Research Methodology and Skills

Course Objective

The objective of the course is to provide the students with the tools with which to analyze the issues in international and area studies. In the first part of the course, students will learn important concepts of statistics and acquire techniques to use Excel and other statistics program. In the second part, students will learn how to calculate useful indices and statistics as well as to analyze the relationship among various variables in international and area studies.

Teaching Methods

- Lectures by the professor
- Group and individual assignments
- Presentations by the students
- Discussions

Evaluation

- Group Assignments: 40%
- Individual Assignments: 40%
- Attendance and class participation: 20%

Class Sequence

Week 1. Introduction, Concepts, Datasets

Week 2 & 3. Excel - cursor, $$, chart, sort, filter, paste value, transpose, sumif, vlookup, pivot table, . xls vs .ppt vs .doc, etc.

[dataset0]   [dataset1]

Individual assignment 1.

Choose any country with a significant number of patents in the US, and
reproduce the following graph, which is a graph using Korea's patents in
the US.

Korea's Share in US Patents

Data source: US Patent and Trademark Office

Week 4. Statistics - Average, Variance, Standard Deviation, Coefficient of variation
[lecture]

Individual assignment 2

1) Calculate ⓐ the average (arithmetic mean) and ⓑ the standard deviation of
the growth rates of （1） each industrialized country and （2） each country
in any regional group(s) for 1970-2000.

2) Calculate the average and the standard deviation of ⓐ and the average of ⓑ
for （1） and （2）.

3) Take two developing and two industrialized countries and calculate the
average growth rate using geometric mean for the same period. Compare
with the arithmetic mean.

4) Interpret the results.

Data source: World Economic Outlook Databases

Week 5. [lecture] related with the individual assignment 1

• ECLA, (2002), Globalization and Development, Chapter 3. "Inequalities and
Asymmetries in the Global Order." (pdf)

Michalopoulos, Constantine, (1999), "Trade Policy and Market Access Issues for
Developing Countries," World Bank, Policy Research Working Papers #2214. (pdf)

Week 6, 7. Free Trade Agreement: Theory and Practice [lecture]

• Revealed Comparative Advantage (RCA), Intensity of Trade (IT), Trade Orientation
(RO) [lecture]

• Yeats, S. (1997), "Does MERCOSUR's Trade Performance Raise Concerns about the
Effects of Regional Trade Arrangements?" World Bank Policy Research Working
Paper #1729. (pdf)

Individual assignment 3.

Update three rows of the following table for the years 1995 and 2000, and interpret it. (Information: Direction of Trade Statistics: DOTS, KOTIS or COMTRADE dataset (PCTAS))

**IR(intra-regional exports/total exports) and
Share of RI scheme in total world exports**

	Founded	1960	1970	1975	1985	1990
ANZCERTA	1983	5.7 2.4	6.1 2.1	6.2 1.7	7.0 1.6	7.6 1.5
EC	1957	34.5 24.9	51.0 39.0	50.0 35.9	54.5 35.6	60.4 41.4
CUFTA	1989	26.5 21.9	32.8 20.5	30.6 16.8	38.0 16.7	34.0 15.8
ASEAN	1967	4.4 2.6	20.7 2.1	15.9 2.6	18.4 3.9	18.6 4.3
ANDEAN PACT	1969	0.7 2.9	2.0 1.6	3.7 1.6	3.4 1.2	4.6 0.9
CACM	1961	7.0 0.4	25.7 0.4	23.3 0.3	14.7 0.2	14.8 0.1
LAFTA	1960/80	7.9 6.0	9.9 4.4	13.6 3.5	8.3 4.7	10.6 3.4

Week 8. Statistics - Correlation and Regression

[lecture]   [dataset2]   [dataset3]   [readme2]

Macroeconomics and growth datasets (World Bank)

Week 9. Presentation of the group assignment A

Week 10. (1) STATA

(2) Gravity Model   [lecture]

Cernat, Lucian (2001) "Assessing Regional Trade Arrangements: Are South-South RTAs More Trade Diverting?" United Nations (pdf)

Individual assignment 4

Download data from World Development Indicators, run a meaningful

regression and interpret it.

-country: select all

-series: dependent and independent variables

-time: 1 year

-format report: row-country, column-series

Include hypothesis, explanation of the variables, regression results, interpretation.

Week 11. Presentation of the group assignment B

Week 13. Intra-industry trade(IIT), Export Similarity Index(ESI), Structural Change Index (SCI)   [lecture]

[dataset7]

Individual assignment 6

The intra-industry trade index of home country with a country j for an industry i is:

$$GL_{ij} = 1 - |X_{ij} - M_{ij}|/(X_{ij} + M_{ij})$$

The intra-industry trade index of home country with a country j is:

$$GL_j = \sum_i \{(X_{ij} + M_{ij}) - |X_{ij} - M_{ij}|\}/\sum_i (X_{ij} + M_{ij})$$

1) Calculate the GL index of Korea with any other two countries (at SITC 3 digit level). Interpret it.

2) In a separate worksheet, include the peer evaluation of your group members in a scale of 1 to 10.

Week 14. Production Sharing, Herfindahl-Hirschman Index (HHI)   [lecture]

[dataset8]

- Yeats, Alexander, "Just How Big is Global Production Sharing in East Asia" The World Bank, Jan. 1998.

- UNCTAD, (2002), "Export Dynamism and Industrialization in Developing Countries," and "Competition and the Fallacy of Composition," Trade and Development Report 2002, Ch. 3 & 4.

Week 15. Constant Market Share, Shift share analysis   [lecture]

[dataset9]

Individual assignment 7

Using constant market share analysis, decompose the growth of exports of any
two countries, into three components. (SITC 3 digit level, for
1995~1999 or 1997~2001)

Interpret.

(skip). Logistic (Probit) Regression Model   [lecture]   [dataset5]   [graph]

The Emerging American Voter: An Examination of the Increase in the Black
Vote in November 1998

Individual assignment 5

Using the following socio-economic dataset and codebook, run a meaningful
logistic regression and interpret it.

◇[dataset6]   ◇[codebook]   ◇[codebook(Eng)]

(skip). Panel regression   [lecture]   [dataset11]

(skip) Time series   [dataset10]

(skip). Pollution-intensive, High-Tech, and IT industries

[lecture1]   [lecture2]

- Levinson, Arik, (1997) "Environmental Regulations and Industry Location:
International and Domestic Evidence," in Jagdish Bhagwati and Robert E. Hudec
(eds.), Fair Trade and Harmonization - Prerequisites for Free Trade?, The MIT Press.

(skip). Presentation of the group assignment C

Group Assignments

A. Related with trade (due on the 7th week)

1) Calculate the Specialization Index and Revealed Comparative Advantage Index of
China (in SITC 3 digit level). Analyze. (for example, you can analyze Chinese industries
with industry classification by factor contents and technology intensity (classification file)
or SITC 1 digit level, etc)
(UN COMTRADE dataset)

2) Calculate the same indices for a country which may have some economic relationship

with China. Analyze.

B. Gravity Model (due on 10th week)

The Gravity Model predicts that the trade volume between two countries increases with the economic size of the two countries and decreases with the geographic distance between the countries. That is,

$$T_{ij} = A \cdot (Y_i Y_j / D_{ij})$$

where T_{ij} and D_{ij} are, respectively, the trade (or exports or imports) volume and the distance between the country i and the country j, Y_i is the GDP of the country i, and A is a coefficient. To run a regression for the Korean case, the function can be modified as following:

$$LnT_{ij} = \alpha + \beta 1 Ln[Y_j] + \beta 2 LnP_j + \beta 3 LnD_{ij} + \varepsilon_{ij}$$

or $$LnT_{ij} = \alpha + \beta 1 Ln[Y_j/P_j] + \beta 2 LnP_j + \beta 3 LnD_{ij} + \varepsilon_{ij}$$

where country i is Korea, and P_j is the population of the country j. You can add more variables as foreing direct investment (FDI), overseas direct investment (ODI), number of Koreans living in that country, memebership of a regional trade arrangements, etc.

Collect the data required for the regression, run the regression, and derive the expected trade volume. Calculate the actual trade volume as a ratio of expected trade volume for each trade partner.

> Hint:
>
> (1) When the value of any variable(x) is 0, you can not take the logarithm. In that case, you may add 1 and take $ln(x+1)$.
>
> (2) You can calculate the predicted value, or get it from SPSS.
>
> (3) export = $exp[ln(export)]$

Reference on Gravity Model: "Assessing Regional Trade Arrangements: Are South-South RTAs More Trade Diverting?"

Information on Distance: International Trade Data

Information on GDP and Population: http://www.worldbank.org/data/dataquery.html

Information on Trade: KITA

Information on overseas direct investment: The Export-Import Bank of Korea

Information on FDI to Korea: MOCIE

C. Logistic Regression (due on 13th week)

  1) Take two Korean companies (for example, Samsung, www.sec.co.kr,
  LG, www.lge.co.kr, Hyundai, www.hyundai-motor.com, etc) and two companies from
  some other country (for example, Japan or U.S.).

  From the homepage of each company collect the data about the location (country) of
  subsidiaries, branches, R&D centers, and so on.

  2) Collect the data of (country) variables that may have influence on the location decision
  of subsidiaries, branches, R&D centers, etc.

  3) Using logistic regression, analyze which variables are the most important factors in
  deciding the location of subsidiaries, branches, R&D centers, etc.

  4) Interpret

Links

Bulletin Board