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## From the Programme Leader

Osamu Saito (IER, Hitotsubashi University)

The first year of our research programme is over. It was a busy and hectic year with a lot of paper work, hearings, interviews, letters and faxes, and various kinds of meetings, but I am glad that the programme – aiming to combine the collation of an extensive data base, research in statistical methods, and advanced empirical research – has successfully taken off.

One of our project areas is data compilation. Here we have already made substantial progress. The outcome of a unique attempt to re-tabulate a recent government household survey from micro-data will be published shortly, which was made possible by a special arrangement between the IER's Documentation Centre and the government's statistical bureau. On the macro side, the first volume of the planned Long-Term Economic Statistics of Asian Countries series, i.e. the one on Taiwan, is nearing completion. The manuscripts with a vast set of estimated statistics will soon be sent to press. Another database, the Japan Industry Productivity (JIP) Database, is now upgraded as a result of a joint effort with the Economic and Social Research Institute, Cabinet Office of the Government.

As for the research activities of our programme members, a look at the lists of Hi-Stat Discussion Papers and Seminars on our website will provide you with an impression of how wide the

coverage of our research is.

On the educational front, we have launched a lecture series for graduate students. The past two lecture series were given by specialists in statistical theory for those who want to apply advanced techniques to their own data analysis. This illustrates how close the cooperation is between the research groups within the Hi-Stat programme. Indeed, encouragement is made for theorists to talk to applied researchers, for macro analysts to communicate with micro analysts, and for researchers on contemporary issues to look back on history. All this can be done within Hi-Stat.

Much of such effort has just begun to take shape, however. Given that for us, 2003 was shorter than the regular 12 months, I think all this is a substantial achievement. In the second year, we will launch a new workshop series run by our Ph.D. students and hold a plenary session where progress reports will be presented by group members. As an interim assessment will be made by a government body soon after the second year, 2004 will be a crucially important year for us. We hope that our research over the next 12 months will bear fruit and see the emergence of solid databases, novel methods, fresh findings, and robust results.

Introduction to Databases, No. 1

## Long Term Economic Statistics (LTES) Database

Editors

### Overview of the database

The Long Term Economic Statistics (LTES) Database is based on fourteen volumes of statistical books published by Toyo Keizai Shimposha, Tokyo, between 1965 and 1988. The volumes were the result of collaborative research conducted at the Institute of Economic Research (IER), Hitotsubashi University.

Each volume includes a description, in Japanese, of the estimation procedures and an interpretation of the results and the statistical tables, all of which come with English captions and a brief English summary of the footnotes. The volume titles, translated into English, are:

1. National income
2. Labor force
3. Capital stock
4. Capital formation
5. Savings and currency
6. Personal consumption expenditures
7. Government expenditure
8. Prices
9. Agriculture and forestry
10. Mining and manufacturing
11. Textiles
12. Railroads and electric utilities
13. Regional economic statistics
14. Foreign trade and balance of payments

As a database, the LTES is a collection of time-series datasets that were compiled to recover national accounts statistics of Japan. It covers the period from the 1870s (the early Meiji period) to the 1960s. Since its publication, the LTES has provided a base for quantitative analyses of economic growth in modern Japan. See Odaka (1996) for a reference to the literature using the LTES, other LTES-related databases, statistical properties of the LTES, and several deficiencies of the LTES. The study by Ohkawa and Shinohara (1979) is

also based on the LTES project.

At the IER, Hitotsubashi University, the LTES project was followed by another project (1995-2000) aiming to compile modern economic statistics on modern Asia and make them readily available to the public. This project was called the Asian Historical Statistics (ASHSTAT) Project (see the project's web site at <http://www.ier.hit-u.ac.jp/COE/English/index.html>). The macroeconomics team of the current HI-STAT project has inherited the activities of the ASHSTAT. The results of this research is forthcoming in publications from Toyo Keizai Shimposha.

### How to use the database

First, readers of the published versions of the LTES can utilize statistical tables of each volume: after inputting the data into their computer, they can analyze the data.

Researchers can also have an access to the computerized LTES database at the Research Centre for Information and Statistics of Social Sciences, IER, Hitotsubashi University. Researchers using a domain name ending with "ac.jp" registered at the name server of the institution they belong to can readily access the LTES database from the Centre's homepage (its address is <http://rciass.ier.hit-u.ac.jp/>).

On the homepage, users can do a keyword search of the database. Searches return a list of indexed files. There are 28,226 html files in total, each of which contains a time series corresponding to a column of the statistical tables in the published volumes of the LTES. 303,886 keywords are registered.

Those who do not have access to Japanese academic domains are kindly requested to contact the Centre. Outside researchers are welcome to use the LTES if conducting joint research with researchers at the IER or at the Centre.

## References

ASHSTAT project web site: <http://www.ier.hit-u.ac.jp/COE/English/index.html>

Odaka, Konosuke (1996) "What was the LTES Project?" *Newsletter of the Asian Historical Statistics Project*, No.1, March, pp.11-13 (also available at the following web site

<http://www.ier.hit-u.ac.jp/COE/Japanese/Newsletter/No.1.english/odaka3.html>).

Ohkawa, Kazushi and Miyoei Shinohara, with Larry Meissner (1979) *Patterns of Japanese Economic Development: A Quantitative Appraisal*, New Haven: Yale Univ. Press.

Research Centre for Information and Statistics of Social Sciences, IER, Hitotsubashi University: <http://rcisss.ier.hit-u.ac.jp/>.

Essay, No. 1

## Wage Statistics and Rural Labor Markets in Developing Countries

Takashi Kurosaki (IER, Hitotsubashi University)

### In the field in Myanmar

Research assistant (RA): "This farmer pays to the laborer in a different manner again. There is no classification code available. What shall I do?"

Author (TK): "Please classify the case as *other* and record the mode of wage payment in the last column labeled *notes*."

RA: "The column is too small. The farmer paid less to this worker because the wage was paid one month in advance. In addition to the cash wage, the farmer provided lunch to workers. Because the working conditions on this particular paddy field are harder than those on other fields, the lunch included one more dish than usual meals."

TK: "Good, good. Would you check the *notes* column and write down all the details on the back side of the questionnaire?"

And the field survey continued.

This is a snapshot from my village/household survey in rural Myanmar in 2001. The objective of the survey was not to investigate the characteristics of rural labor markets but to obtain general information on the rural economy in order to analyze the impact of development policies. A group of Japanese scholars, in collaboration

with the government of Myanmar, implemented an eight village survey spanning various agro-ecological zones in Myanmar using a structured questionnaire on demographic characteristics, household assets, consumption, debt and credit, farming operations and the like (see Kurosaki et al. 2004). Since my Japanese collaborators had some experience in conducting similar surveys before and the questionnaire was finalized after pre-testing by our local collaborators, I did not expect to face such difficulties in the field in recording labor transactions.

If we had ignored details of working and payment conditions but recorded only the money or quantity of wages mechanically, the variation in wage arrangements would not have entailed any problems. However, since my research interests is in the microeconomic mechanism of the development of rural markets in Asian countries, I could not ignore the details. The result is a set of filled-in questionnaires with many notes, sometimes on the backside of the paper.

### Statistics on agricultural wages

In many developing countries, agriculture is an important sector of the economy where substantial work on peasant farms and plantations is done by hired laborers. Statistics

on agricultural wages record the level and trend of wages paid in such transactions. These statistics are required to quantify long-term changes in labor productivity as well as in the living standards of the labor force. Since agricultural laborers are usually the poorest among rural residents, trends of real agricultural wages provide useful information for poverty analyses as well.

In Myanmar, however, there are no official statistics on wages at all, including agriculture. According to the cost-of-production estimates by the Myanmar Ministry of Agriculture, the labor input from hired workers is as large as that from family members. So the importance of agricultural wages in Myanmar is recognized by the government. The absence of wage statistics might simply reflect the fact that such statistics are not required to compile national accounts; alternatively, the absence could be due to the government's concern that such statistics, which would show a wide disparity of wages across regions and sectors, could be utilized to attack the current military government.

### **Agricultural wages in Myanmar**

From the field survey results covering eight villages and approximately 520 sample households in Myanmar, we obtained the following wage information: 60 observations on wage transactions for those employed as seasonally-hired worker, approximately 1,700 observations for those employed as daily-hired worker, 164 observations for farmers employing seasonally-hired workers, and approximately 1,400 observations for farmers employing daily-hired workers. The information includes the mode, conditions, and timing of payment.

Among the observations on daily-hired workers, wages fixed in cash ("Kyats/day") were found most frequently, accounting for 81% of approximately 3,100 observations recorded in our database. The modern mode of payment is thus the dominant one in Myanmar.

One could argue that the wages fixed in cash per day may give workers an incentive to shirk because their work effort is not observable to the employer and

the wage is insensitive to the effort. Piece-rate contracts would be superior to contracts fixed in cash per day if shirking potentially is a problem. In our database, such transactions accounted for 14% out of 3,100 observations. They included wage contracts specified in "Kyats/acre," in "Kyats for the whole operation," and as sharecropping of the farm produce.

Another argument against the payment fixed in cash per day is that it puts a heavy burden on laborers' welfare in terms of food security. When grain markets are not working efficiently, laborers are exposed to the risk of high prices or the non-availability of food in the market. If this is the case, cash wages are subject to the erosion of their purchasing power. In contrast, wages paid in kind, such as grains, are not subject to such risk. In our database, in-kind wages accounted for 4% of the 3,100 observations. They included sharecropping arrangements and wage transactions specified as a fixed quantity of rice per day. In-kind wages were more important in harvesting than in other farming operations. In villages where rice was in deficit so that rice was imported from other regions, in-kind wages were as common as cash wages for harvest workers.

There are other dimensions of variation in wage contracts. For instance, the number of meals per day for hired laborers differed from zero to three. Approximately two thirds of the daily-hired labor transactions were without meals. A little less than one third were with one meal. Two or three meals per day accounted for the rest. The quality of meals also differed.

For example, in a village based on paddy cultivation in Lower Myanmar, a typical daily worker on a paddy farm would be paid 150 Kyats/day with one meal or 200 Kyats/day without meals. Assuming that the two wages are equivalent, the cost of one meal would be 50 Kyats, or 25% of the wage paid without meals. Because the level of wages is very low (converted at the market exchange rate, 200 Kyats/day is equivalent to 30 Yen/day or 25 US cents/day), how the value of these meals is imputed will substantially affect the labor cost for farmers and the income of the laborers.

The wage level, the mode of wage payment,

and the number of meals per day differed across villages, crops, and farming operations. Sometimes, different modes were observed within a village for the same crop and the same operation. The number of variations was especially high for harvest workers. I hypothesize that not all the wage payment can be interpreted as a reward for labor but a part of it should be interpreted as an income transfer from farmers to laborers. Based on this hypothesis, the variations in wage transactions could be explained by differences in the ease of worker supervision, the development of rural markets, the availability of informal risk sharing networks, personal

relationships between the employee and the employer, and the historical and political environment in which these villages were located. I hope our database is rich enough to test these hypotheses.

### Reference

T. Kurosaki, I. Okamoto, K. Kurita, and K. Fujita, "Rich Periphery, Poor Center: Myanmar's Rural Economy under Partial Transition to a Market Economy," COE Discussion Paper no.23, Institute of Economic Research, Hitotsubashi University, Tokyo, March 2004.

## Hi-Stat Discussion Papers

- No.1 (December 2003) Taku Yamamoto & Eiji Kurozumi, "Tests for Long-Run Granger Non-Causality in Cointegrated Systems."
- No.2 (December 2003) Osamu Saito, "Wages, inequality and pre-modern growth in Japan, 1727-1894."
- No.3 (November 2003) Keiko Ito & Kyoji Fukao, "Physical and Human Capital Deepening and New Trade Patterns in Japan."
- No.4 (October 2003) Kyoji Fukao & Yukako Murakami, "Do Foreign Firms Bring Greater Total Factor Productivity to Japan?"
- No.5 (December 2003) Eiji Ogawa & Junko Shimizu, "Trade-off for common currency basket denominated bonds in East Asia."
- No.6 (December 2003) Eiji Ogawa & Kentaro Kawasaki, "What should be weights on the three major currencies for a common currency basket in East Asia?"
- No.7 (December 2003) Hiroaki Chigira & Taku Yamamoto, "The Granger Non-Causality Test in Cointegrated Vector Autoregressions."
- No.8 (December 2003) Kyoji Fukao, Goushi Kataoka & Arata Kuno, "How to Measure Non-tariff Barriers? A Critical Examination of the Price-Differential Approach."
- No.9 (December 2003) Kyoji Fukao, Debin Ma & Tangjun Yuan, "Choki tokei ni okeru kokusai hikaku: 1934-36nen ni okeru nihon-taiwan-chosen no kobairyoku heika to jisshitsu suijun" (International Comparison in Historical Perspective: Reconstructing the 1934-36 Benchmark Purchasing Power Parity for Japan, Korea and Taiwan) [in Japanese].
- No.10 (January 2004) Naoya Katayama, "Asymptotic Prediction Mean Squared Error for Strongly Dependent Processes with Estimated Parameters."
- No.11 (January 2004) Naoya Katayama, "Seasonally and Fractionally Differenced Time Series."
- No.12 (January 2004) Kyoji Fukao, Ximing Yue & Kozo Kiyota "Chugoku Shohinbetsu Boekitokei no Sakusei: 1952-1964nen oyobi 1981-2000nen" [in Japanese].
- No.13 (February 2004) Naohito Abe, "Managerial Incentive Mechanisms and Turnover of Company Presidents and Directors in Japan."
- No.14 (February 2004) Kazuyuki Motohashi, "Firm level analysis of information network use and productivity in Japan."
- No.15 (February 2004) Hyeog Ug Kwon, "Productivity Growth and R&D Spillovers from University to

- Industry.”
- No.16 (February 2004) Hyeog Ug Kwon, “Productivity growth and R&D spillovers in Japanese manufacturing industry.”
- No.17 (March 2004) Norifumi Yukutake & Isao Ohashi, “Kikon jousei no rodo kyokyu kodo: Odanmen to jikeiretsu” (Labor Supply of Married Women - Cross Section and Time Series) [in Japanese].
- No.18 (March 2004) Hideki Toya, Kaoru Hosono & Tatsuji Makino, “Human Capital, Migration, and Regional Income Convergence in the Philippines.”
- No.19 (March 2004) Kyoji Fukao, Tomohiko Inui, Hiroki Kawai & Tsutomu Miyagawa, “Sectoral Productivity and Economic Growth in Japan, 1970-98: An Empirical Analysis Based on the JIP Database.”
- No.20 (March 2004) Joji Tokui, “Gaishi sannyu ni yoru seisansei spillover kouka wa donoyouna sangyo de okorunoka” [in Japanese].
- No.21 (March 2004) Hiromi Nosaka, “The effects of land price on the quality of capital and multi-factor productivity.”
- No.22 (March 2004) Hak K Pyo, Keun- Hee Rhee, and Bong Chan Ha, “Growth Accounting, Productivity Analysis, and Purchasing Power Parity in Korea (1984-2000).”
- No.23 (March 2004) Takashi Kurosaki, Ikuko Okamoto, Kyosuke Kurita and Koichi Fujita, “Rich Periphery, Poor Center: Myanmar's Rural Economy under Partial Transition to a Market Economy.”
- No.24 (March 2004) Kyoji Fukao and Toshihiro Okubo, “Why Has the Border Effect in the Japanese Market Declined?: The Role of Business Networks in East Asia.”
- No.25 (April 2004) Masahiro Abe and Isao Ohashi, “Inter-Industry and Firm Size Effects on Wage Differentials and Efficiency Wages in Japan.”
- No.26 (April 2004) Masayuki Nakakuki, Akira Otani and Shigenori Shiratsuka, “Distortions in Factor Markets and Structural Adjustments in the Economy.”
- No.27 (April 2004) Shigeru Ishiwata, “Estimating Gross Value Added in Indonesian Manufacturing Industries, 1917-1940.”
- No.28 (April 2004) Yoko Takahashi and Tatsuji Makino, “Labor Input Data of the JIP Database.”
- No.29 (April 2004) Tsutomu Miyagawa, Hideki Toya & Tatsuji Makino, “Asia syokoku no kinkou kawase rate” [in Japanese].

## Seminars and Meetings

### General Meetings

1st meeting (2003.11.5)

2nd meeting (scheduled on July 2004)

### Hi-Stat Lecture Series

1st (2004.2.19-20) N. Katayama (Hitotsubashi University) “Seasonally and Fractionally Differenced Time Series”

2nd (2004.3.8-9) Cheng Hsiao (University of Southern California) “Dynamic Panel Data Models”

3rd (2004.4.16, 4.30, 5.14, 5.21) D. Kawaguchi (University of Tsukuba) “Empirical Analysis of Panel Data”

### Hi-Stat Research Seminars

(Only those seminars with English papers/handouts are listed here. There were seventeen research seminars held until the early April 2004.)

4th (2003.11.26) K. Sugita (University of Warwick) “Bayes Analysis of Partially Cointegrated VAR

- Systems with Markov Regime Switching”
- 5th (2003.12.5) Y. Arai (U.C.S.D.) “Testing for Linearity in Regressions with I(1) Processes”
- 10th (2004.3.18) Y. Sasaki (Meiji-Gakuin University) “Pass-Through of Exchange Rates on Import Prices of East Asian Countries”
- 12th (2004.3.5) Cheng Hsiao (University of Southern California) “Evaluating the Effectiveness of Washington state Repeated Job Search Services on the Employment Rate of Prime-age Female Welfare Recipients”
- 13th (2004.3.25) Luc Bauwens (CORE) “Dynamic latent factor models for intensity processes”
- 15th (2004.2.27-29) Fukuoka Workshop, with Korea-Japan Workshop on the Industrial Productivity Database
- 16th (2004.3.13) “International Economic Relations and Structural Change: Issues and Policy Options for Japan and the United States,” the University of Michigan, Gerald R. Ford School of Public Policy, Japan Economy Program, and Department of Economics. In Collaboration with Japan Foundation, Center for Global Partnership, Center for Japanese Studies, University of Michigan, Economic and Social Research Institute (ESRI), Cabinet Office, Japan, Institute of Economic Research, Hitotsubashi University
- 17th (2004.4.9) H. Tsurumi (Rutgers University) “Convergence Tests for MCMC Draws with an Application”

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