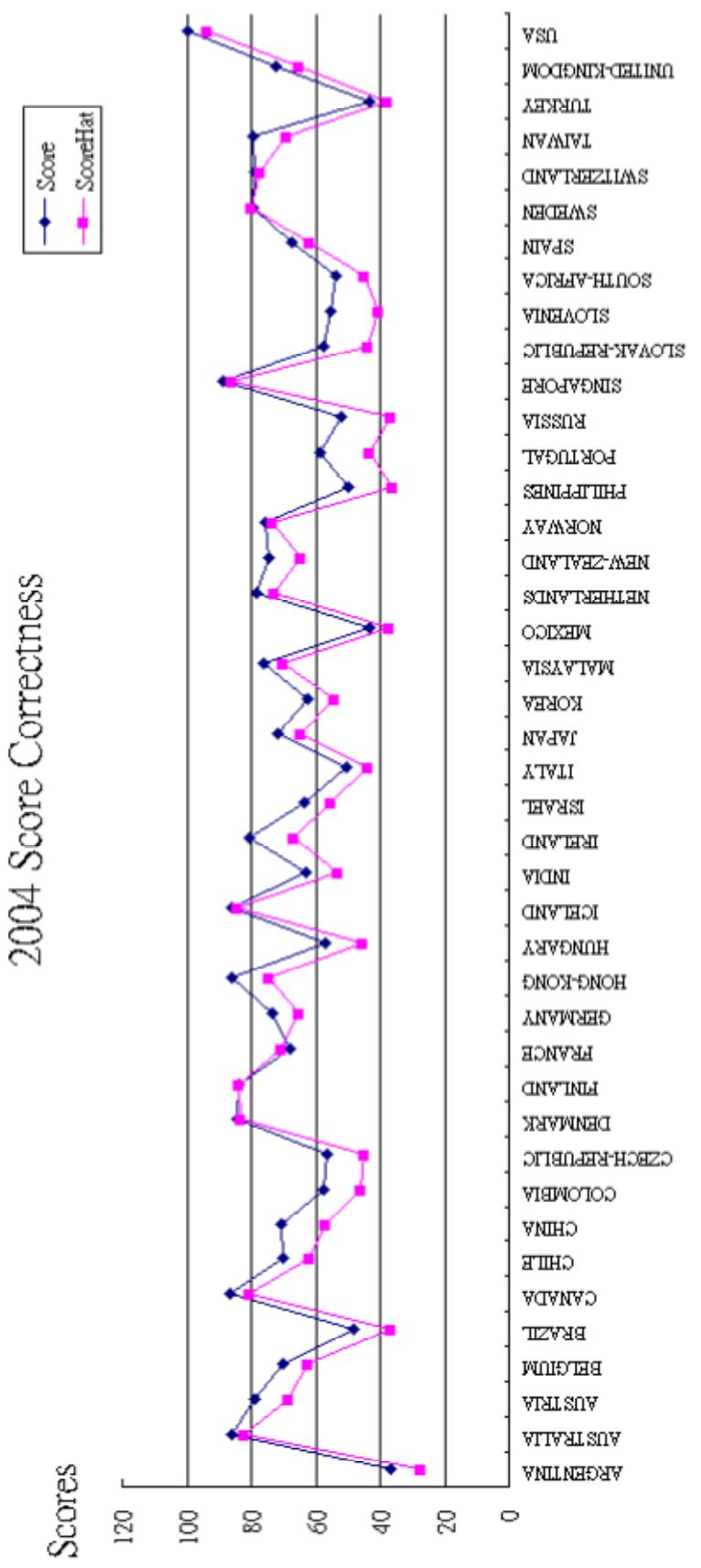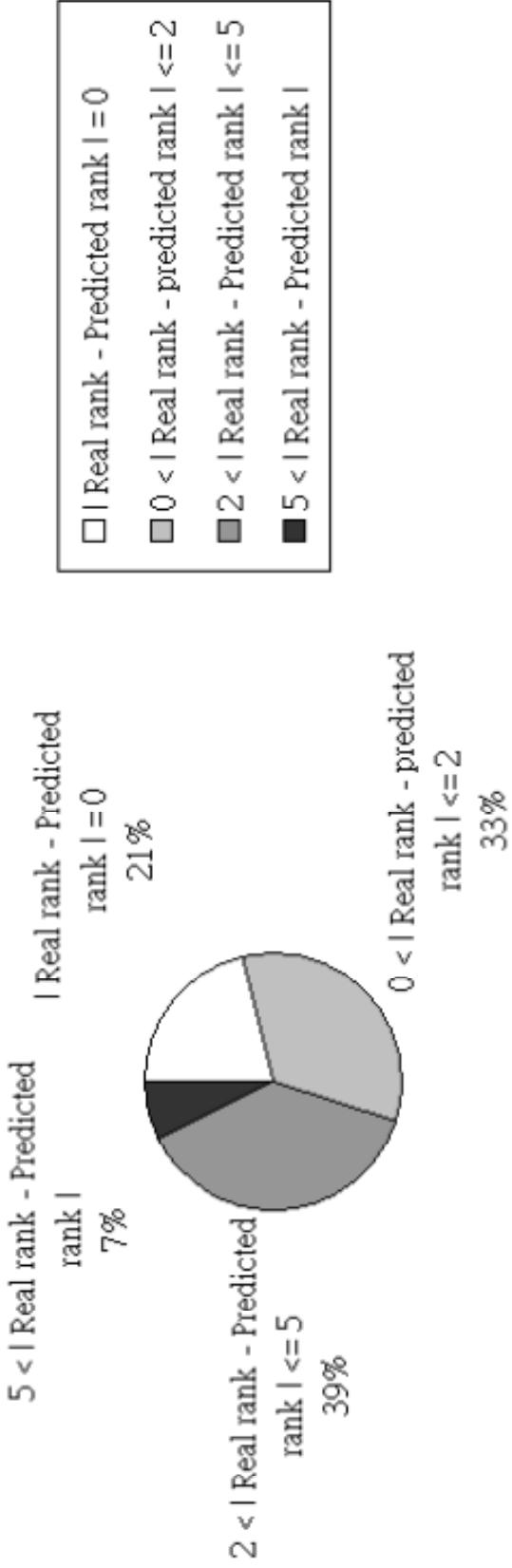
Appendix C Visualization Statistics

2001 Dissimilarity between Nations

Nation	ARGENTINA	AUSTRALIA	AUSTRIA	BELGIUM	BRAZIL	CANADA	CHILE	CHINA	COLOMBIA	CZECH	DENMARK	FINLAND	FRANCE	GERMANY	HONG-KONG	HUNGARY	ICELAND	INDIA	IRELAND	ISRAEL	ITALY	JAPAN
ARGENTINA	0	2.81	2.22	1.86	0.88	2.70	1.27	1.37	0.84	0.71	2.85	3.53	1.93	2.52	2.87	1.44	3.12	1.15	2.74	2.09	1.07	1.69
AUSTRALIA	0	0	0.82	1.13	2.20	0.28	1.71	2.47	3.03	2.34	0.42	0.88	1.36	0.71	1.00	1.72	0.66	2.46	0.93	1.09	2.04	1.69
AUSTRIA	0	0	0	0.92	1.74	0.79	1.23	1.88	2.48	1.79	0.75	1.52	1.07	0.67	1.14	1.23	0.97	2.09	1.03	0.93	1.48	1.09
BELGIUM	0	0	0	0	1.29	1.00	1.19	1.55	2.21	1.51	1.12	1.84	0.49	0.83	1.28	1.17	1.48	1.73	1.19	0.77	1.11	0.92
BRAZIL	0	0	0	0	0	2.13	0.60	0.78	0.94	0.70	2.38	2.96	1.43	2.01	2.40	0.70	2.53	0.85	2.09	1.58	0.99	1.71
CANADA	0	0	0	0	0	0	1.66	2.32	3.04	2.35	0.57	0.97	1.20	0.62	0.95	1.70	0.80	2.44	0.93	0.93	1.98	1.54
CHILE	0	0	0	0	0	0	0	0.91	1.43	0.91	1.86	2.38	1.45	1.61	1.87	0.47	2.04	1.08	1.75	1.07	1.24	1.62
CHINA	0	0	0	0	0	0	0	0	1.34	1.27	2.55	3.22	1.61	2.23	2.24	1.04	2.67	0.83	2.16	1.83	1.34	1.84
COLOMBIA	0	0	0	0	0	0	0	0	0	0.78	3.12	3.77	2.17	2.88	3.30	1.43	3.31	1.06	2.96	2.38	1.20	2.24
CZECH	0	0	0	0	0	0	0	0	0	0	2.42	3.11	1.68	2.19	2.60	0.90	2.65	1.09	2.41	1.70	0.96	1.50
DENMARK	0	0	0	0	0	0	0	0	0	0	0	0.98	1.27	0.84	1.00	1.90	0.72	2.61	0.98	1.34	2.03	1.61
FINLAND	0	0	0	0	0	0	0	0	0	0	0	0	1.95	1.27	1.28	2.48	0.82	3.23	1.42	1.48	2.70	2.40
FRANCE	0	0	0	0	0	0	0	0	0	0	0	0	0	0.84	1.35	1.42	1.73	1.82	1.50	1.12	1.04	1.19
GERMANY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.08	1.69	1.27	2.43	1.18	0.97	1.76	1.40
HONG-KONG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.90	1.24	2.58	0.66	1.40	2.19	1.88
HUNGARY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.02	1.09	1.63	1.11	1.23	1.54
ICELAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.75	1.01	1.30	2.30	1.79
INDIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.28	1.83	0.94	1.74
IRELAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.12	1.94	1.79
ISRAEL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.35	1.24
ITALY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.08
JAPAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Nation	KOREA	MALAYSIA	MEXICO	NETHERLANDS	NEW-ZEALAND	NORWAY	PHILIPPINES	PORTUGAL	RUSSIA	SINGAPORE	SLOVAK	SLOVENIA	SOUTH AFRICA	SPAIN	SWDEN	SWITZERLAND	TAIWAN	TURKEY	U.K.	USA	Imaged ideal
ARGENTINA	1.45	1.52	1.13	2.66	2.15	2.12	0.90	1.11	1.08	3.43	1.13	1.05	1.37	1.58	3.19	2.94	2.02	1.75	2.08	3.87	5.08
AUSTRALIA	1.79	1.88	2.43	0.50	0.70	1.09	2.47	2.00	2.77	1.13	2.57	2.21	2.39	1.23	0.59	0.53	1.12	2.80	1.25	1.69	2.48
AUSTRIA	1.25	1.38	1.88	0.82	0.53	1.05	1.96	1.49	2.29	1.31	2.02	1.72	2.18	1.01	1.15	0.77	1.00	2.31	1.12	2.01	3.03
BELGIUM	1.14	1.26	1.67	0.91	0.86	0.60	1.66	1.20	1.98	1.79	1.75	1.45	1.57	0.99	1.40	1.20	0.90	2.08	0.61	2.01	3.30

BRAZIL	1.05	0.86	0.61	2.09	1.65	1.64	0.58	0.92	0.75	2.91	1.09	0.95	1.26	1.19	2.67	2.47	1.76	1.08	1.53	3.25	4.57
CANADA	1.71	1.82	2.38	0.35	0.68	1.07	2.49	1.98	2.75	1.19	2.58	2.22	2.40	1.21	0.63	0.65	1.00	2.78	1.11	1.50	2.47
CHILE	0.81	0.55	0.84	1.69	1.13	1.37	0.87	0.98	1.09	2.32	1.35	1.12	1.24	0.70	2.27	1.96	1.21	1.23	1.51	2.81	4.08
CHINA	0.98	0.69	0.58	2.16	1.85	1.75	1.02	0.82	1.11	2.70	1.66	1.37	1.70	1.55	2.75	2.52	1.71	1.15	1.84	3.30	4.30
COLOMBIA	1.72	1.66	1.04	3.01	2.39	2.37	0.76	1.17	0.87	3.73	0.80	1.08	1.31	1.84	3.57	3.25	2.32	1.60	2.39	4.19	5.51
CZECH	1.03	1.09	0.92	2.31	1.71	1.68	0.83	0.78	0.96	3.04	0.77	0.68	1.32	1.35	2.88	2.56	1.63	1.39	1.80	3.50	4.81
DENMARK	1.87	1.97	2.54	0.76	0.78	0.91	2.63	2.01	2.95	1.13	2.66	2.39	2.50	1.37	0.68	0.32	1.33	2.97	1.20	1.81	2.39
FINLAND	2.54	2.62	3.20	1.21	1.54	1.83	3.21	2.83	3.42	1.06	3.31	3.04	3.13	1.96	0.73	1.01	1.80	3.57	2.04	2.05	1.74
FRANCE	1.42	1.53	1.89	1.20	1.08	0.89	1.66	1.29	1.91	1.95	1.64	1.44	1.69	1.08	1.56	1.32	1.25	2.19	0.80	2.21	3.41
GERMANY	1.69	1.79	2.37	0.63	0.94	1.24	2.38	1.86	2.70	1.44	2.42	2.15	2.24	1.14	0.81	0.81	1.04	2.78	0.93	1.57	2.63
HONG-KONG	1.61	1.71	2.41	0.93	1.10	1.48	2.74	2.17	2.80	0.94	2.84	2.47	2.66	1.46	1.08	0.87	1.34	2.86	1.35	2.25	2.21
HUNGARY	0.73	0.64	0.75	1.73	1.14	1.20	0.98	0.92	1.06	2.33	1.07	0.92	1.45	0.93	2.31	2.00	1.26	1.13	1.26	2.83	4.11
ICELAND	2.03	2.05	2.57	0.88	0.97	1.27	2.77	2.19	3.08	0.95	2.84	2.50	2.75	1.58	0.67	0.66	1.41	3.09	1.67	1.97	2.21
INDIA	1.09	0.98	1.00	2.44	1.86	1.85	0.49	0.77	1.16	3.01	1.65	1.13	1.36	1.59	3.02	2.71	1.59	1.21	1.87	3.54	4.79
IRELAND	1.43	1.65	2.10	0.85	1.08	1.30	2.44	2.01	2.49	0.97	2.59	2.27	2.53	1.39	1.10	0.86	1.18	2.63	1.14	2.15	2.55
ISRAEL	1.13	1.29	1.81	0.94	0.91	1.04	1.82	1.45	2.05	1.59	1.92	1.65	1.86	0.90	1.31	1.34	0.62	2.18	1.05	1.99	3.13
ITALY	0.89	1.32	1.38	1.93	1.53	1.30	0.82	0.70	1.39	2.70	1.34	0.87	1.38	1.19	2.47	2.13	1.38	1.68	1.27	3.09	4.39
JAPAN	1.22	1.56	1.89	1.44	1.35	1.08	1.66	1.27	2.27	2.19	1.89	1.42	1.86	1.65	1.89	1.63	0.98	2.25	1.25	2.24	3.45
KOREA	0	0.47	1.01	1.63	1.17	1.15	1.22	0.71	1.34	2.02	1.56	0.97	1.53	1.07	2.23	1.90	0.90	1.37	1.27	2.76	3.79
MALAYSIA	0	0	0.80	1.70	1.23	1.26	1.16	0.79	1.17	2.07	1.58	1.28	1.40	0.99	2.32	1.95	1.09	1.22	1.50	2.86	3.85
MEXICO	0	0	0	2.25	1.84	1.73	1.08	0.89	0.82	2.79	1.31	1.04	1.63	1.53	2.91	2.51	1.74	1.07	1.87	3.41	4.51
NETHERLANDS	0	0	0	0	0.69	1.05	2.46	1.84	2.78	1.22	2.54	2.21	2.37	1.18	0.67	0.63	0.89	2.80	0.98	1.55	2.50
NEW-ZEALAND	0	0	0	0	0	0.87	1.86	1.30	2.19	1.43	1.93	1.62	1.89	0.80	1.18	0.87	0.94	2.21	0.98	2.01	3.12
NORWAY	0	0	0	0	0	0	1.87	1.21	2.19	1.85	1.91	1.63	1.76	1.14	1.41	1.13	1.07	2.21	0.71	1.86	3.14
PHILIPPINES	0	0	0	0	0	0	0	0.94	0.89	3.18	1.17	0.85	1.16	1.40	3.04	2.73	1.75	1.22	1.89	3.64	4.95
PORTUGAL	0	0	0	0	0	0	0	0	1.38	2.57	1.35	0.85	1.15	1.08	2.43	2.08	1.19	1.33	1.45	3.04	4.34
RUSSIA	0	0	0	0	0	0	0	0	0	3.23	0.83	0.90	1.62	1.63	3.36	3.05	2.14	0.96	2.25	3.88	5.01
SINGAPORE	0	0	0	0	0	0	0	0	0	0	3.27	2.91	3.10	1.91	1.27	0.93	1.47	3.29	1.95	2.57	1.78
SLOVAK	0	0	0	0	0	0	0	0	0	0	0	0.79	1.50	1.53	3.11	2.79	2.06	1.63	2.02	3.73	5.05
SLOVENIA	0	0	0	0	0	0	0	0	0	0	0	0	1.48	1.43	2.80	2.49	1.48	1.36	1.80	3.37	4.68
SOUTH-AFRICA	0	0	0	0	0	0	0	0	0	0	0	0	0	1.28	2.93	2.61	1.67	1.88	1.96	3.55	4.87
SPAIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.76	1.46	1.10	1.93	1.20	2.43	3.67
SWEDEN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.65	1.50	3.38	1.41	1.48	1.94
SWITZERLAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.24	3.07	1.30	1.90	2.26
TAIWAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.13	1.20	2.11	3.20
TURKEY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.36	3.90	5.07
U.K.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.82	3.13
USA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.33

2001 Errors^2

Nation	ARGENTINA	AUSTRALIA	AUSTRIA	BELGIUM	BRAZIL	CANADA	CHILE	CHINA	COLOMBIA	CZECH	DENMARK	FINLAND	FRANCE	GERMANY	HONG-KONG	HUNGARY	ICELAND	INDIA	IRELAND	ISRAEL	ITALY	JAPAN
ARGENTINA	0	6.15	2.68	0.96	0	5.60	0.24	0.58	0.69	0.30	6.40	10.9	1.17	4.45	6.53	0.76	8.10	1.16	5.74	2.00	1.13	1.46
AUSTRALIA	0	0	0.54	0.92	2.78	0.08	1.16	4.23	7.23	3.50	0.17	0.74	1.55	0.49	1.00	1.20	0.44	3.98	0.87	0.92	2.60	2.67
AUSTRIA	0	0	0	0.77	0.98	0.50	0	1.89	3.66	0.94	0.44	2.15	1.09	0.39	1.18	0	0.82	1.96	0.95	0.82	0.07	0.65
BELGIUM	0	0	0	0	0.17	0.64	0.24	1.09	2.12	0.01	0.89	3.03	0.22	0.44	1.29	0.16	1.85	0.57	1.04	0.59	1.19	0.12
BRAZIL	0	0	0	0	0	2.52	0.19	0.50	0	0.28	3.61	7.00	0	1.97	3.72	0.36	4.43	0.47	2.22	0.66	0.05	0.54
CANADA	0	0	0	0	0	0	1.02	3.54	7.36	3.56	0.33	0.93	1.13	0.37	0.91	1.16	0.64	3.90	0.86	0.59	2.38	2.19
CHILE	0	0	0	0	0	0	0	0.82	0.47	0.17	1.75	4.19	0.71	0.91	1.78	0.22	2.49	0.40	1.25	0.06	0	0.26
CHINA	0	0	0	0	0	0	0	0	0.30	1.02	4.68	8.79	1.07	3.19	3.18	1.08	5.37	0	2.74	2.01	0.33	0.94
COLOMBIA	0	0	0	0	0	0	0	0	0	0.34	7.85	12.5	1.90	6.19	8.98	0.56	9.07	0.91	6.82	3.02	1.39	3.52
CZECH	0	0	0	0	0	0	0	0	0	0	3.90	7.99	0.38	2.68	4.83	0.21	5.16	1.18	3.74	0.67	0.61	0.30
DENMARK	0	0	0	0	0	0	0	0	0	0	0	0.95	1.30	0.69	0.99	1.89	0.52	4.76	0.95	1.51	2.60	2.41
FINLAND	0	0	0	0	0	0	0	0	0	0	0	0	3.48	1.56	1.63	4.70	0.66	8.61	1.98	1.91	5.92	5.52
FRANCE	0	0	0	0	0	0	0	0	0	0	0	0	0	0.51	1.53	0.59	2.69	0.74	1.95	1.24	1.38	0.56
GERMANY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.15	1.17	1.59	3.72	1.37	0.76	1.37	1.70
HONG-KONG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.88	1.54	4.59	0.43	1.69	3.29	3.37
HUNGARY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.42	0.50	0.83	0	0.06	0.05
ICELAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.58	1.01	1.41	3.81	2.99
INDIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.04	0.98	0.60	1.02
IRELAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.96	2.20	3.05
ISRAEL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.45	0.70
ITALY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
JAPAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Nation	KOREA	MALAYSIA	MEXICO	NETHERLANDS	NEW-ZEALAND	NORWAY	PHILIPPINES	PORTUGAL	RUSSIA	SINGAPORE	SLOVAK	SLOVENIA	SOUTH AFRICA	SPAIN	SWDEN	SWITZERLAND	TAIWAN	TURKEY	U.K.	USA	Imaged ideal
ARGENTINA	0.33	0.80	0.38	5.35	2.19	2.04	0.64	0.03	1.12	10.2	1.28	0.51	1.88	0.55	8.60	7.02	1.64	3.05	2.30	13.6	24.7
AUSTRALIA	1.75	1.89	3.79	0.25	0.18	0.95	4.03	2.04	5.64	1.25	4.76	2.66	3.95	0.09	0.33	0.28	0.94	5.91	1.54	2.75	5.82
AUSTRIA	0.47	0.54	1.52	0.55	0.22	1.08	1.46	0.49	2.74	1.58	1.76	0.70	2.44	0.00	1.18	0.47	0.96	2.87	1.18	3.81	8.73
BELGIUM	0.53	0.54	1.02	0.48	0.74	0.34	0.32	0.00	1.26	2.83	0.54	0	0.12	0.31	1.61	1.09	0.81	1.63	0.10	3.64	10.3
BRAZIL	0.66	0.51	0.37	2.31	0.89	0.66	0.07	0.76	0.00	6.65	0.56	0.87	0.72	0.88	5.31	4.14	1.21	0.45	0.05	9.10	19.9
CANADA	1.51	1.69	3.60	0.12	0.15	0.91	4.13	2.01	5.53	1.41	4.88	2.74	4.05	0.07	0.39	0.42	0.70	5.82	1.21	2.15	5.75
CHILE	0.58	0.30	0.59	1.11	0.09	0.45	0	0.94	0.00	3.84	0.60	0.96	0.04	0.37	3.61	2.21	0.22	0.15	0.41	6.66	15.9

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
CHINA	0.84	0.45	0.26	2.83	2.10	1.50	0.37	0.67	0.14	5.65	1.62	1.64	1.46	2.24	5.91	4.60	1.56	0.04	1.40	9.61	17.7
COLOMBIA	0.97	1.07	0.07	7.11	3.04	2.90	0.36	0	0.72	12.2	0.61	0.48	1.71	1.22	11	8.73	2.70	2.54	3.47	16.0	29.1
CZECH	0.00	0.41	0.56	3.36	0.70	0.44	0.68	0.11	0.83	7.48	0.46	0.35	1.47	0.63	6.51	4.66	0.37	1.76	0.94	10.8	22.2
DENMARK	2.08	2.25	4.39	0.58	0.29	0.57	4.86	2.14	6.69	1.27	5.26	3.52	4.51	0.49	0.46	0.10	1.47	6.90	1.41	3.18	5.40
FINLAND	5.23	5.48	8.48	1.44	2.06	3.07	8.52	6.37	9.88	1.12	9.35	7.32	8.24	2.65	0.53	1.01	2.94	11.0	4.07	4.18	2.84
FRANCE	1.09	1.12	1.60	1.14	1.15	0.78	0.18	0.01	0.90	3.49	0.08	0.23	0.20	0.32	2.13	1.43	1.55	2.05	0.44	4.50	11.0
GERMANY	1.53	1.66	3.54	0.39	0.67	1.38	3.46	1.58	5.10	2.04	3.87	2.39	3.09	0	0.62	0.63	0.88	5.59	0.85	2.35	6.54
HONG-KONG	1.18	1.33	3.78	0.86	0.91	1.93	5.47	2.79	5.84	0.88	6.27	3.95	5.35	0.75	1.15	0.76	1.48	6.24	1.80	4.96	4.56
HUNGARY	0.44	0.40	0.46	1.25	0.07	0.00	0.27	0.83	0.01	3.92	0	0.57	0.68	0.72	3.80	2.37	0.32	0.00	0.28	6.82	16.1
ICELAND	2.76	2.65	4.63	0.77	0.64	1.37	5.66	2.97	7.51	0.89	6.33	4.13	5.89	1.15	0.45	0.44	1.68	7.66	2.74	3.80	4.59
INDIA	0.00	0.06	0.67	3.86	1.10	0.91	0.24	0	1.28	7.22	2.63	1.14	1.62	1.17	7.23	5.37	0.09	1.34	1.13	11.0	21.8
IRELAND	0.55	1.00	2.23	0.72	0.84	1.44	3.80	2.01	4.10	0.91	4.82	2.87	4.62	0.46	1.18	0.74	1.08	4.93	1.29	4.52	6.09
ISRAEL	0.49	0.60	1.50	0.61	0.84	1.07	0.96	0.63	1.65	2.26	1.28	0.64	0.99	0.09	1.46	1.52	0.38	2.20	0.90	3.64	9.35
ITALY	1.11	0.10	0.83	2.19	0	0.66	0.39	0.88	1.84	5.90	1.74	0	1.90	0.64	4.68	3.08	0.45	2.76	0.22	8.36	18.3
JAPAN	0.68	0.13	1.10	1.89	0.93	0.41	0.74	0.86	3.38	4.55	2.05	0.39	2.10	0.54	3.34	2.48	0.08	3.48	1.31	4.64	11.2
KOREA	0	0.19	0.65	1.24	0.60	0.35	0.31	0.34	0.18	2.85	0.79	0.29	0.43	1.15	3.72	2.26	0	0.08	0.12	6.61	13.6
MALAYSIA	0	0	0.45	1.25	0.48	0.32	0.46	0.57	0.06	2.88	1.14	1.25	0.32	0.92	3.96	2.25	0.10	0	0.52	7.06	14.0
MEXICO	0	0	0	3.01	1.65	1.02	0.84	0.75	0	5.98	0.97	1.03	1.66	1.89	6.63	4.35	1.21	0.30	1.20	10.1	19.4
NETHERLANDS	0	0	0	0	0.17	0.86	3.96	1.45	5.68	1.47	4.66	2.71	3.85	0	0.44	0.39	0.50	5.89	0.94	2.31	5.93
NEW-ZEALAND	0	0	0	0	0	0.74	1.09	0.26	2.23	1.73	1.28	0.54	1.08	0.04	1.10	0.45	0.87	2.26	0.71	3.70	9.24
NORWAY	0	0	0	0	0	0	0.97	0.20	2.11	3.18	1.13	0.36	0.57	0.41	1.72	1.03	1.15	2.22	0.35	3.12	9.31
PHILIPPINES	0	0	0	0	0	0	0	0.30	0.73	8.24	1.26	0.58	1.12	0.62	7.36	5.48	0.65	1.36	1.21	11.7	23.5
PORTUGAL	0	0	0	0	0	0	0	0	0.92	4.89	0.77	0.55	0	0.93	4.19	2.52	0.09	0.59	0	7.87	18
RUSSIA	0	0	0	0	0	0	0	0	0	8.63	0.68	0.42	2.58	0.85	9.43	7.37	1.97	0.90	2.70	13.5	23.9
SINGAPORE	0	0	0	0	0	0	0	0	0	0	9.08	6.51	8.00	2.44	1.61	0.85	1.85	9.06	3.73	6.56	2.94
SLOVAK	0	0	0	0	0	0	0	0	0	0	0	0.15	2.22	0.54	8.04	6.06	1.77	2.65	1.93	12.5	24.5
SLOVENIA	0	0	0	0	0	0	0	0	0	0	0	0	1.50	1.28	5.85	4.11	0.06	1.30	0.78	9.75	20.9
SOUTH-AFRICA	0	0	0	0	0	0	0	0	0	0	0	0	0	0.43	7.01	5.15	0.25	3.52	1.78	11.2	22.6
SPAIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.87	0.79	0.47	1.75	0.02	4.89	12.7
SWEDEN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.42	1.94	9.64	1.93	2.16	3.53
SWITZERLAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.23	7.58	1.66	3.56	4.81
TAIWAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.89	1.22	4.11	9.72
TURKEY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.28	13.7	24.5
U.K.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.14	9.30
USA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.70

[2] $Error = (X_i - X_j)^2 + (Y_i - Y_j)^2 + (Z_i - Z_j)^2 - Dissimilarity_{ij}^2$

2002 Dissimilarity between Nations

Nation	ARGENTINA	AUSTRALIA	AUSTRIA	BELGIUM	BRAZIL	CANADA	CHILE	CHINA	COLOMBIA	CZECH	DENMARK	FINLAND	FRANCE	GERMANY	HONG-KONG	HUNGARY	ICELAND	INDIA	IRELAND	ISRAEL	ITALY	JAPAN
ARGENTINA	0	3.11	2.70	2.34	1.32	3.18	1.92	1.76	0.71	1.61	3.46	3.78	2.32	2.93	2.96	1.87	3.19	1.30	2.90	2.16	1.48	2.17
AUSTRALIA	0	0	0.94	1.24	2.11	0.50	1.35	2.15	2.81	1.72	0.61	0.92	1.16	1.23	0.82	1.62	0.86	2.31	0.83	1.37	1.80	1.38
AUSTRIA	0	0	0	0.96	1.76	0.76	1.09	1.70	2.43	1.37	0.97	1.41	1.15	1.18	1.02	1.24	0.63	2.07	0.90	0.89	1.35	0.83
BELGIUM	0	0	0	0	1.50	1.05	1.17	1.50	2.09	1.29	1.36	1.97	0.56	0.79	1.03	1.46	1.40	1.62	1.15	0.91	1.09	0.59
BRAZIL	0	0	0	0	0	2.15	0.87	0.80	0.80	0.85	2.44	2.88	1.47	1.93	2.08	0.70	2.14	0.78	1.86	1.64	0.79	1.65
CANADA	0	0	0	0	0	0	1.47	2.16	2.92	1.88	0.73	0.98	1.02	0.91	0.72	1.81	0.91	2.45	1.13	1.19	1.83	1.39
CHILE	0	0	0	0	0	0	0	0.98	1.53	0.84	1.74	2.09	1.20	1.61	1.46	0.66	1.47	0.99	1.36	1.09	1.18	1.28
CHINA	0	0	0	0	0	0	0	0	1.43	1.21	2.35	3.03	1.60	2.01	1.94	1.05	2.10	0.86	1.76	1.76	1.25	1.53
COLOMBIA	0	0	0	0	0	0	0	0	0	1.17	3.21	3.53	2.09	2.69	2.83	1.35	2.79	0.86	2.53	1.97	1.26	2.05
CZECH	0	0	0	0	0	0	0	0	0	0	2.16	2.54	1.43	1.72	1.80	0.64	1.75	1.26	1.59	1.28	1.20	1.23
DENMARK	0	0	0	0	0	0	0	0	0	0	0	0.78	1.32	1.37	0.92	2.03	0.84	2.73	0.89	1.57	2.11	1.49
FINLAND	0	0	0	0	0	0	0	0	0	0	0	0	1.77	1.74	1.32	2.53	1.19	3.07	1.58	1.65	2.46	2.07
FRANCE	0	0	0	0	0	0	0	0	0	0	0	0	0	0.72	0.93	1.59	1.67	1.57	1.34	1.03	1.00	0.85
GERMANY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.91	1.95	1.74	2.23	1.56	1.31	1.58	1.18
HONG-KONG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.81	1.33	2.37	1.07	1.23	1.73	1.14
HUNGARY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.57	1.21	1.35	1.41	1.16	1.43
ICELAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.41	0.92	1.31	1.82	1.30
INDIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.93	1.52	0.98	1.67
IRELAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.26	1.45	1.22
ISRAEL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.16	0.80
ITALY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.13
JAPAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Nation	KOREA	MALAYSIA	MEXICO	NETHERLANDS	NEW-ZEALAND	NORWAY	PHILIPPINES	PORTUGAL	RUSSIA	SINGAPORE	SLOVAK	SLOVENIA	SOUTH AFRICA	SPAIN	SWDEN	SWITZERLAND	TAIWAN	TURKEY	U.K.	USA	Imaged ideal
ARGENTINA	2.14	2.30	1.19	3.27	2.65	2.86	1.25	1.20	1.32	3.72	0.88	1.45	1.73	1.95	3.52	3.52	2.42	1.85	2.72	4.48	5.41
AUSTRALIA	1.21	1.17	2.31	0.64	0.58	0.76	2.35	2.07	2.59	1.00	2.58	1.95	2.13	1.32	0.50	0.53	0.85	3.03	1.23	1.63	2.44
AUSTRIA	1.00	1.02	1.79	0.80	0.70	0.68	2.01	1.59	2.24	1.29	2.23	1.59	2.23	1.29	0.95	0.96	0.82	2.65	1.34	1.86	2.83
BELGIUM	0.74	1.33	1.60	1.20	0.95	0.92	1.68	1.40	1.91	2.02	1.90	1.29	1.75	1.21	1.52	1.51	0.98	2.35	0.80	2.14	3.16
BRAZIL	1.26	1.31	0.59	2.19	1.69	1.90	0.68	0.91	0.70	2.98	1.07	0.66	1.35	1.05	2.54	2.58	1.79	1.26	1.72	3.44	4.46
CANADA	1.38	1.25	2.44	0.46	0.77	0.79	2.51	2.24	2.74	1.16	2.74	2.13	2.29	1.35	0.58	0.67	0.91	3.14	1.07	1.30	2.33
CHILE	0.78	0.51	1.23	1.58	0.84	1.10	1.05	1.16	1.30	2.17	1.48	1.17	1.19	0.73	1.80	1.83	1.05	1.75	1.49	2.75	3.73

Country																					
CHINA	1.10	1.16	0.85	2.08	1.63	1.79	1.08	1.02	1.27	2.81	1.67	1.10	1.60	1.16	2.43	2.41	1.65	1.72	1.67	3.34	3.96
COLOMBIA	1.80	1.93	0.87	2.97	2.35	2.57	0.67	1.09	0.87	3.61	0.60	1.03	1.28	1.67	3.26	3.31	2.33	1.45	2.44	4.22	5.25
CZECH	0.99	1.25	1.14	1.92	1.37	1.54	1.07	1.09	1.07	2.59	0.95	0.85	1.55	1.29	2.22	2.25	1.35	1.79	1.67	3.16	4.09
DENMARK	1.54	1.38	2.62	0.82	0.90	0.83	2.79	2.40	3.02	0.75	3.01	2.37	2.57	1.65	0.51	0.31	1.10	3.43	1.44	1.60	2.04
FINLAND	2.11	1.90	3.15	1.14	1.44	1.46	3.13	2.97	3.37	0.72	3.36	2.86	2.91	2.10	0.64	0.78	1.60	3.73	2.02	1.85	1.74
FRANCE	0.76	1.23	1.70	1.21	1.06	1.12	1.63	1.47	1.87	1.91	1.86	1.35	1.54	1.09	1.49	1.38	0.91	2.32	0.82	2.19	3.16
GERMANY	1.28	1.54	2.23	1.16	1.33	1.33	2.29	2.06	2.52	1.88	2.51	1.95	2.12	1.50	1.46	1.39	1.11	2.90	0.73	1.55	2.57
HONG-KONG	1.22	1.08	2.22	0.68	1.02	1.07	2.43	2.07	2.66	1.37	2.66	2.02	2.20	1.41	0.92	0.87	0.69	3.02	1.11	1.69	2.46
HUNGARY	0.94	0.92	0.94	1.79	1.12	1.39	0.99	1.00	1.00	2.46	1.19	0.65	1.50	0.99	2.09	2.12	1.39	1.71	1.55	3.03	3.94
ICELAND	1.36	1.41	2.14	0.80	0.84	0.78	2.34	1.99	2.57	1.08	2.55	1.91	2.50	1.66	0.76	0.80	1.19	3.00	1.65	2.00	2.48
INDIA	1.24	1.47	0.93	2.51	1.83	2.08	0.38	0.82	0.78	3.16	1.12	0.92	1.21	1.24	2.79	2.82	1.88	1.51	1.93	3.74	4.59
IRELAND	1.07	1.26	2.00	0.84	0.70	0.73	2.00	1.92	2.21	1.51	2.40	1.73	2.28	1.27	1.01	0.98	1.07	2.99	1.07	2.07	2.72
ISRAEL	0.96	1.33	1.65	1.24	1.12	1.09	1.58	1.53	1.86	1.79	1.80	1.43	1.66	1.14	1.40	1.59	0.80	2.31	1.40	2.35	3.35
ITALY	1.04	1.62	1.04	1.89	1.46	1.49	0.90	0.81	1.12	2.64	1.22	0.68	1.71	1.00	2.16	2.17	1.46	1.70	1.28	3.08	4.09
JAPAN	0.79	1.36	1.42	1.38	1.07	0.90	1.65	1.27	1.88	1.95	1.87	1.30	1.83	1.47	1.62	1.49	0.81	2.31	1.13	2.33	3.27
KOREA	0	0.82	1.18	1.28	0.70	0.86	1.29	0.96	1.52	1.94	1.51	0.88	1.27	0.93	1.57	1.59	0.71	2.02	1.05	2.56	3.45
MALAYSIA	0	0	1.36	1.29	0.73	0.99	1.53	1.33	1.77	1.69	1.93	1.48	1.44	0.99	1.46	1.40	0.79	2.13	1.47	2.40	3.35
MEXICO	0	0	0	2.26	1.83	1.94	0.83	0.64	0.89	2.93	1.24	0.70	1.48	1.48	2.63	2.60	1.71	1.32	1.95	3.62	4.55
NETHERLANDS	0	0	0	0	0.85	0.81	2.55	2.13	2.78	1.18	2.77	2.14	2.32	1.41	0.56	0.66	0.94	3.18	1.07	1.47	2.29
NEW-ZEALAND	0	0	0	0	0	0.51	1.89	1.56	2.12	1.33	2.11	1.47	1.81	0.99	0.96	0.99	0.63	2.57	1.04	1.92	2.90
NORWAY	0	0	0	0	0	0	2.14	1.72	2.37	1.39	2.36	1.72	2.08	1.17	0.94	0.85	0.79	2.79	1.10	1.73	2.69
PHILIPPINES	0	0	0	0	0	0	0	0.78	0.62	3.22	0.83	0.79	1.18	1.41	2.85	2.88	1.94	1.39	1.97	3.80	4.73
PORTUGAL	0	0	0	0	0	0	0	0	0.96	2.80	0.98	0.59	1.42	1.25	2.43	2.46	1.55	1.49	1.86	3.42	4.38
RUSSIA	0	0	0	0	0	0	0	0	0	3.45	0.88	0.73	1.54	1.68	3.08	3.11	2.17	1.22	2.25	4.03	4.88
SINGAPORE	0	0	0	0	0	0	0	0	0	0	3.44	2.80	2.99	2.20	0.87	0.75	1.31	3.70	1.98	2.13	1.77
SLOVAK	0	0	0	0	0	0	0	0	0	0	0	0.81	1.23	1.50	3.07	3.10	2.16	1.79	2.35	4.02	4.95
SLOVENIA	0	0	0	0	0	0	0	0	0	0	0	0	1.48	1.18	2.43	2.47	1.52	1.42	1.71	3.38	4.30
SOUTH-AFRICA	0	0	0	0	0	0	0	0	0	0	0	0	0	1.26	2.62	2.65	1.71	2.03	2.01	3.57	4.56
SPAIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.75	1.79	1.22	2.01	1.32	2.63	3.59
SWEDEN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.39	1.13	3.48	1.48	1.37	1.99
SWITZERLAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.13	3.52	1.48	1.53	1.95
TAIWAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.42	1.18	2.10	3.05
TURKEY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.90	4.44	5.47
U.K.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.85	2.81
USA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.05

2002 Errors

Nation	ARGENTINA	AUSTRALIA	AUSTRIA	BELGIUM	BRAZIL	CANADA	CHILE	CHINA	COLOMBIA	CZECH	DENMARK	FINLAND	FRANCE	GERMANY	HONG-KONG	HUNGARY	ICELAND	INDIA	IRELAND	ISRAEL	ITALY	JAPAN
ARGENTINA	0	7.50	5.48	3.90	0.10	8.11	0.84	1.79	0.14	1.01	10.4	13.1	3.11	6.68	6.78	1.15	8.10	0.18	6.78	4.27	0.69	4.34
AUSTRALIA	0	0	0.80	1.33	2.74	0.24	1.24	3.01	5.61	1.37	0.27	0.59	1.30	1.45	0.63	1.54	0.73	3.36	0.58	0.87	1.56	0.83
AUSTRIA	0	0	0	0.89	1.04	0.54	0.16	1.01	3.68	0.02	0.91	1.84	1.26	1.40	1.03	0	0.35	2.01	0.80	0.14	0.17	0
BELGIUM	0	0	0	0	0.00	0.97	0	0.21	2.24	0.45	1.77	3.71	0.15	0.56	0.99	0.28	1.81	0.16	1.30	0.34	0.97	0.16
BRAZIL	0	0	0	0	0	2.87	0	0.61	0	0.71	4.16	6.76	0.05	1.74	2.31	0.28	2.75	0.58	1.51	0.94	0.62	0.81
CANADA	0	0	0	0	0	0	1.42	3.03	6.36	1.90	0.50	0.80	1.00	0.81	0.50	2.04	0.83	4.00	1.24	0.59	1.65	1.06
CHILE	0	0	0	0	0	0	0	0.08	0.23	0	2.05	3.25	0.64	1.66	1.20	0.24	1.45	0	0.76	0.85	0.58	0.56
CHINA	0	0	0	0	0	0	0	0	0	1.61	1.44	3.97	7.89	0.55	2.19	1.87	0.79	2.72	0.69	1.33	1.72	1.56
COLOMBIA	0	0	0	0	0	0	0	0	0	0.75	8.44	11.0	1.79	4.96	5.68	0.47	5.52	0.24	4.36	2.99	1.05	3.22
CZECH	0	0	0	0	0	0	0	0	0	0	3.02	5.07	0.08	1.10	1.35	0.22	1.40	1.56	0.71	0.01	1.43	0.28
DENMARK	0	0	0	0	0	0	0	0	0	0	0	0.55	1.60	1.83	0.80	2.74	0.65	5.47	0.79	1.96	2.74	1.66
FINLAND	0	0	0	0	0	0	0	0	0	0	0	0	2.77	2.87	1.54	5.09	1.22	7.74	2.42	2.42	4.64	3.94
FRANCE	0	0	0	0	0	0	0	0	0	0	0	0	0	0.48	0.83	1.11	2.77	0.12	1.69	0	1.06	0.40
GERMANY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.83	2.33	3.02	2.74	2.42	0.98	0.56	0.62
HONG-KONG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.79	1.74	3.35	1.11	0.73	1.02	0.48
HUNGARY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.23	1.11	0.29	0.03	1.09	0.10
ICELAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.77	0.78	0.84	1.55	0.74
INDIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.55	0.53	0.94	0.85
IRELAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.04	0.23	0.92
ISRAEL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.25	0.63
ITALY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.48
JAPAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Nation	KOREA	MALAYSIA	MEXICO	NETHERLANDS	NEW-ZEALAND	NORWAY	PHILIPPINES	PORTUGAL	RUSSIA	SINGAPORE	SLOVAK	SLOVENIA	SOUTH AFRICA	SPAIN	SWDEN	SWITZERLAND	TAIWAN	TURKEY	U.K.	USA	Imaged ideal
ARGENTINA	1.61	4.94	0	9.01	4.72	6.24	0.13	0.37	1.01	12.3	0.18	0.02	0.85	0.90	10.1	10.4	4.11	3.43	5.97	18.5	27.92
AUSTRALIA	1.05	0.32	3.35	0.30	0.32	0.51	3.58	2.16	4.50	0.88	4.55	2.22	2.92	1.31	0.24	0.26	0.56	6.99	1.30	2.53	5.62
AUSTRIA	0.18	0.32	0.92	0.64	0.42	0.46	1.79	0.21	2.77	1.61	2.88	0.52	2.95	0.81	0.76	0.87	0.65	5.20	1.76	3.31	7.57
BELGIUM	0.59	1.22	0.12	1.41	0.71	0.78	0.41	0.45	1.36	3.97	1.51	0.62	0.76	0.32	2.01	2.13	0.95	3.93	0.63	4.36	9.47
BRAZIL	0.53	0	0.31	2.82	0.94	1.55	0.43	0.71	0.21	7.27	0.78	0.40	1.76	0.14	4.91	5.02	0.90	0.00	0.86	10.5	19.05
CANADA	1.35	0.69	3.91	0.17	0.57	0.59	4.33	2.91	5.41	1.28	5.49	2.86	3.52	1.25	0.30	0.45	0.72	7.88	1.03	1.59	5.12
CHILE	0.57	1.82	0.47	1.44	0.03	0.25	0.08	0	0.05	3.81	0.50	0.85	0.92	0.52	2.79	2.66	0.18	0.23	0.91	6.84	13.25

CHINA	0.02	0	0.67	2.54	0.80	1.30	1.14	0.97	1.45	6.53	2.59	1.06	2.38	0.27	4.47	4.26	0.62	1.70	0.94	10.0	15.01
COLOMBIA	0.85	2.88	0.32	6.72	3.03	4.27	0	0.96	0.68	11.3	0.31	0.08	0.61	0.51	8.43	8.84	3.13	1.79	3.99	16.2	26.45
CZECH	0.02	0.03	1.25	1.85	0.08	0.45	1.10	1.06	0.86	5.24	0.55	0.66	2.32	0.77	3.51	3.52	0.35	1.68	0.85	8.84	15.98
DENMARK	1.57	1.35	4.86	0.67	0.68	0.64	5.84	3.79	7.21	0.55	7.31	3.86	4.77	1.90	0.11	0.05	1.14	10.2	2.03	2.51	3.91
FINLAND	3.43	3.31	8.26	1.21	1.74	1.94	8.18	7.17	9.84	0.49	9.91	6.54	6.78	3.43	0.12	0.47	2.37	12.7	3.97	3.38	2.87
FRANCE	0.01	0.39	0.51	1.36	1.12	1.22	0.33	0.35	0.95	3.47	1.03	0.14	0.41	0.59	2.13	1.85	0.74	3.04	0.48	4.54	9.43
GERMANY	0.91	1.57	2.75	1.33	1.73	1.77	3.05	1.95	4.11	3.47	4.20	1.87	2.54	1.51	2.03	1.90	1.19	6.49	0.47	2.26	6.23
HONG-KONG	0.78	0.33	2.63	0.44	1.00	1.14	3.67	1.93	4.78	1.80	4.87	2.11	2.88	1.24	0.74	0.72	0.43	7.12	1.16	2.71	5.60
HUNGARY	0.50	1.12	0.49	1.67	0	0.43	0.61	0.40	0.13	4.81	0.44	0.34	2.16	0.66	3.44	3.34	0.12	0.63	0.68	8.22	14.88
ICELAND	1.33	1.06	2.50	0.58	0.69	0.58	3.45	1.78	4.41	1.09	4.46	1.93	4.54	2.22	0.54	0.63	1.31	6.95	2.60	3.89	5.79
INDIA	0.23	0.43	0.86	4.11	1.16	2.03	0.14	0.61	0.41	8.17	0.97	0.73	1.33	0.35	5.99	6.04	1.00	0.84	1.43	12.4	20.09
IRELAND	0.25	1.00	1.83	0.70	0.37	0.52	1.87	1.52	2.79	2.25	3.80	1.04	3.19	0.72	0.84	0.91	1.12	7.29	1.12	4.19	7.07
ISRAEL	1.10	1.76	0.99	0.97	0.19	0.42	0.79	0.86	2.27	2.72	2.24	0.01	0.63	0.66	0.88	1.75	0	4.94	1.53	5.02	10.62
ITALY	0.03	1.05	1.06	1.66	0.24	0.22	0.78	0.57	1.02	5.44	1.20	0.38	2.81	0	3.17	3.08	0.08	1.44	0.37	8.27	15.96
JAPAN	1.53	1.84	0.16	1.31	0.01	0	0.87	0	2.23	3.25	2.41	0.53	1.08	0.06	1.46	1.37	0	4.95	0.84	4.80	9.99
KOREA	0	1.37	0	0.77	0.02	0	0.33	0.75	0.37	2.98	0.29	0	0.87	0.87	2.16	1.98	0.52	1.13	0	5.86	11.27
MALAYSIA	0	0	0.19	1.07	0.59	0.16	0.69	0.35	1.98	2.33	2.77	0.16	0	1.00	1.01	1.12	0.07	4.17	1.69	5.20	10.59
MEXICO	0	0	0	2.92	1.13	1.45	0.69	0.37	0.64	6.76	1.31	0.34	2.02	0.93	5.12	4.84	0.41	0.39	1.52	11.6	19.69
NETHERLANDS	0	0	0	0	0.62	0.64	4.36	2.35	5.61	1.35	5.73	2.59	3.40	1.10	0.15	0.38	0.86	8.46	1.12	2.04	4.88
NEW-ZEALAND	0	0	0	0	0	0.22	1.39	0.09	2.09	1.61	2.16	0.38	1.48	0.48	0.88	0.94	0.27	4.31	0.87	3.45	7.95
NORWAY	0	0	0	0	0	0	2.30	0.59	3.28	1.85	3.38	0.97	2.31	0.60	0.77	0.68	0.59	5.80	1.14	2.83	6.78
PHILIPPINES	0	0	0	0	0	0	0	0.56	0.23	8.61	0.46	0.49	1.23	0.75	6.34	6.41	1.28	0.55	1.64	12.9	21.35
PORTUGAL	0	0	0	0	0	0	0	0	0.88	6.03	0.87	0.04	1.68	0	3.96	4.05	0.11	1.20	1.23	10.1	18.18
RUSSIA	0	0	0	0	0	0	0	0	0	10.1	0.76	0	1.77	0.98	7.44	7.66	2.28	0.79	2.96	14.7	22.73
SINGAPORE	0	0	0	0	0	0	0	0	0	0	10.2	6.25	7.32	4.07	0.62	0.52	1.59	12.1	3.84	4.52	2.98
SLOVAK	0	0	0	0	0	0	0	0	0	0	0	0	0.81	0.37	7.47	7.73	2.42	2.66	3.61	14.8	23.58
SLOVENIA	0	0	0	0	0	0	0	0	0	0	0	0	2.20	0.70	4.54	4.48	0.03	0	0.78	10.1	17.56
SOUTH-AFRICA	0	0	0	0	0	0	0	0	0	0	0	0	0	0.90	5.48	5.42	0.61	2.03	1.86	11.4	19.83
SPAIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.75	2.67	0.43	1.18	0.64	6.28	12.28
SWEDEN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.12	1.01	9.89	1.90	1.74	3.68
SWITZERLAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.14	10.5	2.06	2.26	3.55
TAIWAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.09	1.37	4.15	8.73
TURKEY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6.92	18.2	28.60
U.K.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.27	7.48
USA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.03

2003 Dissimilarity between Nations

Nation	ARGENTINA	AUSTRALIA	AUSTRIA	BELGIUM	BRAZIL	CANADA	CHILE	CHINA	COLOMBIA	CZECH	DENMARK	FINLAND	FRANCE	GERMANY	HONG-KONG	HUNGARY	ICELAND	INDIA	IRELAND	ISRAEL	ITALY	JAPAN
ARGENTINA	0	3.78	1.58	3.51	2.38	1.66	3.06	2.76	1.71	1.87	2.55	2.34	3.24	1.69	1.48	1.13	2.15	2.54	2.91	1.56	3.04	4.84
AUSTRALIA	0	0	2.39	0.71	2.33	2.17	1.38	1.55	2.23	2.10	1.60	1.69	0.90	2.46	2.47	2.69	2.25	1.40	0.99	2.79	1.55	1.59
AUSTRIA	0	0	0	1.95	1.07	0.88	1.53	1.60	0.86	0.78	1.51	1.05	1.86	0.63	0.63	0.75	1.29	1.15	1.66	0.91	1.51	3.28
BELGIUM	0	0	0	0	1.91	2.17	0.89	0.89	1.97	1.68	1.32	1.50	1.28	2.08	2.21	2.47	1.96	1.04	0.78	2.53	1.07	1.37
BRAZIL	0	0	0	0	0	1.17	1.48	1.84	1.21	1.21	1.59	0.77	1.66	0.82	1.18	1.31	1.70	1.27	1.56	1.33	1.29	3.01
CANADA	0	0	0	0	0	0	1.81	2.25	1.22	1.16	1.87	1.17	1.67	1.04	1.00	1.12	1.27	1.15	1.87	1.19	1.92	3.38
CHILE	0	0	0	0	0	0	0	0.70	1.61	1.19	1.03	1.29	1.42	1.68	1.85	2.16	1.78	0.93	1.16	2.17	0.71	1.77
CHINA	0	0	0	0	0	0	0	0	1.42	1.12	0.88	1.48	1.79	1.60	1.71	1.86	1.84	1.36	1.09	2.10	1.01	2.09
COLOMBIA	0	0	0	0	0	0	0	0	0	1.02	1.42	1.06	1.66	1.01	0.36	0.89	1.12	1.27	1.37	1.23	1.56	3.34
CZECH	0	0	0	0	0	0	0	0	0	0	1.00	0.82	2.01	0.74	0.85	1.01	1.67	1.02	1.37	1.27	1.16	2.96
DENMARK	0	0	0	0	0	0	0	0	0	0	0	1.09	1.74	1.30	1.37	1.72	1.85	1.48	0.95	2.05	1.02	2.36
FINLAND	0	0	0	0	0	0	0	0	0	0	0	0	1.33	0.87	1.07	1.24	1.43	0.96	0.95	1.36	1.00	2.78
FRANCE	0	0	0	0	0	0	0	0	0	0	0	0	0	1.83	1.90	2.13	1.82	1.20	0.92	2.23	1.65	2.27
GERMANY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.78	0.79	1.55	1.33	1.54	1.23	1.47	3.31
HONG-KONG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.68	1.39	1.48	1.61	1.04	1.81	3.58
HUNGARY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.63	1.74	1.83	0.88	2.03	3.81
ICELAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.33	1.39	1.79	1.74	3.31
INDIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.98	1.66	1.06	2.29
IRELAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.12	1.07	2.04
ISRAEL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.24	3.90
ITALY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.83
JAPAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Nation	KOREA	MALAYSIA	MEXICO	NETHERLANDS	NEW-ZEALAND	NORWAY	PHILIPPINES	PORTUGAL	RUSSIA	SINGAPORE	SLOVAK	SLOVENIA	SOUTH AFRICA	SPAIN	SWDEN	SWITZERLAND	TAIWAN	TURKEY	U.K.	USA	Imaged ideal
ARGENTINA	2.22	2.50	1.97	1.41	3.05	3.51	3.34	1.46	3.08	2.30	1.20	2.90	2.40	2.71	1.32	3.70	1.25	1.23	3.30	3.37	5.76
AUSTRALIA	1.72	2.26	2.27	2.77	0.83	0.60	1.75	2.76	1.03	2.03	2.71	2.28	1.54	1.36	3.09	0.83	3.75	3.07	0.91	1.11	1.99
AUSTRIA	0.90	1.42	0.96	0.83	1.59	2.28	2.04	0.85	2.10	1.19	1.31	1.70	1.01	1.38	1.01	2.16	1.62	1.20	1.75	2.00	4.21
BELGIUM	1.46	1.76	1.95	2.46	0.79	0.94	1.47	2.51	1.39	1.69	2.32	1.85	1.31	1.11	2.82	1.04	3.50	2.82	0.59	0.89	2.26
BRAZIL	1.27	1.69	1.01	1.53	1.67	2.49	1.98	1.26	2.21	1.20	2.23	1.73	1.05	1.29	1.43	1.99	2.21	1.50	1.65	1.82	3.59
CANADA	1.36	2.07	0.88	1.38	1.51	1.93	2.41	1.17	2.07	1.59	1.64	2.36	1.17	1.50	1.46	2.10	1.72	1.46	1.94	2.08	4.16
CHILE	1.07	1.06	1.73	2.08	0.88	1.40	1.51	2.20	1.65	1.43	2.17	1.21	1.07	1.02	2.43	1.22	3.14	2.46	0.84	1.03	2.70

CHINA	1.13	0.99	1.79	1.81	1.22	1.51	1.71	2.19	1.80	1.56	1.64	1.40	1.35	1.23	2.10	1.58	2.86	2.19	1.04	1.36	3.00
COLOMBIA	1.24	1.21	0.89	0.76	1.68	2.20	1.81	1.06	2.21	1.28	1.40	1.72	0.93	1.40	1.30	2.16	1.54	1.04	1.82	2.02	4.19
CZECH	0.71	1.12	1.07	1.21	1.38	2.11	1.98	1.19	2.05	0.95	1.49	1.63	1.09	0.96	1.26	2.05	1.98	1.29	1.56	1.66	3.89
DENMARK	0.72	1.32	1.50	1.61	1.08	1.68	1.80	1.83	1.57	1.40	1.53	1.42	1.21	0.79	2.00	1.67	2.65	1.97	1.07	1.27	3.21
FINLAND	0.80	1.45	0.96	1.49	1.11	1.87	1.88	1.24	1.51	0.74	1.83	1.41	0.53	0.67	1.66	1.60	2.23	1.56	1.30	1.33	3.43
FRANCE	1.46	2.16	1.72	2.24	0.96	1.10	1.75	2.20	0.99	1.92	2.45	2.15	1.28	1.36	2.56	0.89	3.19	2.49	1.30	1.18	2.56
GERMANY	0.86	1.46	1.05	1.07	1.68	2.56	2.08	1.00	2.12	1.26	1.53	1.49	1.25	1.35	1.00	2.20	1.87	1.18	1.81	1.90	4.08
HONG-KONG	1.09	1.47	0.90	0.60	1.90	2.45	2.06	0.81	2.42	1.36	1.29	1.98	1.12	1.51	1.14	2.40	1.35	0.84	2.06	2.27	4.41
HUNGARY	1.30	1.79	1.23	1.00	2.04	2.83	2.51	0.69	2.40	1.32	1.46	2.07	1.27	1.73	0.67	2.63	1.28	0.69	2.29	2.49	4.67
ICELAND	1.61	1.78	1.07	1.61	1.81	2.02	1.85	1.70	2.32	1.66	1.76	1.83	1.17	1.70	2.01	2.17	1.55	1.94	1.80	2.00	4.22
INDIA	1.13	1.29	1.03	1.69	0.79	1.29	1.36	1.78	1.49	1.17	2.00	1.65	0.92	0.93	2.04	1.29	2.58	2.02	0.88	1.02	3.22
IRELAND	0.93	1.46	1.39	1.90	0.85	1.16	1.12	1.90	1.25	1.33	1.91	1.51	1.02	0.93	2.23	0.98	2.89	2.21	0.73	0.86	2.86
ISRAEL	1.47	1.94	1.32	1.25	2.14	2.75	2.66	0.99	2.34	1.49	1.42	2.40	1.33	1.89	1.31	2.72	1.71	0.91	2.38	2.59	4.64
ITALY	1.13	1.07	1.56	2.07	0.99	1.68	1.49	2.10	1.67	1.18	2.27	0.98	1.07	0.67	2.30	1.53	3.09	2.41	0.84	1.06	2.73
JAPAN	2.70	2.33	3.29	3.81	1.90	1.89	2.05	3.87	2.36	2.96	3.65	2.09	2.65	2.21	4.09	2.00	4.86	4.18	1.64	1.68	0.94
KOREA	0	1.16	1.22	1.26	0.99	1.82	1.80	1.35	1.46	1.14	1.33	1.40	0.90	0.89	1.45	1.63	2.32	1.66	1.25	1.31	3.59
MALAYSIA	0	0	1.63	1.58	1.56	2.12	1.56	2.12	2.16	1.56	1.71	0.84	1.41	1.49	2.02	2.13	2.63	2.03	1.56	1.76	3.26
MEXICO	0	0	0	0.98	1.63	2.03	1.90	0.97	2.19	1.45	1.66	2.00	1.09	1.31	1.40	2.14	1.66	1.50	1.77	1.97	4.21
NETHERLANDS	0	0	0	0	2.11	2.69	2.30	0.95	2.64	1.88	1.43	2.19	1.43	1.83	0.96	2.65	1.07	1.21	2.29	2.49	4.72
NEW-ZEALAND	0	0	0	0	0	1.00	1.68	2.11	0.87	1.28	2.19	1.64	0.94	0.70	2.31	0.88	3.10	2.43	0.76	0.69	2.71
NORWAY	0	0	0	0	0	0	1.77	2.87	1.14	2.26	2.32	2.31	1.68	1.52	3.17	0.91	3.56	3.11	1.05	1.20	2.26
PHILIPPINES	0	0	0	0	0	0	0	2.59	2.26	2.10	2.53	1.63	1.84	1.85	2.88	1.53	3.33	2.73	1.31	1.28	2.43
PORTUGAL	0	0	0	0	0	0	0	0	2.26	1.23	1.61	2.18	1.24	1.80	0.88	2.70	1.31	0.90	2.36	2.56	4.67
RUSSIA	0	0	0	0	0	0	0	0	0	1.70	2.02	1.90	1.37	1.20	2.64	1.31	3.46	2.52	1.29	1.19	2.80
SINGAPORE	0	0	0	0	0	0	0	0	0	0	1.90	1.52	0.85	1.10	1.77	1.95	2.30	1.50	1.56	1.69	3.59
SLOVAK	0	0	0	0	0	0	0	0	0	0	0	2.18	1.82	1.99	1.74	2.77	1.86	1.36	2.29	2.57	4.58
SLOVENIA	0	0	0	0	0	0	0	0	0	0	0	0	1.36	1.50	2.25	2.08	3.07	2.39	1.51	1.35	2.86
SOUTH-AFRICA	0	0	0	0	0	0	0	0	0	0	0	0	0	0.79	1.69	1.47	2.22	1.54	1.13	1.33	3.45
SPAIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.02	1.44	2.79	2.11	0.91	0.93	3.08
SWEDEN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.96	1.40	0.94	2.56	2.66	5.02
SWITZERLAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.69	3.01	0.95	1.02	2.07
TAIWAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.45	3.35	3.55	5.56
TURKEY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.67	2.87	4.99
U.K.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.68	2.46
USA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.40

2003 Errors

Nation	ARGENTINA	AUSTRALIA	AUSTRIA	BELGIUM	BRAZIL	CANADA	CHILE	CHINA	COLOMBIA	CZECH	DENMARK	FINLAND	FRANCE	GERMANY	HONG-KONG	HUNGARY	ICELAND	INDIA	IRELAND	ISRAEL	ITALY	JAPAN
ARGENTINA	0	12.9	0.46	10.9	2.67	0.83	7.80	5.66	1.40	0.63	4.00	2.52	9.15	0.42	0.59	0	4.45	3.81	6.92	1.49	7.51	22.0
AUSTRALIA	0	0	4.14	0.50	4.52	3.20	1.86	2.27	3.41	3.10	2.21	2.01	0.80	4.56	4.46	5.46	4.44	1.50	0.94	6.08	2.33	2.47
AUSTRIA	0	0	0	2.13	0.36	0.78	0.44	0.63	0.68	0.27	0.73	0.32	1.70	0.34	0.34	0.36	0	0	0.84	0.47	0.38	9.58
BELGIUM	0	0	0	0	2.68	3.10	0.76	0.67	2.25	1.43	1.39	1.36	1.62	2.70	3.17	4.20	3.19	0.60	0.59	4.64	1.09	1.80
BRAZIL	0	0	0	0	0	0.55	1.29	2.67	0.34	1.32	2.24	0.60	1.73	0.20	0.24	0.18	0.68	1.44	1.48	0	0.85	8.31
CANADA	0	0	0	0	0	0	1.43	3.19	1.43	0.98	1.93	0.55	1.06	1.00	0.97	1.10	0.05	0	1.63	1.09	1.84	10.3
CHILE	0	0	0	0	0	0	0	0.45	0.69	0	0.83	0.81	1.98	1.09	1.44	2.46	2.30	0.49	1.35	2.62	0.51	2.99
CHINA	0	0	0	0	0	0	0	0	0	0.02	0.67	1.51	3.07	0.86	0.81	1.09	2.15	1.64	1.14	2.07	1.00	4.13
COLOMBIA	0	0	0	0	0	0	0	0	0	0.41	0.22	0	1.03	0.78	0.12	0.75	0	0.00	0.07	1.38	0.50	9.99
CZECH	0	0	0	0	0	0	0	0	0	0	0.23	0.52	2.58	0.43	0.08	0.04	0.53	0.49	0.40	0.37	0	7.78
DENMARK	0	0	0	0	0	0	0	0	0	0	0	0.91	2.65	0.44	0	0.74	1.74	2.17	0.64	1.91	0.85	5.21
FINLAND	0	0	0	0	0	0	0	0	0	0	0	0	0.81	0.28	0	0	0.10	0.78	0	0.08	0.22	7.02
FRANCE	0	0	0	0	0	0	0	0	0	0	0	0	0	1.64	1.79	2.57	2.65	0.93	0.83	3.13	2.69	5.05
GERMANY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.38	0.17	0.44	0.77	0.58	0.84	0.45	9.81
HONG-KONG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.42	0.60	0.52	0.56	0.95	1.23	11.6
HUNGARY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.47	1.00	1.15	0.74	1.87	13.0
ICELAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.05	1.07	2.30	2.02	10.3
INDIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.55	0.59	0.81	4.84
IRELAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.37	1.13	4.01
ISRAEL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.83	13.8
ITALY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.19
JAPAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Nation	KOREA	MALAYSIA	MEXICO	NETHERLANDS	NEW-ZEALAND	NORWAY	PHILIPPINES	PORTUGAL	RUSSIA	SINGAPORE	SLOVAK	SLOVENIA	SOUTH AFRICA	SPAIN	SWDEN	SWITZERLAND	TAIWAN	TURKEY	U.K.	USA	Imaged ideal
ARGENTINA	2.29	5.38	2.29	1.42	7.97	10.9	9.76	0.97	8.12	2.55	1.56	7.09	3.14	5.36	1.15	12.3	1.41	0.98	9.53	9.99	31.76
AUSTRALIA	2.35	5.06	3.97	6.48	0.68	0.32	3.02	6.18	1.06	3.57	6.09	5.19	1.65	1.75	8.05	0.63	13.3	7.91	0.82	1.23	3.76
AUSTRIA	0	0.38	0.85	0.06	1.07	4.01	2.90	0.52	2.87	0.40	1.26	1.30	0.41	0.43	0.38	3.53	0.46	0.73	1.68	2.64	16.92
BELGIUM	1.50	3.04	2.56	4.83	0.61	0.81	2.11	4.75	1.94	2.25	4.09	3.41	0.97	1.12	6.37	1.00	11.5	6.35	0.33	0.76	4.86
BRAZIL	1.58	1.57	0.17	0.53	1.93	5.49	3.18	0.18	4.01	1.38	4.90	2.07	1.05	1.19	0	3.26	2.38	0.14	1.93	2.49	12.32
CANADA	1.04	2.73	0.72	1.35	0.87	2.60	4.64	1.21	2.82	1.51	2.17	4.02	0.75	0.81	1.55	3.31	0.90	1.49	2.44	3.02	16.57
CHILE	0.53	0.96	1.48	2.76	0.71	1.81	2.15	2.99	2.66	1.51	3.40	1.43	0.37	0.96	3.97	1.31	8.95	4.11	0.61	0.97	6.92

CHINA	0.79	0.62	1.61	1.41	1.33	2.04	2.71	2.76	3.10	2.05	1.57	1.82	1.18	1.45	2.19	2.22	6.97	2.52	0.89	1.67	8.55
COLOMBIA	0.46	0	0.74	0.26	1.42	3.68	2.07	1.07	3.39	0.33	1.17	1.39	0	0.36	1.38	3.57	0.63	0.73	1.99	2.77	16.80
CZECH	0.28	0.35	0.66	0	0.71	3.45	2.88	0.50	2.93	0.58	2.19	1.35	1.06	0.01	0	3.25	1.27	0	1.30	1.62	14.41
DENMARK	0.34	1.08	0.84	0.59	0.82	2.47	2.87	1.42	2.11	1.85	1.72	1.66	1.14	0.54	1.68	2.42	5.22	1.49	0.80	1.27	9.84
FINLAND	0.60	0.88	0.09	0.43	0.43	2.81	2.81	0.15	1.45	0.51	3.25	1.12	0.24	0	0.74	1.89	2.50	0.34	0.92	1.02	11.19
FRANCE	1.43	4.60	1.60	3.70	0.89	1.12	2.98	3.24	0.97	3.02	4.60	4.60	0.81	1.74	4.92	0.69	9.46	4.55	1.63	1.35	6.25
GERMANY	0.20	0.47	0.93	0.20	1.43	5.45	3.14	0.54	3.04	0.89	2.14	0.71	1.20	0.56	0	3.75	1.07	0.31	1.97	2.31	15.87
HONG-KONG	0.07	0.62	0.74	0.01	2.11	4.76	2.96	0.60	4.29	0.49	0.85	2.29	0.37	0.61	0.97	4.59	0	0.33	2.84	3.72	18.57
HUNGARY	0.20	1.58	1.35	0.77	2.50	6.58	4.81	0.45	4.01	0	0.98	2.46	0.37	1.06	0.27	5.53	0.02	0.28	3.64	4.61	20.76
ICELAND	0.79	2.85	0	2.17	2.65	3.44	2.78	1.97	4.75	0.85	0.77	2.69	0.44	1.74	3.49	4.04	2.35	3.23	2.58	3.35	17.04
INDIA	1.20	0.87	0.15	0.91	0.19	1.24	1.43	1.38	1.77	1.33	3.56	2.28	0.65	0.74	1.91	1.26	4.67	1.76	0.34	0.62	9.92
IRELAND	0.20	1.98	0.39	2.05	0.64	1.18	1.11	1.77	1.50	1.19	2.29	2.22	0.21	0.76	3.05	0.78	7.52	2.97	0.44	0.64	7.77
ISRAEL	0.50	2.33	1.51	1.45	3.00	6.19	5.68	0.93	3.81	0.31	0.59	4.05	0.32	1.60	1.67	6.11	1.64	0.75	4.18	5.18	20.48
ITALY	0.71	0.92	0.89	2.61	0.89	2.65	2.08	2.51	2.71	0.91	3.92	0.89	0.42	0.40	3.26	2.14	8.54	3.77	0.59	1.01	7.05
JAPAN	6.83	5.34	10.0	13.5	3.59	3.56	4.21	13.9	5.52	8.30	12.3	4.31	6.51	4.78	15.5	4.00	22.8	16.2	2.69	2.82	0.83
KOREA	0	0.41	0.73	0	0.43	2.86	2.80	0.54	1.57	1.28	1.61	1.36	0.80	0.53	0.25	2.22	3.26	0.82	1.07	1.20	12.55
MALAYSIA	0	0	1.52	1.62	2.35	4.38	2.33	3.25	4.60	1.51	1.32	0.64	0.99	1.91	2.90	4.42	6.53	2.93	2.36	3.01	10.37
MEXICO	0	0	0	0.61	1.62	3.29	2.74	0.84	3.66	1.12	2.15	2.83	0.60	0.53	1.54	3.83	1.13	1.78	2.17	2.93	17.23
NETHERLANDS	0	0	0	0	3.37	6.32	4.33	0.77	5.83	1.73	0.41	3.63	0.63	1.79	0.90	6.14	0.40	1.43	4.21	5.18	21.55
NEW-ZEALAND	0	0	0	0	0	0.99	2.81	3.14	0.76	1.12	3.62	2.70	0.25	0.39	3.93	0.74	8.88	4.43	0.58	0.47	7.21
NORWAY	0	0	0	0	0	0	3.14	7.13	1.26	4.67	4.42	5.27	2.31	2.19	8.82	0.82	11.8	8.40	1.08	1.43	5.03
PHILIPPINES	0	0	0	0	0	0	0	5.55	5.10	3.95	5.36	2.63	2.88	3.31	7.01	2.35	10.2	6.11	1.70	1.64	5.82
PORTUGAL	0	0	0	0	0	0	0	0	3.69	0	1.50	3.28	0.46	1.62	0.64	6.23	0.34	0.64	4.31	5.31	21.05
RUSSIA	0	0	0	0	0	0	0	0	0	2.34	2.85	3.60	1.19	1.34	5.49	1.68	11.2	4.87	1.65	1.41	7.67
SINGAPORE	0	0	0	0	0	0	0	0	0	0	3.39	1.73	0.65	0.99	1.05	3.36	3.16	0.10	1.93	2.34	12.48
SLOVAK	0	0	0	0	0	0	0	0	0	0	0	3.49	3.21	3.12	1.26	6.71	0.74	0	4.14	5.50	20.22
SLOVENIA	0	0	0	0	0	0	0	0	0	0	0	0	1.13	2.15	3.56	4.26	8.73	4.16	2.27	1.81	7.98
SOUTH-AFRICA	0	0	0	0	0	0	0	0	0	0	0	0	0	0.23	1.20	1.69	2.78	0.63	0.69	1.19	11.58
SPAIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.18	1.95	6.48	2.50	0.73	0.77	9.25
SWEDEN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7.54	1.07	0.88	5.19	5.69	24.24
SWITZERLAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12.7	7.81	0.89	1.02	4.23
TAIWAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.26	10.4	11.8	29.93
TURKEY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.73	6.86	23.87
U.K.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.47	5.96
USA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.63

2004 Dissimilarity between Nations

Nation	ARGENTINA	AUSTRALIA	AUSTRIA	BELGIUM	BRAZIL	CANADA	CHILE	CHINA	COLOMBIA	CZECH	DENMARK	FINLAND	FRANCE	GERMANY	HONG-KONG	HUNGARY	ICELAND	INDIA	IRELAND	ISRAEL	ITALY	JAPAN
ARGENTINA	0	3.81	3.15	2.85	1.17	3.77	2.41	1.92	1.37	1.58	4.04	3.98	3.31	3.08	3.36	1.57	3.95	1.68	2.94	2.37	1.68	2.86
AUSTRALIA	0	0	1.07	1.28	2.98	0.41	1.40	3.01	2.48	2.36	0.87	0.87	1.81	1.70	0.96	2.25	1.06	2.27	1.36	1.89	2.40	1.38
AUSTRIA	0	0	0	1.08	2.56	1.01	0.99	2.59	1.85	1.84	0.99	1.15	1.54	1.40	1.17	1.59	1.08	1.97	1.17	1.05	1.96	0.89
BELGIUM	0	0	0	0	1.96	1.18	1.63	2.36	2.23	1.36	1.48	1.42	1.01	0.55	1.06	1.41	1.78	1.65	1.06	0.79	1.28	0.58
BRAZIL	0	0	0	0	0	2.88	1.99	1.66	1.20	1.31	3.29	3.29	2.28	2.04	2.74	1.18	3.60	1.59	2.10	1.81	0.92	2.21
CANADA	0	0	0	0	0	0	1.41	2.94	2.45	2.33	1.10	0.93	1.58	1.47	0.92	2.30	1.24	2.24	1.28	1.66	2.30	1.35
CHILE	0	0	0	0	0	0	0	2.10	1.09	1.39	1.64	1.60	1.75	2.01	1.50	1.12	1.61	1.11	1.40	1.53	1.95	1.45
CHINA	0	0	0	0	0	0	0	0	1.80	1.82	3.44	3.46	1.84	2.07	2.94	1.75	3.41	1.37	1.98	2.37	1.76	2.25
COLOMBIA	0	0	0	0	0	0	0	0	0	1.39	2.72	2.66	2.31	2.57	2.53	1.03	2.67	1.03	1.93	1.83	1.56	2.04
CZECH	0	0	0	0	0	0	0	0	0	0	2.63	2.54	1.91	1.67	1.83	0.57	2.75	1.48	1.73	1.15	1.08	1.29
DENMARK	0	0	0	0	0	0	0	0	0	0	0	0.52	1.94	1.87	1.39	2.48	0.56	2.60	1.64	1.91	2.61	1.50
FINLAND	0	0	0	0	0	0	0	0	0	0	0	0	1.94	1.79	1.22	2.58	0.46	2.47	1.77	1.79	2.63	1.51
FRANCE	0	0	0	0	0	0	0	0	0	0	0	0	0	0.69	1.78	1.93	2.29	1.85	1.15	1.54	1.67	1.27
GERMANY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.39	1.79	2.20	2.02	1.27	1.10	1.47	0.96
HONG-KONG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.94	1.50	2.03	1.52	1.23	2.16	1.05
HUNGARY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.47	1.19	1.53	1.07	1.13	1.30
ICELAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.56	1.81	1.98	2.92	1.63
INDIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.62	1.64	1.80	1.66
IRELAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.57	1.50	0.98
ISRAEL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.35	0.78
ITALY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.51
JAPAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Nation	KOREA	MALAYSIA	MEXICO	NETHERLANDS	NEW-ZEALAND	NORWAY	PHILIPPINES	PORTUGAL	RUSSIA	SINGAPORE	SLOVAK	SLOVENIA	SOUTH AFRICA	SPAIN	SWDEN	SWITZERLAND	TAIWAN	TURKEY	U.K.	USA	Imaged ideal
ARGENTINA	2.11	2.82	1.35	3.56	2.78	3.51	1.15	1.68	0.69	4.10	1.30	1.39	2.15	2.48	3.82	3.81	2.94	1.38	2.88	4.47	5.45
AUSTRALIA	1.82	1.20	2.88	1.06	1.14	1.03	3.01	2.38	3.15	0.96	2.59	2.48	2.47	1.47	0.59	0.87	1.05	3.15	1.51	1.16	2.10
AUSTRIA	1.20	1.09	2.41	1.10	0.63	0.61	2.36	1.68	2.55	1.05	2.01	1.85	2.06	1.40	0.87	0.66	0.85	2.49	1.43	1.63	2.88
BELGIUM	1.20	1.70	1.98	0.89	1.06	1.27	2.05	1.44	2.19	1.64	2.05	1.62	1.67	1.55	1.11	1.21	1.27	2.54	0.74	1.81	3.16
BRAZIL	1.66	2.50	0.90	2.51	2.35	2.90	0.91	1.09	0.63	3.41	1.33	1.18	1.89	1.76	3.03	3.07	2.52	1.15	2.02	3.67	5.06
CANADA	1.87	1.39	2.88	0.93	1.20	0.88	2.98	2.36	3.12	1.14	2.55	2.52	2.40	1.39	0.42	0.77	1.11	3.11	1.40	0.92	2.18
CHILE	1.05	0.57	2.00	1.69	0.88	1.22	1.61	1.45	1.79	1.70	1.34	1.62	1.39	0.94	1.43	1.42	0.78	1.75	1.70	2.11	3.43

Country																					
CHINA	1.79	2.18	1.50	2.35	2.25	2.99	1.48	1.55	1.52	3.43	1.95	1.69	2.52	1.83	3.09	3.14	2.37	1.85	1.76	3.07	3.63
COLOMBIA	1.27	1.61	1.44	2.48	1.51	2.20	1.00	1.37	1.01	2.78	0.59	1.30	1.44	1.28	2.50	2.48	1.82	1.06	2.13	3.14	4.49
CZECH	1.08	1.77	1.14	2.09	1.49	2.25	1.19	0.92	1.18	2.64	1.07	0.99	1.67	1.58	2.35	2.40	1.59	1.71	1.41	3.01	4.30
DENMARK	2.06	1.52	3.23	1.36	1.33	0.80	3.25	2.47	3.39	0.69	2.82	2.72	2.74	1.95	0.82	0.76	1.46	3.38	1.93	1.63	2.02
FINLAND	2.16	1.51	3.32	1.50	1.43	1.00	3.19	2.65	3.33	0.78	2.76	2.80	2.61	1.84	0.68	0.78	1.45	3.32	1.89	1.60	1.96
FRANCE	1.60	2.01	2.48	0.96	1.44	1.78	2.51	1.85	2.68	2.21	2.15	2.14	2.04	1.43	1.68	1.69	1.66	2.72	0.92	1.70	2.78
GERMANY	1.59	2.10	2.25	0.96	1.49	1.74	2.29	1.65	2.45	2.02	2.39	1.91	2.03	1.69	1.62	1.55	1.67	2.78	0.80	1.71	3.02
HONG-KONG	1.51	1.41	2.72	1.43	1.40	1.51	2.57	2.11	2.71	1.22	2.48	2.18	2.13	1.81	1.05	1.24	0.87	3.06	1.56	1.63	2.48
HUNGARY	0.77	1.50	1.01	2.00	1.22	1.95	0.93	0.77	0.96	2.54	0.94	0.68	1.27	1.60	2.26	2.25	1.41	1.38	1.43	2.93	4.31
ICELAND	1.95	1.37	3.34	1.62	1.26	0.91	3.16	2.72	3.34	0.95	2.80	2.75	2.81	2.10	0.89	0.88	1.41	3.29	2.07	1.74	1.86
INDIA	1.03	1.28	1.75	2.03	1.46	2.15	1.09	1.41	1.18	2.57	1.14	1.51	1.21	1.40	2.29	2.27	1.44	1.41	1.56	2.93	3.94
IRELAND	1.03	1.59	1.96	0.74	0.93	1.14	2.16	1.72	2.29	1.89	1.96	1.74	1.96	1.09	1.35	1.45	1.29	2.56	0.74	1.69	2.96
ISRAEL	1.05	1.82	1.93	1.64	1.10	1.39	1.61	1.24	1.84	1.86	1.70	1.28	1.59	1.65	1.66	1.55	1.32	2.14	1.30	2.43	3.62
ITALY	1.26	2.44	0.85	1.90	1.85	2.22	1.11	0.74	1.22	2.87	1.55	0.73	2.14	1.38	2.34	2.41	2.11	1.79	1.39	3.02	4.40
JAPAN	0.92	1.55	2.06	1.08	0.81	1.17	2.06	1.45	2.20	1.64	1.91	1.54	1.76	1.52	1.21	1.22	1.08	2.49	0.77	1.80	3.03
KOREA	0	1.32	1.41	1.47	0.77	1.48	1.33	0.90	1.48	2.07	1.26	0.84	1.35	1.23	1.83	1.73	1.06	1.79	1.03	2.49	3.75
MALAYSIA	0	0	2.28	1.51	1.00	1.29	2.08	1.84	2.16	1.35	1.75	2.03	1.72	1.36	1.28	1.15	0.62	2.16	1.76	2.05	2.88
MEXICO	0	0	0	2.46	2.16	2.76	0.91	0.95	1.00	3.26	1.48	0.79	2.06	1.82	2.89	2.98	2.35	1.71	1.89	3.60	4.85
NETHERLANDS	0	0	0	0	1.01	1.07	2.77	1.90	2.91	1.62	2.43	2.24	2.19	1.42	0.97	0.88	1.16	3.01	0.81	1.32	2.59
NEW-ZEALAND	0	0	0	0	0	0.80	1.98	1.47	2.17	1.40	1.63	1.50	1.63	1.16	1.11	1.04	0.80	2.12	1.04	1.80	3.09
NORWAY	0	0	0	0	0	0	2.71	2.02	2.90	1.20	2.36	2.20	2.24	1.58	0.65	0.50	1.11	2.85	1.55	1.39	2.54
PHILIPPINES	0	0	0	0	0	0	0	1.04	0.71	3.31	1.24	0.90	1.76	1.82	3.03	3.01	2.15	1.18	2.09	3.67	4.95
PORTUGAL	0	0	0	0	0	0	0	0	1.16	2.58	1.28	0.49	1.63	1.30	2.34	2.17	1.65	1.46	1.44	3.10	4.48
RUSSIA	0	0	0	0	0	0	0	0	0	3.45	1.04	1.00	1.88	2.01	3.17	3.15	2.32	0.90	2.23	3.81	4.90
SINGAPORE	0	0	0	0	0	0	0	0	0	0	2.89	2.78	2.74	2.06	0.96	0.85	1.21	3.45	2.00	1.86	1.91
SLOVAK	0	0	0	0	0	0	0	0	0	0	0	1.26	1.40	1.48	2.61	2.60	1.82	1.13	1.95	3.25	4.54
SLOVENIA	0	0	0	0	0	0	0	0	0	0	0	0	1.74	1.52	2.50	2.48	1.68	1.40	1.56	3.18	4.57
SOUTH-AFRICA	0	0	0	0	0	0	0	0	0	0	0	0	0	1.74	2.45	2.43	1.67	2.07	1.82	3.19	4.57
SPAIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.64	1.75	1.42	1.90	1.25	2.10	3.43
SWEDEN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.50	1.03	3.17	1.51	0.99	2.15
SWITZERLAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.00	3.15	1.60	1.26	2.32
TAIWAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.33	1.44	1.76	2.90
TURKEY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.47	3.81	5.02
U.K.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.75	3.04
USA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.40

2004 Errors

Nation	ARGENTINA	AUSTRALIA	AUSTRIA	BELGIUM	BRAZIL	CANADA	CHILE	CHINA	COLOMBIA	CZECH	DENMARK	FINLAND	FRANCE	GERMANY	HONG-KONG	HUNGARY	ICELAND	INDIA	IRELAND	ISRAEL	ITALY	JAPAN
ARGENTINA	0	12.1	7.24	5.40	0.46	11.9	3.78	2.30	1.64	2.14	14.1	13.6	8.36	6.93	9.04	2.30	13.4	2.60	6.11	4.08	2.74	5.53
AUSTRALIA	0	0	1.09	1.53	7.14	0.15	1.56	8.27	4.52	3.97	0.73	0.71	3.19	2.78	0.72	3.38	1.11	3.68	1.66	2.82	3.95	1.79
AUSTRIA	0	0	0	1.01	4.81	0.90	0.33	5.53	1.33	1.31	0.93	1.25	2.36	1.75	1.24	0.39	1.02	1.97	1.30	0	1.66	0.62
BELGIUM	0	0	0	0	1.44	1.32	2.44	4.94	3.14	0.11	1.95	1.73	0.74	0.30	0.58	0	3.08	0.93	0.66	0.05	0.64	0.33
BRAZIL	0	0	0	0	0	6.34	1.36	0.30	0	0.07	9.38	9.53	3.72	1.77	6.49	0.17	11.1	1.42	3.18	0.69	0.18	2.52
CANADA	0	0	0	0	0	0	1.75	8.05	4.48	3.97	1.13	0.74	2.32	2.12	0.52	3.71	1.53	3.60	1.30	2.21	3.47	1.77
CHILE	0	0	0	0	0	0	0	4.27	0.10	0.98	2.07	1.88	2.27	3.87	1.21	0	2.37	0.08	0.89	2.26	2.08	1.91
CHINA	0	0	0	0	0	0	0	0	2.67	2.85	10.8	10.9	2.08	3.72	7.14	2.34	11.1	1.21	2.37	5.61	1.88	4.44
COLOMBIA	0	0	0	0	0	0	0	0	0	1.91	5.68	5.35	3.25	4.91	4.47	1.04	5.74	1.04	1.55	2.67	2.21	2.40
CZECH	0	0	0	0	0	0	0	0	0	0	5.23	4.70	1.56	1.21	1.36	0.27	6.21	2.13	0.78	0.76	0.85	0
DENMARK	0	0	0	0	0	0	0	0	0	0	0	0.26	3.74	3.26	1.86	4.44	0.21	5.23	2.61	2.66	5.06	2.03
FINLAND	0	0	0	0	0	0	0	0	0	0	0	0	3.74	2.89	1.44	4.95	0.08	4.61	3.05	2.14	5.23	1.99
FRANCE	0	0	0	0	0	0	0	0	0	0	0	0	0	0.16	3.11	1.63	5.06	1.58	1.29	1.13	0.76	1.35
GERMANY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.36	1.39	4.77	2.45	1.10	0.74	0.00	0.92
HONG-KONG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.87	1.90	2.45	2.28	0.05	2.94	0.57
HUNGARY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.61	1.40	0.20	0.29	1.16	0.22
ICELAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5.26	2.93	3.43	6.83	2.57
INDIA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.71	1.89	3.13	1.03
IRELAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.94	0.26	0.49
ISRAEL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.44	0.07
ITALY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.06
JAPAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Nation	KOREA	MALAYSIA	MEXICO	NETHERLANDS	NEW-ZEALAND	NORWAY	PHILIPPINES	PORTUGAL	RUSSIA	SINGAPORE	SLOVAK	SLOVENIA	SOUTH AFRICA	SPAIN	SWDEN	SWITZERLAND	TAIWAN	TURKEY	U.K.	USA	Imaged ideal
ARGENTINA	3.72	5.39	1.23	10.2	4.92	9.75	0.83	2.69	0	14.6	1.41	1.84	3.16	4.31	12.4	12.1	6.09	1.27	5.84	18	28.27
AUSTRALIA	2.00	1.38	6.44	1.09	1.21	1.04	7.16	3.89	8.04	0.92	5.04	4.26	4.87	1.67	0.30	0.74	0.97	8.10	2.01	1.33	4.22
AUSTRIA	0	1.08	3.88	1.12	0.39	0.34	3.53	0.61	4.47	1.04	1.90	1.19	3.09	1.18	0.58	0.32	0.68	4.32	1.91	2.52	7.89
BELGIUM	0.54	2.87	1.40	0.76	0.90	1.53	1.64	0	2.26	2.48	2.39	0.19	0.92	2.08	1.18	1.41	1.23	3.97	0.05	3.06	9.47
BRAZIL	2.67	4.09	0.77	4.22	3.83	6.49	0.75	0.00	0.32	10.1	0.21	0.90	3.46	0.56	7.14	7.42	5.01	1.30	2.99	11.9	24.44
CANADA	2.03	1.90	6.30	0.85	1.25	0.74	6.80	3.89	7.68	1.23	5.01	4.40	4.28	1.61	0.17	0.59	0.96	7.72	1.54	0.80	4.53
CHILE	0.91	0.08	1.51	2.58	0	1.06	0.10	0.75	0.73	2.38	0.76	0.65	0.38	0.88	1.88	1.77	0.33	0.56	1.68	4.07	11.26

CHINA	1.35	4.12	0.00	4.83	3.73	8.08	0	1.63	0.17	10.9	3.28	1.40	3.92	3.28	9.03	9.25	4.18	1.16	1.41	8.79	12.56
COLOMBIA	0.63	0.88	0.98	4.44	0.06	3.02	0.00	1.84	0.06	6.12	0.34	1.34	0.25	0.72	4.83	4.57	1.17	0	2.36	8.55	19.25
CZECH	0	1.47	0	2.72	0.00	3.27	0.21	0.78	0.23	5.36	1.15	0.50	0.78	1.72	4.16	4.21	0.36	1.59	0.25	7.77	17.58
DENMARK	3.13	2.16	8.84	1.73	1.71	0.58	8.88	4.28	9.84	0.47	6.22	5.60	6.54	3.09	0.52	0.47	2.08	9.90	3.57	2.62	3.87
FINLAND	3.66	2.08	9.57	2.09	1.95	0.91	8.59	5.22	9.55	0.59	5.88	6.10	5.97	2.61	0.28	0.47	2.05	9.60	3.46	2.50	3.67
FRANCE	1.34	3.86	4.47	0.75	2.06	3.10	4.52	1.28	5.38	4.84	2.49	2.53	3.24	1.11	2.58	2.67	2.75	5.75	0.79	2.73	7.34
GERMANY	0.59	4.42	2.62	0.90	1.96	2.94	2.72	0.80	3.49	3.90	4.04	1.34	2.21	2.60	2.57	2.35	2.36	5.31	0.00	2.76	8.65
HONG-KONG	1.44	1.57	6.15	1.68	1.84	2.05	5.24	2.53	5.98	1.37	4.17	3.05	3.95	2.13	0.69	1.19	0.73	8.14	2.43	2.45	5.83
HUNGARY	0.23	0.42	0.12	2.20	0.77	1.87	0.06	0.59	0.15	4.84	0.85	0.25	0	1.49	3.62	3.37	0.14	0.98	0.09	7.23	17.68
ICELAND	2.39	1.84	9.26	2.61	1.37	0.76	7.98	5.85	9.24	0.85	6.44	5.74	6.43	4.13	0.79	0.76	1.70	8.92	3.85	3.00	3.28
INDIA	0.35	0.00	2.25	2.49	0.10	2.90	0.44	1.96	0.69	5.19	1.24	2.06	0.01	0.98	3.91	3.67	0.20	1.15	0.54	7.43	14.78
IRELAND	0	2.17	2.35	0.22	0.81	1.10	3.09	0.76	3.65	3.42	1.61	1.04	3.13	0	1.39	1.77	1.67	5.15	0.54	2.58	8.33
ISRAEL	0.88	2.75	1.33	2.07	0.04	1.12	0.23	0.61	1.09	2.59	2.27	0	0.03	2.70	2.32	1.84	0.35	2.20	0.03	5.26	12.45
ITALY	1.18	3.85	0.32	1.56	1.17	2.85	0.88	0.44	1.18	6.57	2.12	0.51	3.48	0.33	3.72	3.88	2.44	2.79	0	7.60	18.43
JAPAN	1.09	2.39	1.77	1.14	0.43	1.31	1.74	0.12	2.35	2.49	1.91	0.02	1.24	2.01	1.42	1.45	0.78	3.75	0	3.05	8.69
KOREA	0	0.00	1.92	0.52	0.85	0.68	1.67	0	2.09	3.16	0.49	0.39	1.62	0.45	1.82	1.45	0	3.14	0.14	5.11	13.35
MALAYSIA	0	0	2.92	2.29	0.83	1.65	1.97	1.46	2.36	1.72	1.36	1.90	1.30	1.52	1.60	1.31	0.09	2.41	2.63	4.10	7.90
MEXICO	0	0	0	3.86	2.77	5.59	0.82	0.05	0.99	9.00	0.99	0.35	3.97	0.89	6.27	6.82	3.95	2.92	2.26	11.3	22.40
NETHERLANDS	0	0	0	0	0.88	1.11	5.40	1.71	6.21	2.55	4.22	2.84	3.20	1.65	0.91	0.76	1.09	6.89	0.23	1.64	6.35
NEW-ZEALAND	0	0	0	0	0	0.58	1.91	0.16	2.70	1.86	0.39	0.02	1.57	0.45	0.99	0.91	0.61	2.61	0.96	3.02	9.09
NORWAY	0	0	0	0	0	0	5.25	2.08	6.32	1.40	3.71	2.70	3.67	1.97	0.35	0.22	1.10	6.11	2.13	1.85	6.12
PHILIPPINES	0	0	0	0	0	0	0	0.31	0.50	9.25	0.42	0.59	2.76	0.91	7.06	6.93	2.94	1.39	2.92	11.8	23.36
PORTUGAL	0	0	0	0	0	0	0	0	0.61	4.94	1.59	0.04	1.04	0.52	3.86	2.96	0.53	1.25	0.11	8.13	19.13
RUSSIA	0	0	0	0	0	0	0	0	0	10.2	0.00	0.80	3.17	1.67	7.96	7.81	3.72	0.80	3.52	12.9	22.87
SINGAPORE	0	0	0	0	0	0	0	0	0	0	6.69	5.97	6.45	3.64	0.82	0.65	1.38	10.3	3.81	3.44	3.47
SLOVAK	0	0	0	0	0	0	0	0	0	0	0	1.18	0	1.32	5.38	5.16	1.13	0.03	1.54	9.21	19.64
SLOVENIA	0	0	0	0	0	0	0	0	0	0	0	0	2.12	0.50	4.34	4.14	0.81	1.67	0.55	8.55	19.85
SOUTH-AFRICA	0	0	0	0	0	0	0	0	0	0	0	0	0	0.68	4.42	4.40	2.01	4.06	2.76	9.02	20.01
SPAIN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.44	2.75	0.94	1.18	0.23	3.97	11.22
SWEDEN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.24	0.72	7.98	1.75	0.92	4.37
SWITZERLAND	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0.74	7.85	2.12	1.52	5.13
TAIWAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3.92	2.04	2.87	8.03
TURKEY	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4.80	12.9	24.10
U.K.	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2.74	8.78
USA	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1.88

# Appendix D   Nations-on-Ball Mapping
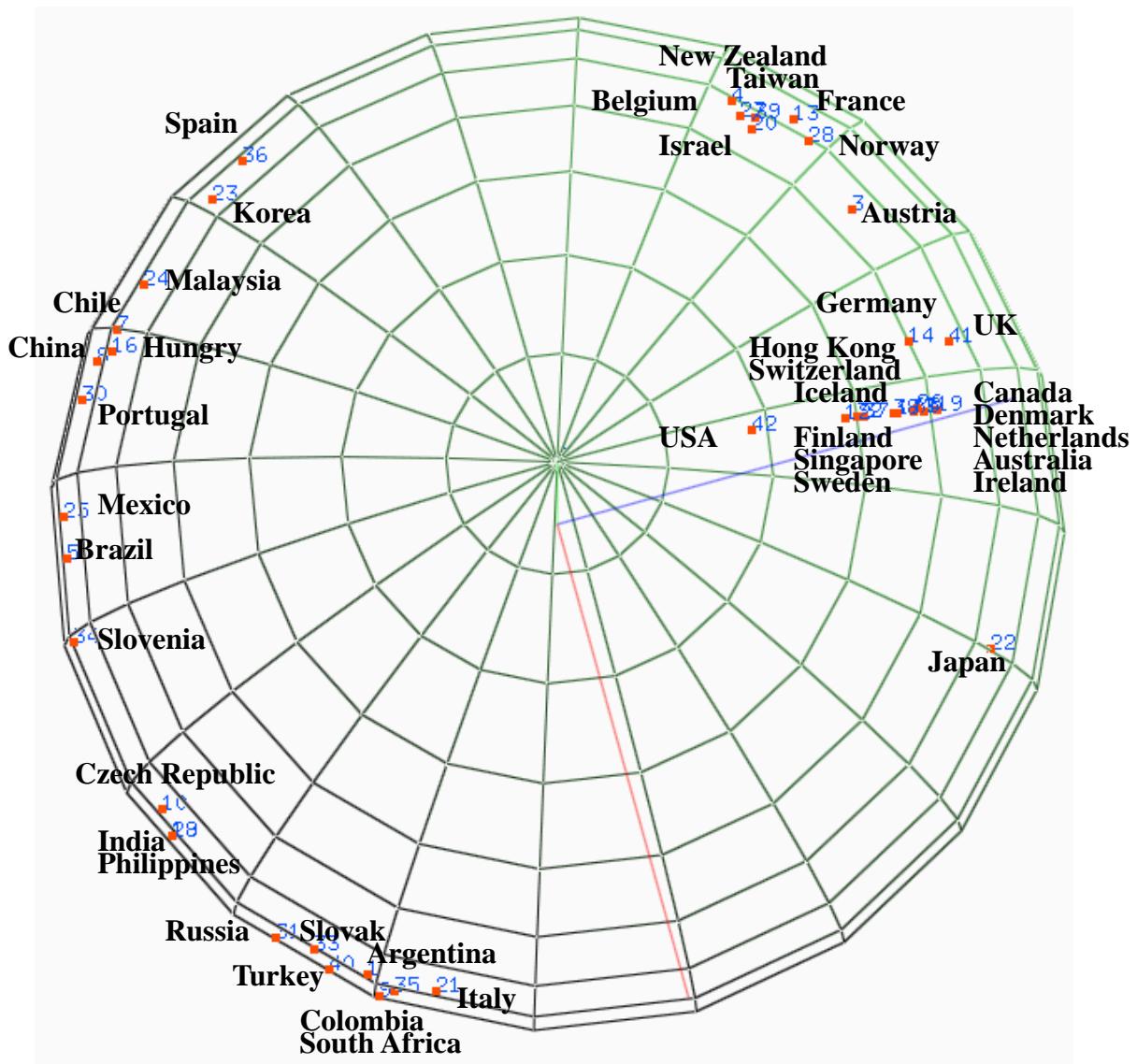
Figure D.1   Overview for 2001
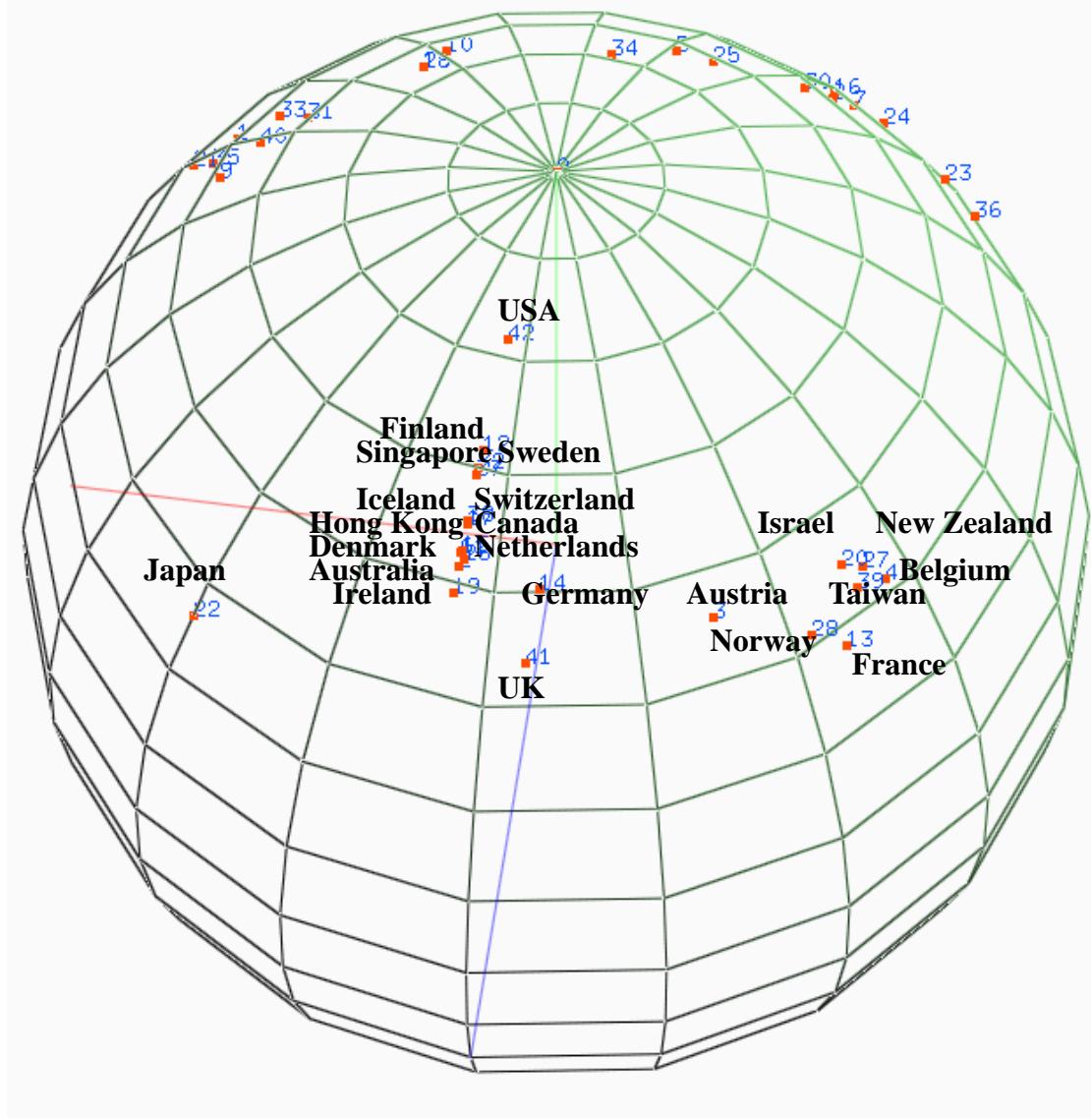
Figure D.2   2001 Spiral Top
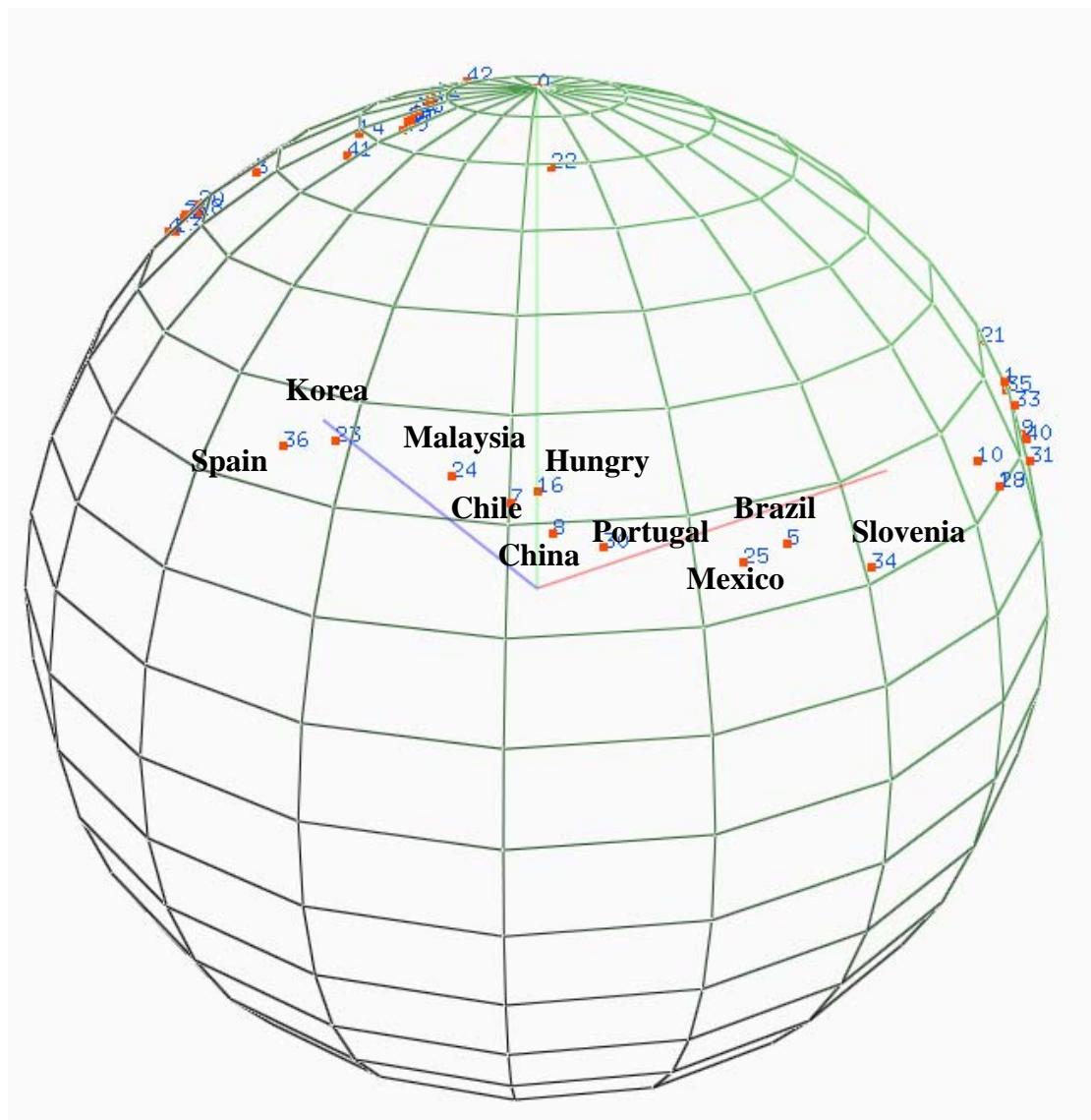
Figure D.3   2001 Spiral Middle
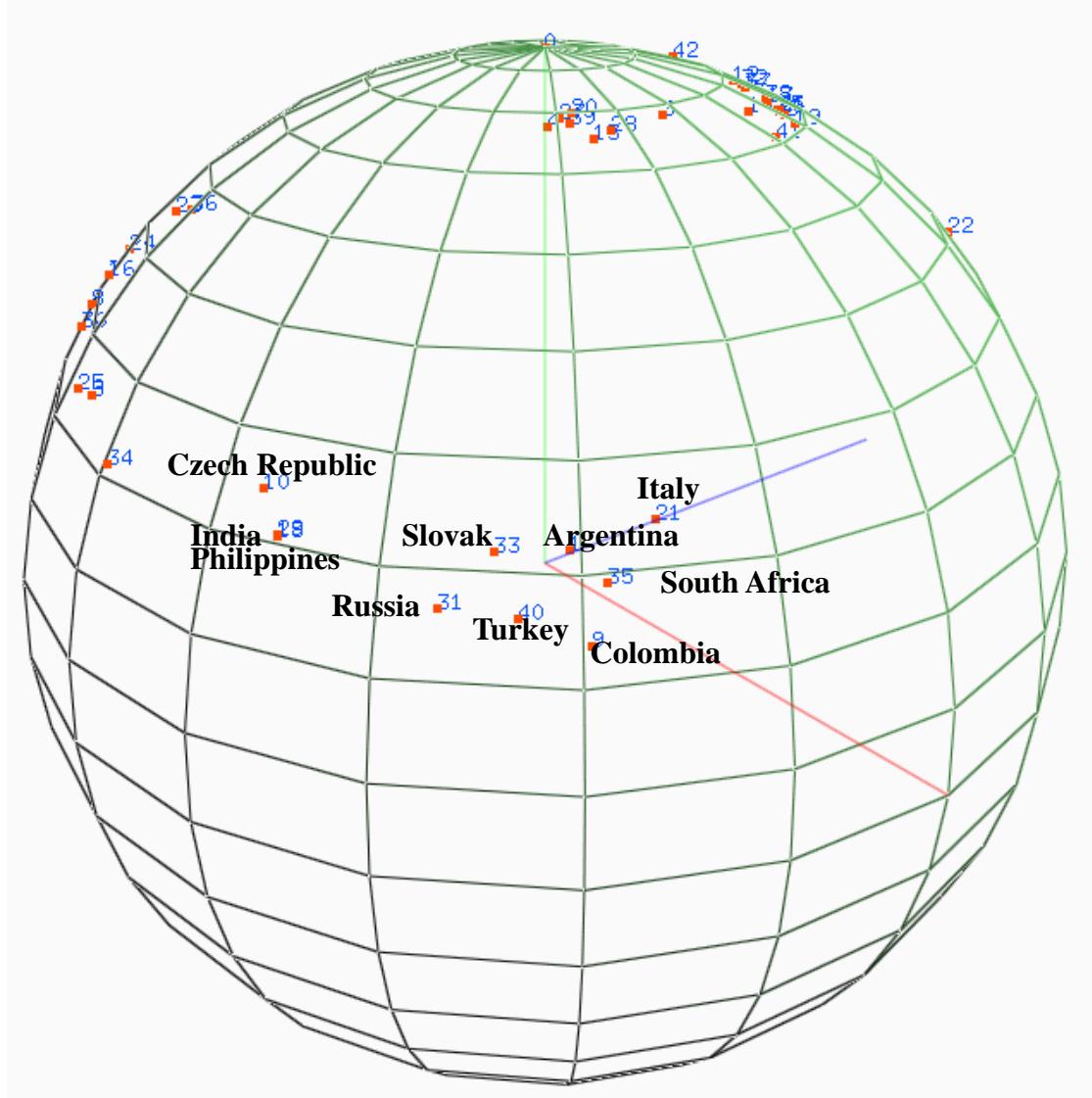
Figure D.4   2001 Spiral Tail

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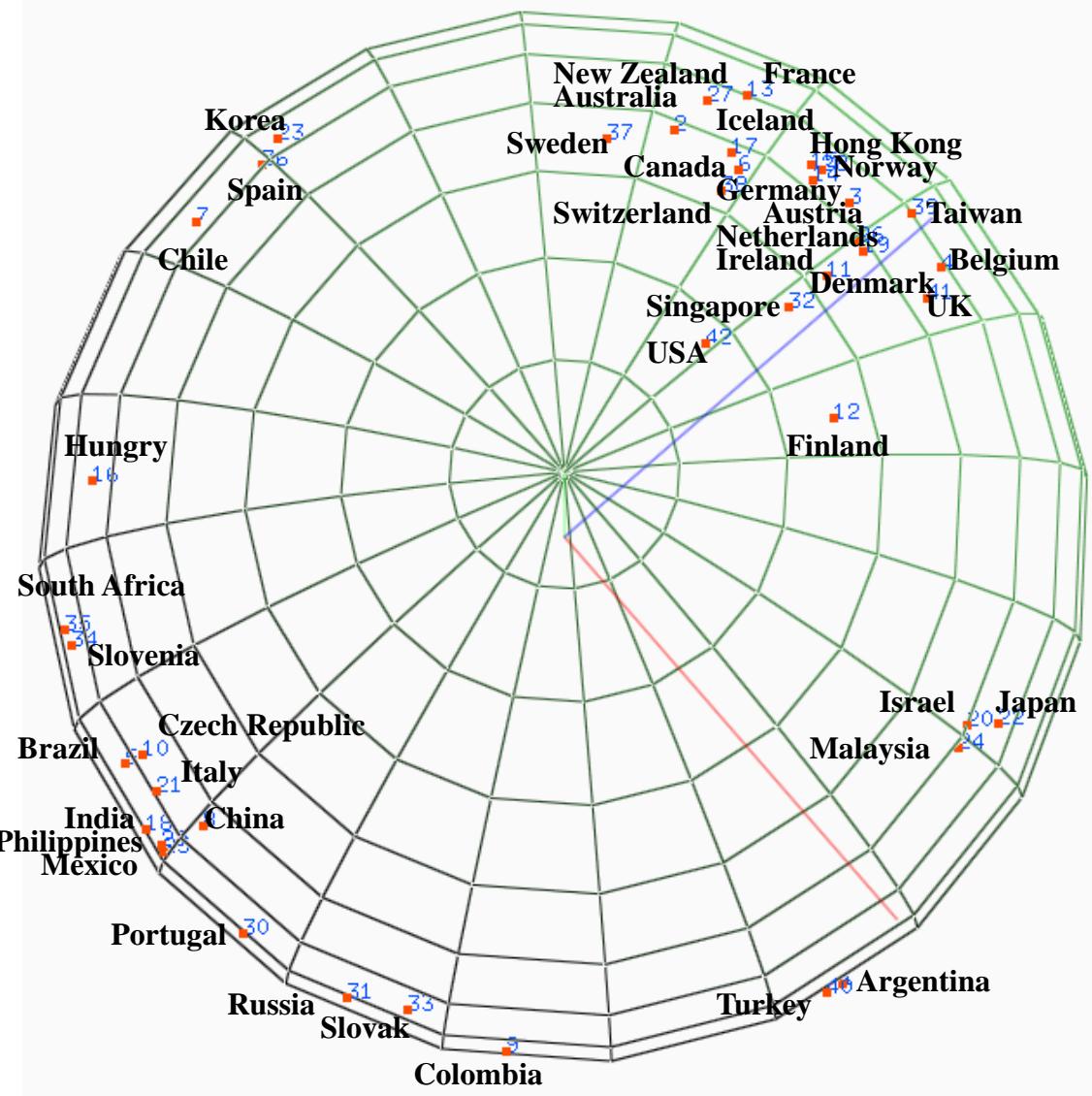
Figure D.5   Overview for 2002
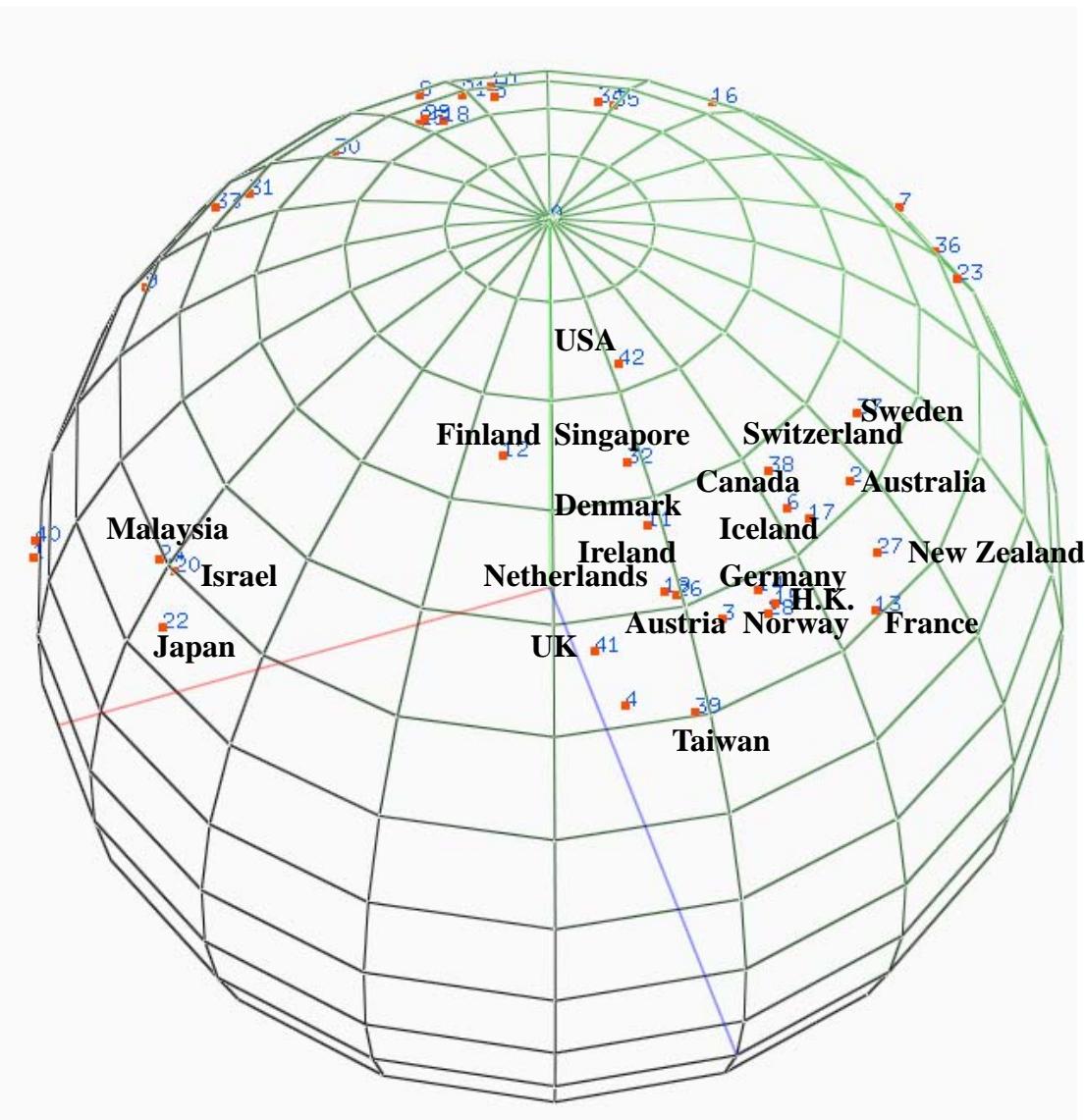
Figure D.6   2002 Spiral Top
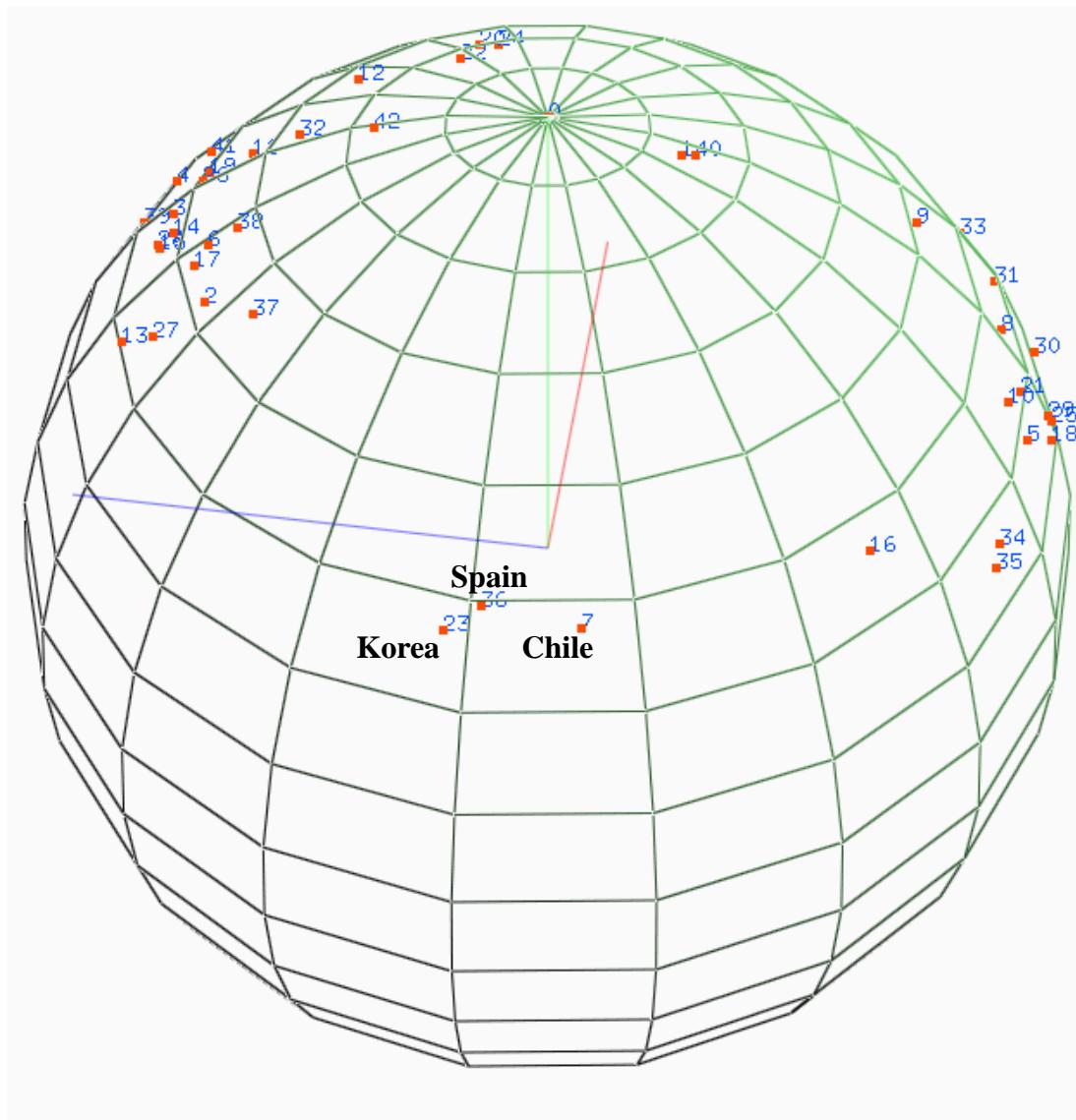
Figure D.7   2002 Spiral Middle
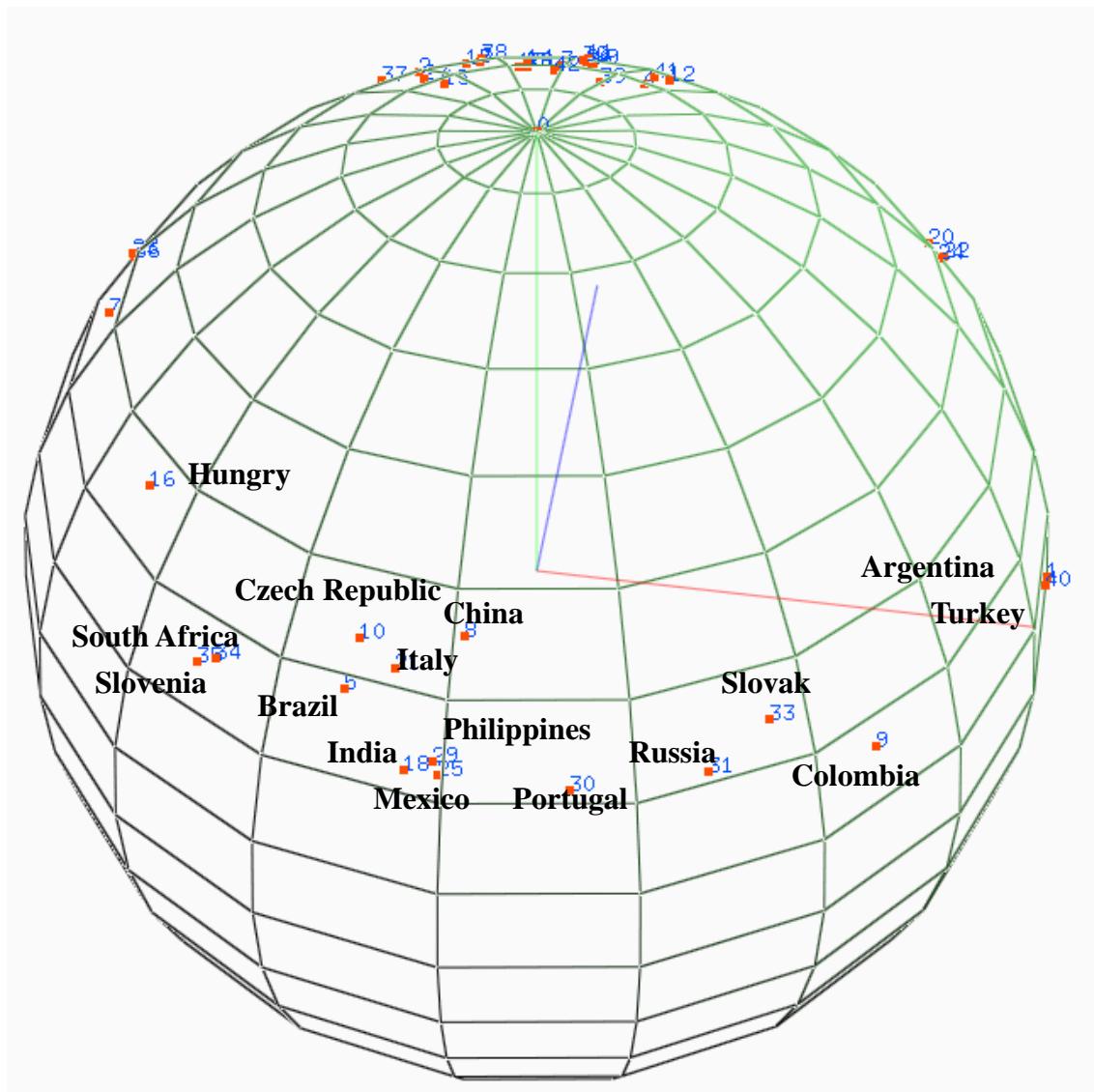
Figure D.8   2002 Spiral Tail
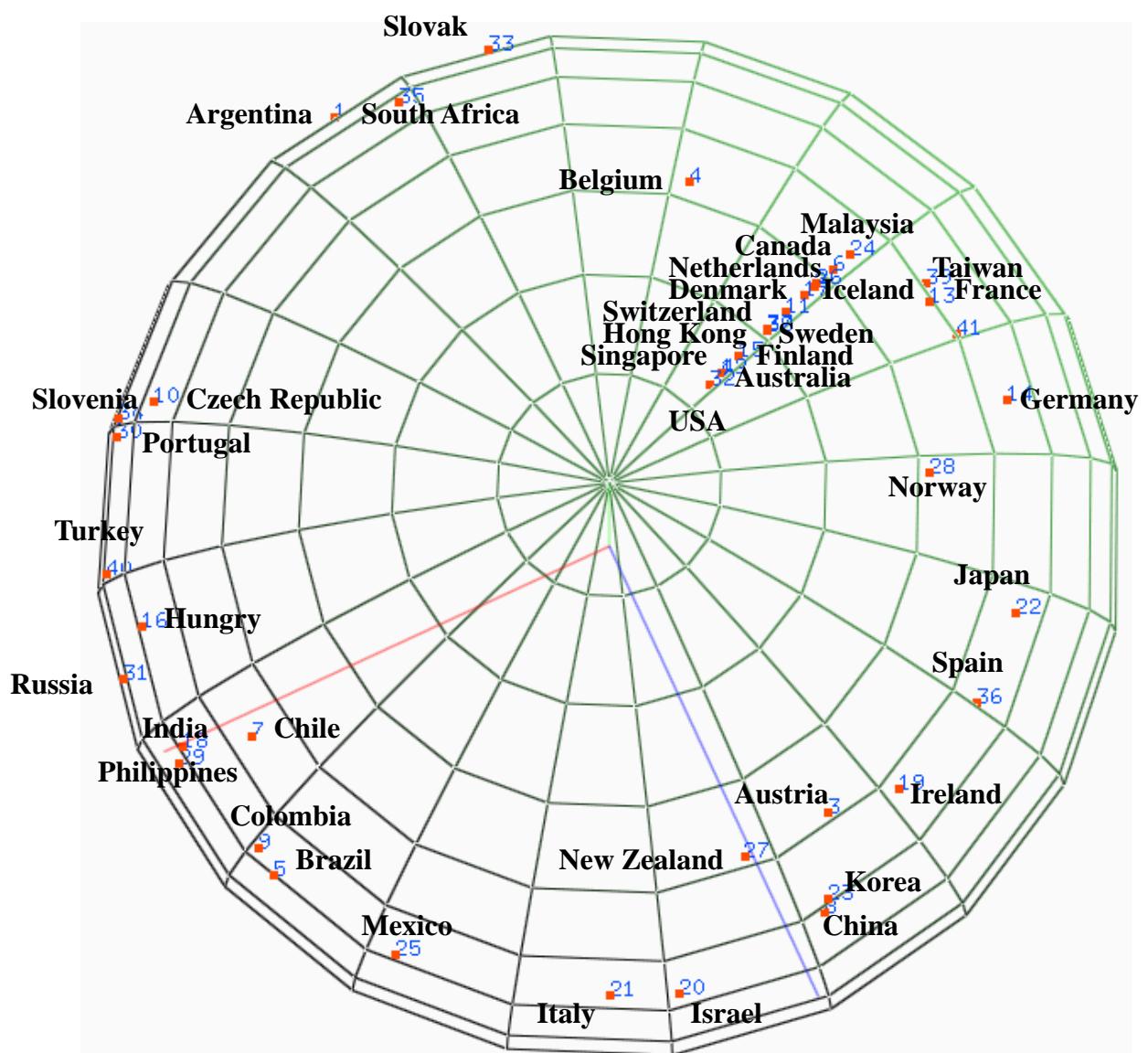
Figure D.9 Overview for 2003
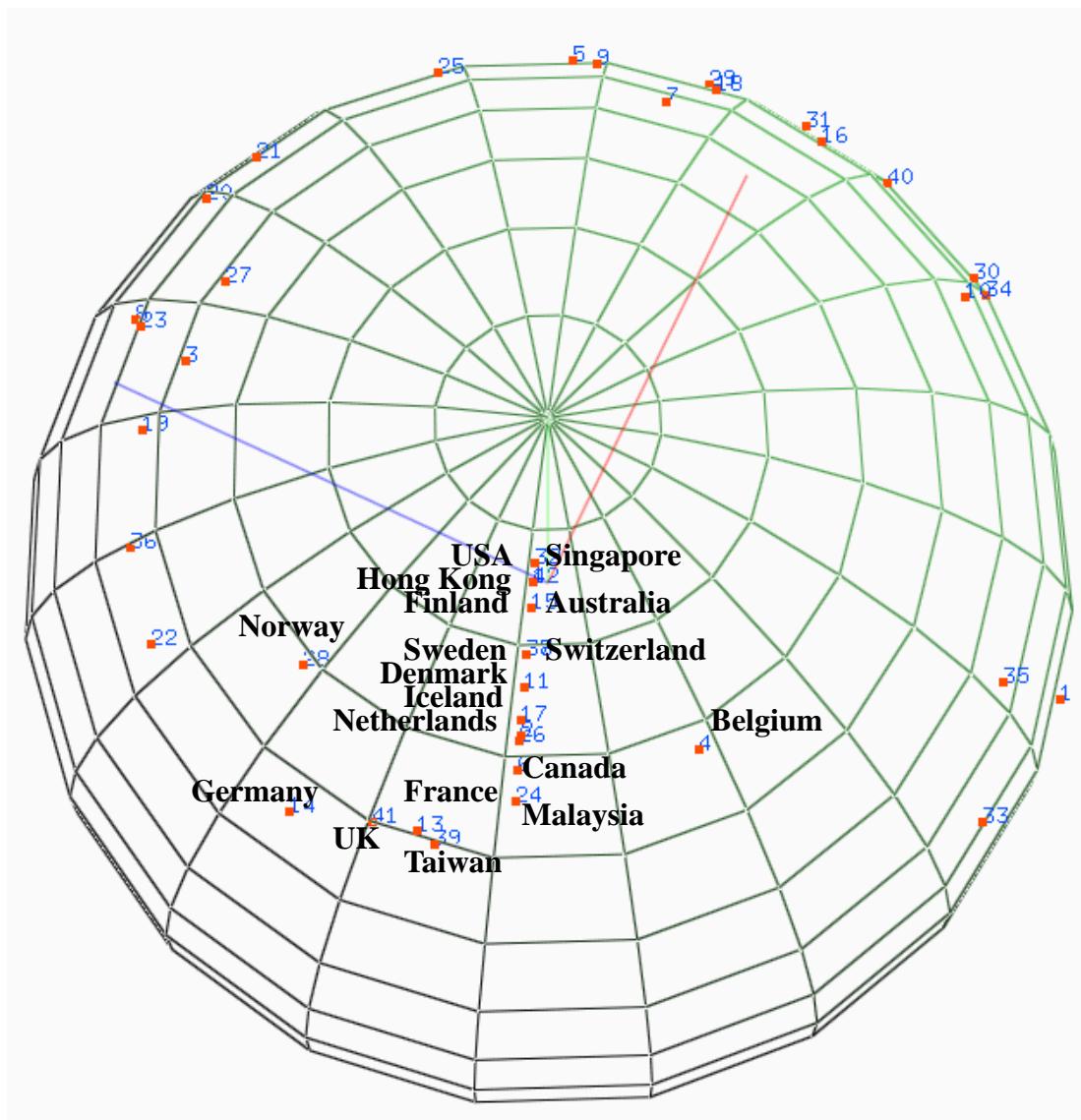
Figure D.10   2003 Spiral Top
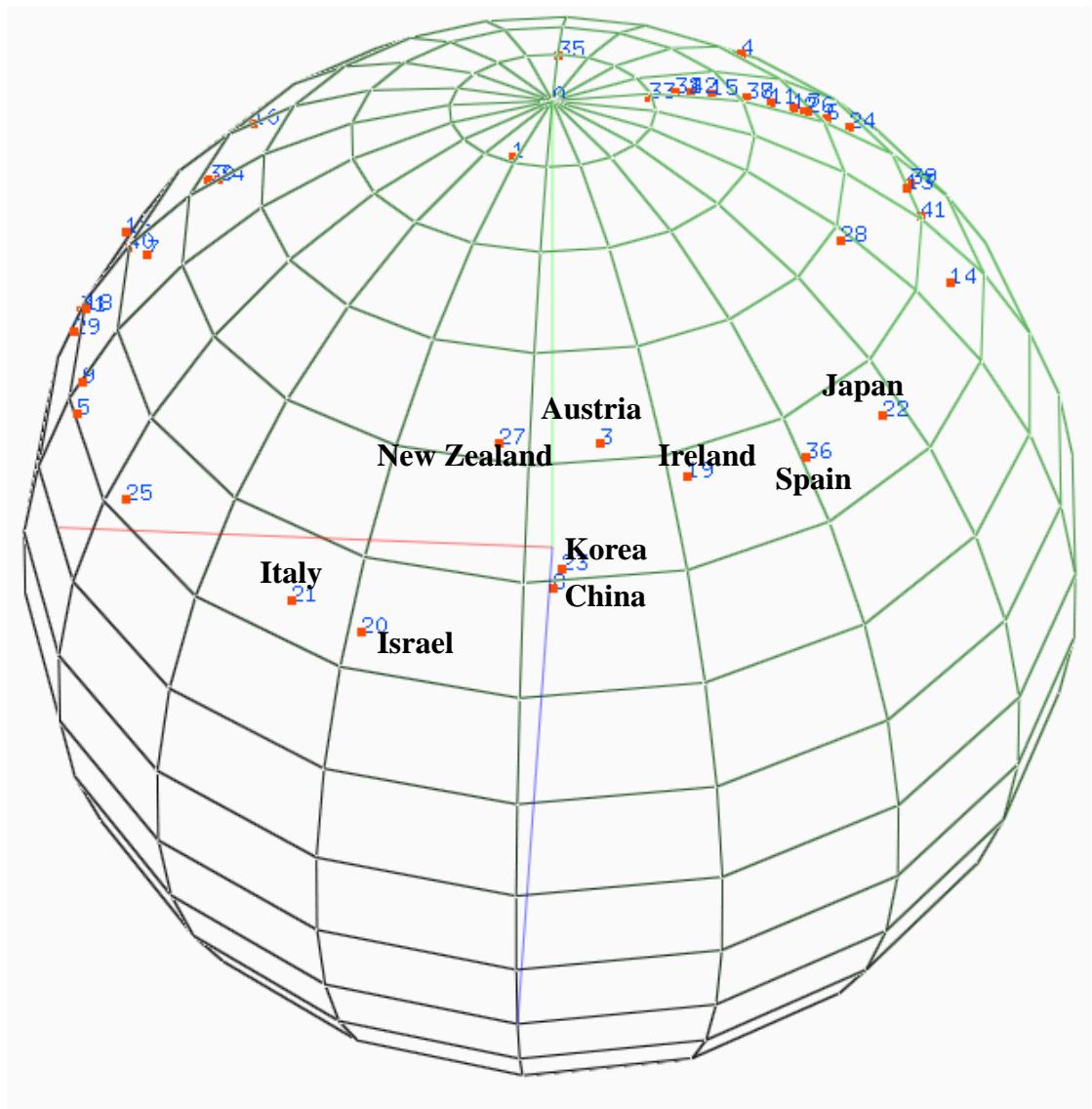
Figure D.11   2003 Spiral Middle
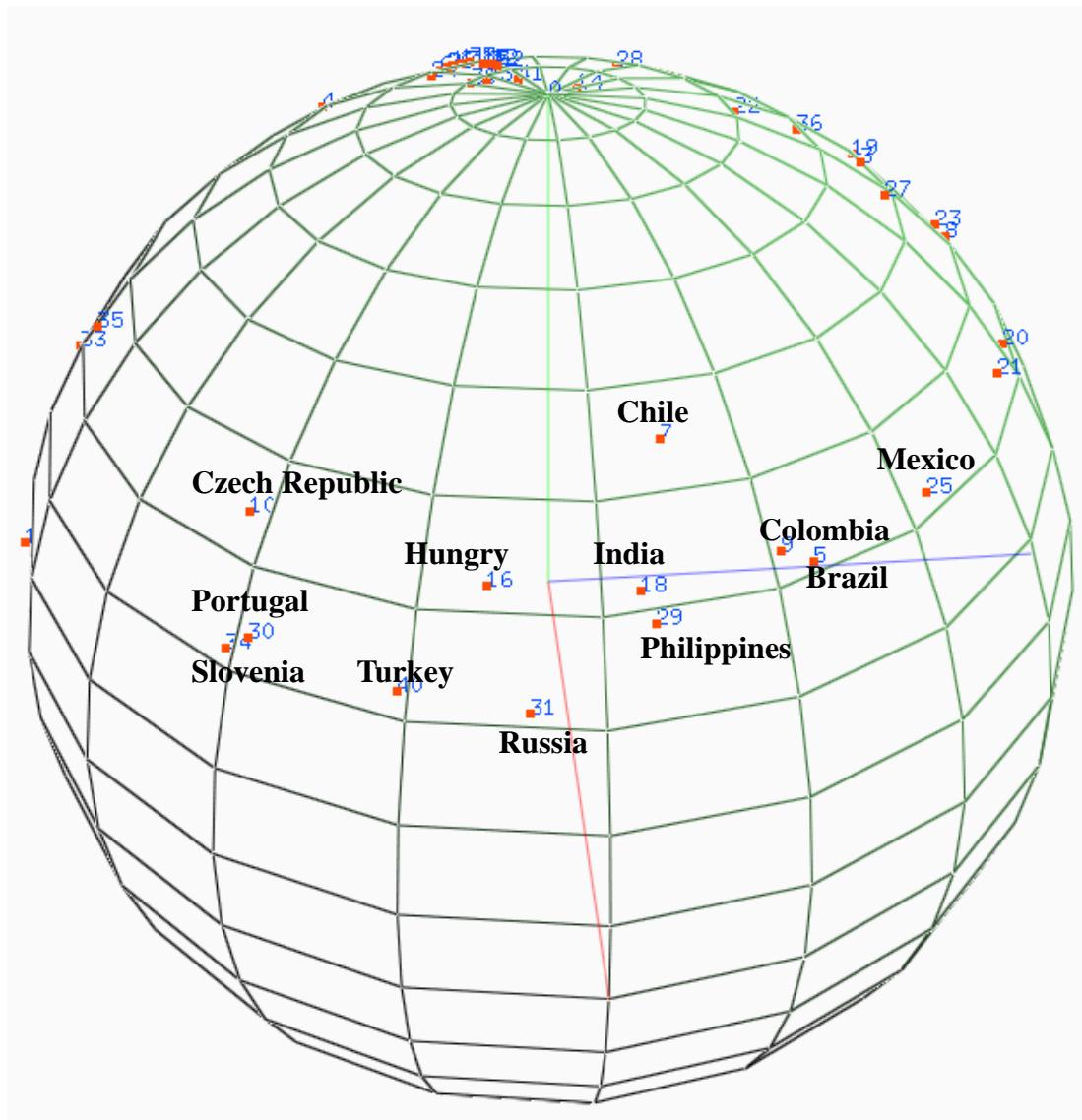
Figure D.12   2003 Spiral Upper-Tail
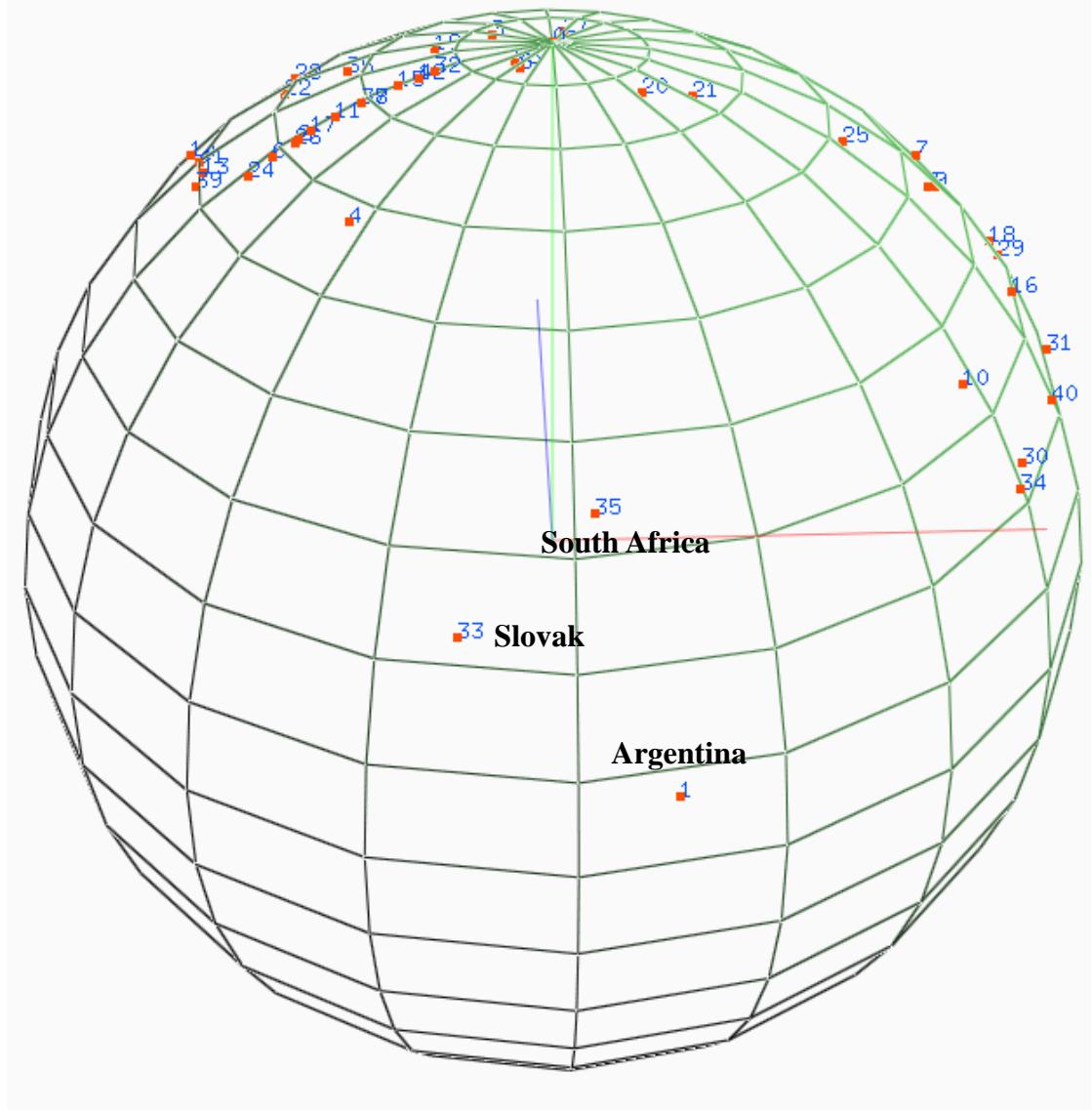
Figure D.13   2003 Spiral Lower-Tail
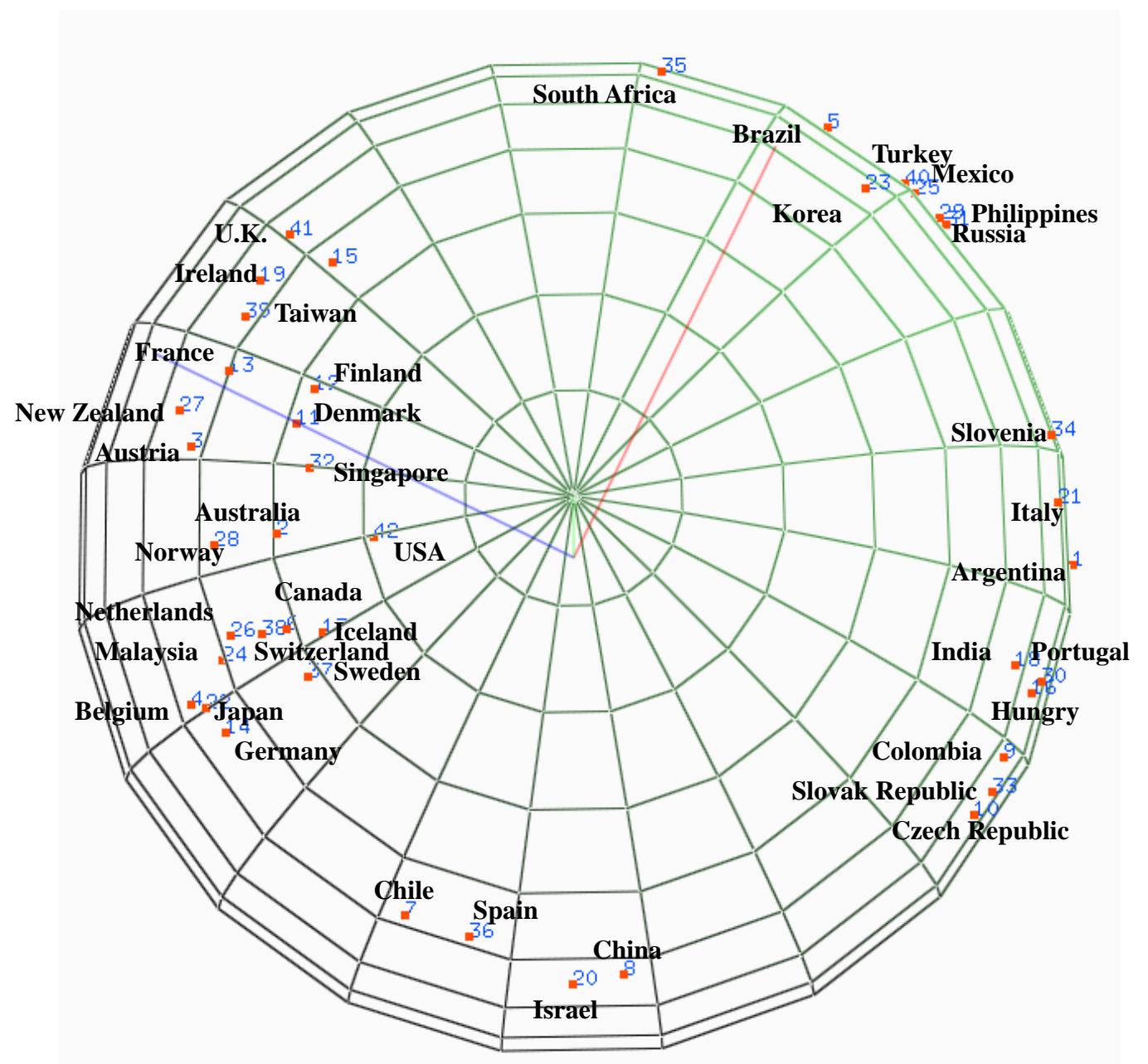
Figure D.14   Overview for 2004
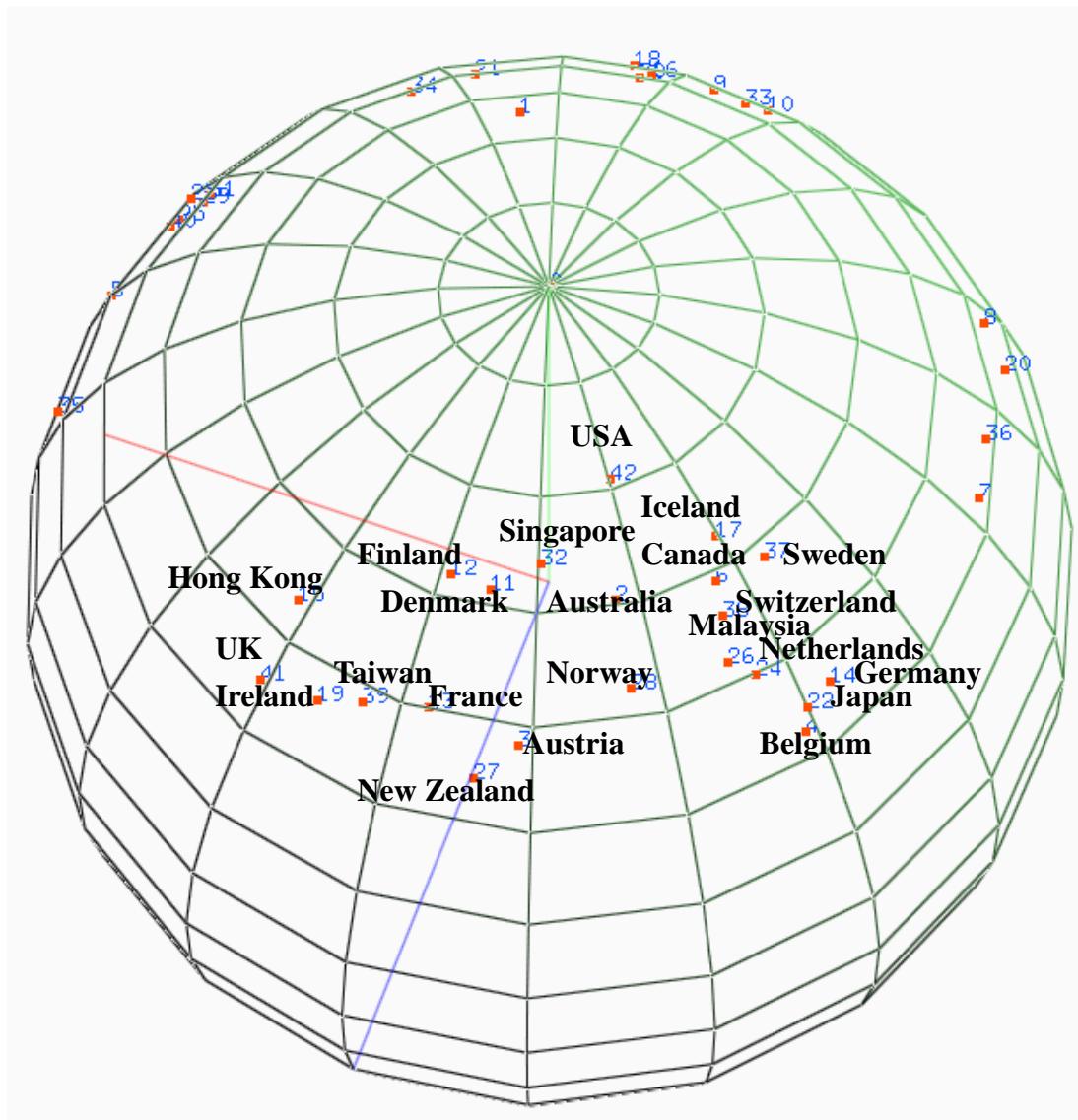
Figure D.15   2004 Spiral Top
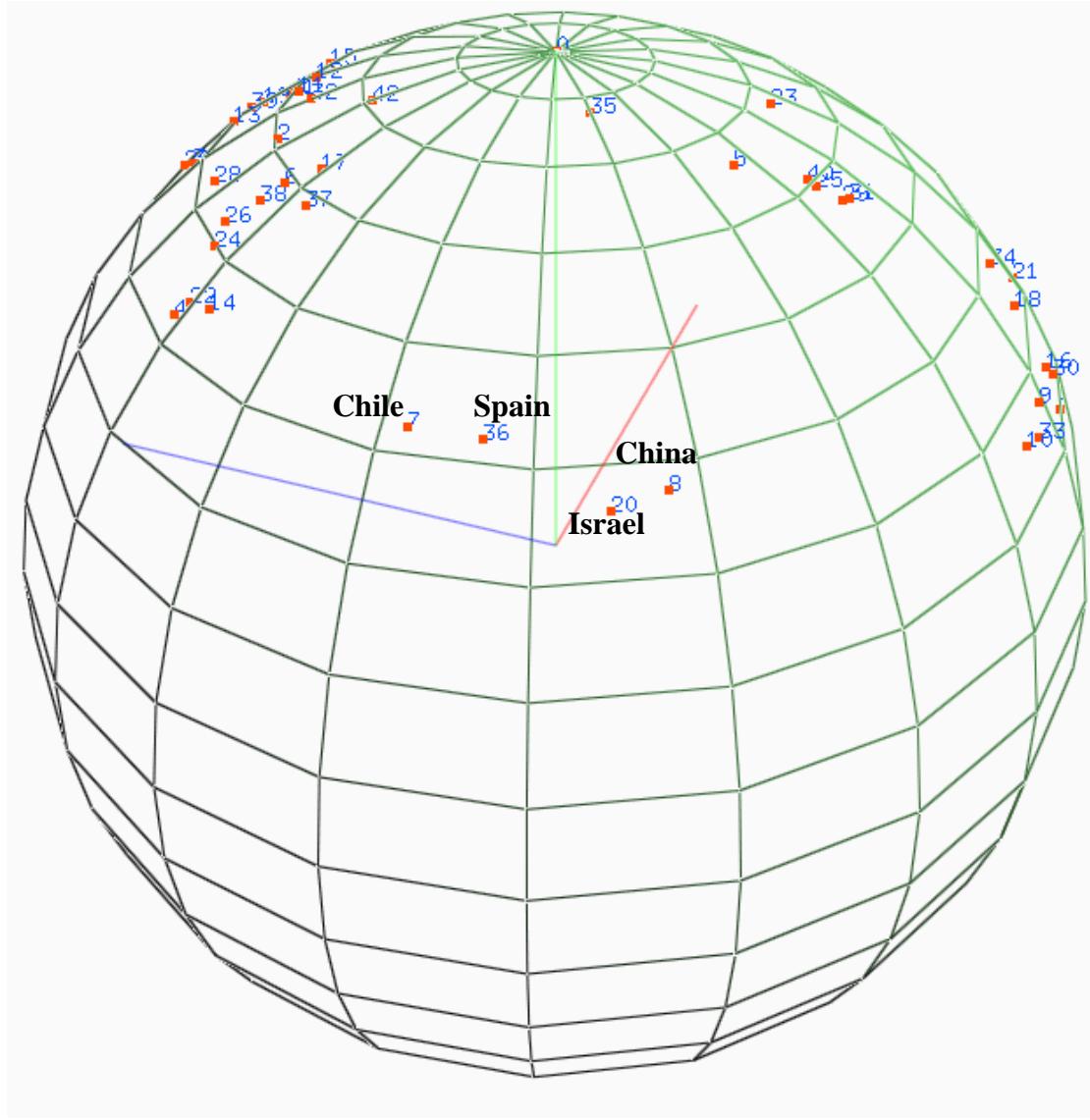
Figure D.16   2004 Spiral Upper-Middle
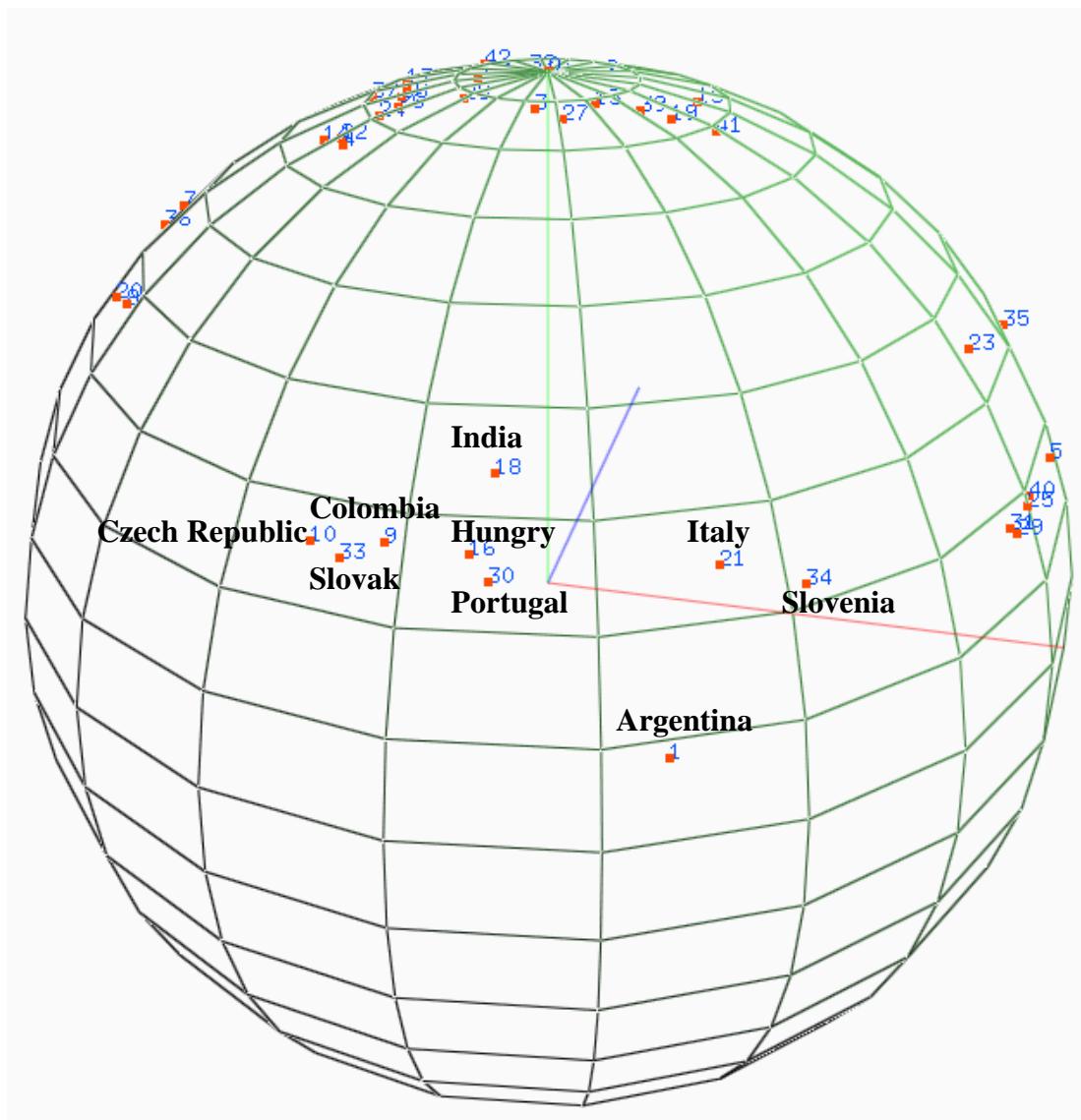
Figure D.17   2004 Spiral Lower-Middle
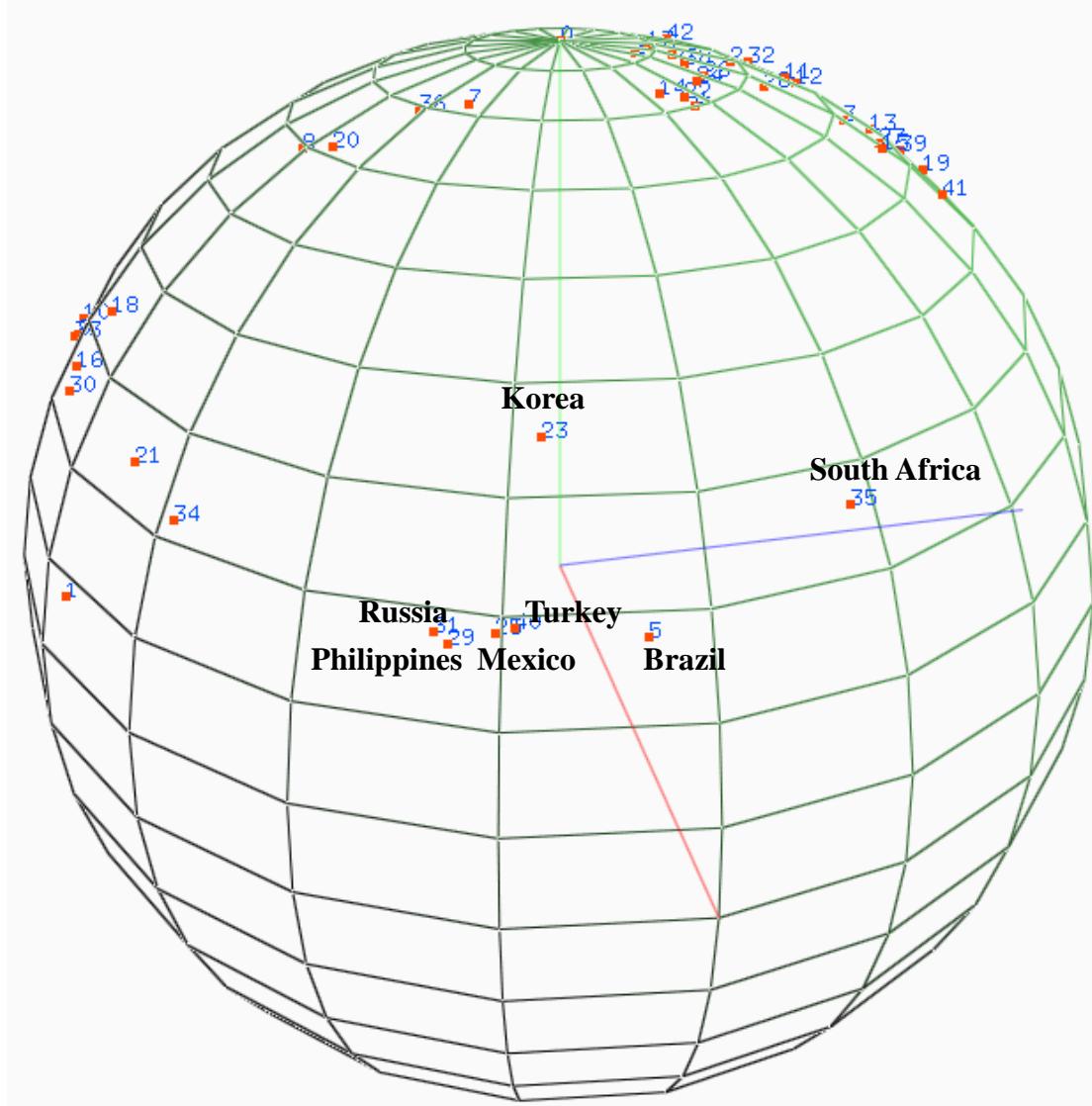
Figure D.18   2004 Spiral Tail