

【Grant-in-Aid for Scientific Research(S)】

Humanities and Social Sciences (Humanities)



Title of Project : Establishing the Foundation of Japanese Library Catalogue Studies and Expanding the Research Tools for Classical Studies—With a Focus on Royal and Noble Library Holdings

Isao TAJIMA

(The University of Tokyo, Historiographical Institute, Professor)

Research Area : Historiography (Japanese History)

Keyword : Japanese Classical Studies, Library Catalogue Studies, Royal & Noble Libraries

【Purpose and Background of the Research】

Within the recent revival of classical studies globally, classical studies in Japan had reached an impasse, and a creative revolution-from-within was hard to achieve. As a means to improve such conditions, from 2007-2011 JSPS sponsored the project, “Establishing the Foundation of Library Catalogue Studies and the Revival of Classical Studies: the Restoration of Royal and Noble Libraries and the Explication of Traditional Knowledge Systems.” Traditional knowledge systems during Japan’s premodern periods primarily were collections of hand-written manuscripts housed in royal and noble libraries and in associated shrine/temple collections. These holdings were collated organically so as to ensure their continuation across generations. Restoration of the traditional knowledge system is possible by way of the digitalization and combination of these catalogues. The purpose of this research is to continue the above project, laying the foundations of library catalogue research as a new scholarly domain of Japanese classical studies. This research will make accessible digital images of documents from royal collections, individual collections from noble houses, and major aristocratic library collections connected with the royal house. It also will add to the repertoire of investigative tools available for classical studies, and in doing so help to revive Japanese classical studies from its current moribund state.

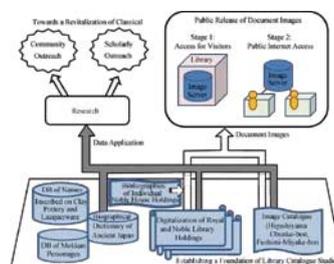
【Research Methods】

1. Roughly 1 million digitalized documents from royal and noble libraries as well as 200,000 items from the digital catalogues of Higashiyama Obunko-bon and Fushimi-Miyakebon will be made accessible at the Historiographical Institute reading room via Hi-Cat Plus and TK View. In close consultation with the Imperial Household Library, security policies are being devised that eventually will enable the internet release of portions of their holdings.

2. As tools for classical research, an enlarged *Biographical Dictionary of Ancient Japan* and a *Timeline of Interactions among Japan, China, and*

Korea will be published.

3. The results of royal and noble individual house catalogue restoration research will be published in *Research on Royal and Noble Libraries* (vols. 5 and 6), and elsewhere



【Expected Research Achievements and Scientific Significance】

1. As longstanding, traditional networks of knowledge, the roughly 1 million items held by royal and noble libraries are core documents of classical research. Digitalizing and making them accessible will transform the classical research environment and encourage manuscript-based investigations.

2. As hitherto difficult to access royal and noble library materials are made available via the internet, manuscript-based research will be possible not only domestically in Japan but also globally, thus stimulating the internationalization of Japanese classical studies.

3. A database of ancient personages, long anticipated in scholarly circles, will be completed.

4. Lectures and publications aimed at the general public will deepen understanding of the classical world in the community of non-specialists.

5. High-quality resolution images of documents will be passed on to future generations.

【Publications Relevant to the Project】

Tajima Isao, ed. *Research on Royal and Noble Libraries* (vol.4), Shibunkaku Press, 2012.

【Term of Project】 FY 2012-2016

【Budget Allocation】 147,300 Thousand Yen

【Homepage Address and Other Contact Information】

<http://www.hi.u-tokyo.ac.jp/kodai/kinri-kuge-in dex.html>

【Grant-in-Aid for Scientific Research(S)】

Humanities and Social Sciences (Social sciences)



Title of Project : Theoretical and Empirical Economic Analysis of Social Barriers

Akihiko Matsui

(The University of Tokyo, Graduate School of Economics, Professor)

Research Area : theoretical economics

Keyword : game theory , social barrier, fostering system, medical and educational services on disaster area, longstanding health problem

【Purpose and Background of the Research】

Society has been structured according to the standard of 'normal' people. 'Non-normal' people are often those who are the target of welfare programs. These people face various barriers when they attempt to join economic society, seeking for independent living and employment (Figure 1). Using the keyword 'normal,' we are searching for clues to solve this problem by defining social barriers systematically through a game theoretic model, and analyzing the model empirically so that 'non-normal' people, such as those with disabilities or longstanding health problems, children requiring care, or those seriously affected by disasters, can be included in our society. The problems faced by these people are the magnifying lens that clarifies the distortions of society which 'normal' people are facing. A decrease in the problem for non-normal people would also lead to a decrease in distortions for the entire society.

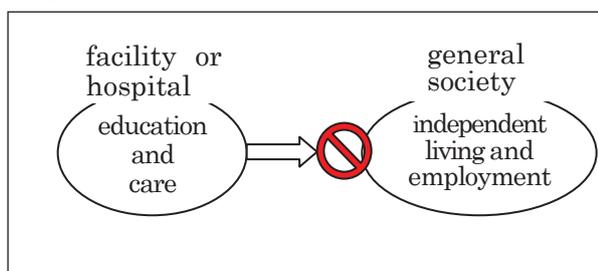


Figure 1 social barriers

【Research Methods】

We are composed of four groups by research subject—a group researching disabilities (Osamu Nagase and Satoshi Fukushima), a group researching longstanding health problems (Yuko Kodama), a group researching children's fostering systems (Tomomi Tanaka), and a group researching disaster areas (Masahiro Kami). Across these four groups, three teams have been assembled by research methods – theory & experiment, institutions & case studies, and empirical analysis. These groups and teams work together tightly. The theory and experiment team conducts comprehensive research, using and developing dynamic game theory, inductive game theory, search theory and behavioral economics, and analyzes the subject from the viewpoint

of discrimination or prejudice, disparity, negative chains, and so on. The results of the analyses will be shared with all teams. The institutions and case studies team not only conducts surveys, but also analyzes the effects of institutional transformation, and compares international institution using the method of comparative institutional analysis. The empirical analysis group undertakes panel surveys & analyses for the disabilities group, statistical surveys for other groups, and performs field experiments for the fostering system group.

【Expected Research Achievements and Scientific Significance】

In order to explore the problems of the social barriers facing people who fail to be included in a 'normal' society, we attempt to transform both economic theory and the direction of economics by revealing the social distortions facing 'normal' people. Problems associated with 'disability,' 'longstanding health problem,' or 'child-care' have been studied separately. Our comprehensive analysis of these problems will decipher the distortion prevalent in our society. A large number of people feel that life is very stressful and fraught with difficulties. Japan's suicide rate is one of the highest among the OECD countries, which is only a tip of the iceberg. We wish to contribute to the establishment of a social and economic system for all people, including 'normal' people.

【Publications Relevant to the Project】

- A.Matsui, S.Kawashima, and O.Nagase eds., "Disability Revisited (*Shogai-wo Toinaosu*)," (in Japanese), Toyo Keizai Shinpo-sha, 2011.
- A.Matsui, O.Nagase, A.Sheldon, D.Goodley, Y.Sawada, and S.Kawashima eds., "Creating a Society for All: Disability and Economy," The Disability Press, Leeds, U.K., 2012.

【Term of Project】 FY2012-2016

【Budget Allocation】 141,400 Thousand Yen

【Homepage Address】

READ (Research on Economy and Disability)'s
Home Page : <http://www2.e.u-tokyo.ac.jp/~read/jp/>

【Grant-in-Aid for Scientific Research(S)】

Humanities and Social Sciences (Social sciences)



Title of Project : Understanding Persistent Deflation in Japan

Tsutomu Watanabe

(The University of Tokyo, Graduate School of Economics, Professor)

Research Area : Economics

Keyword : Macroeconomics, deflation, monetary policy

【Purpose and Background of the Research】

The Japanese economy has been in a liquidity trap over the last ten years. Since the mid-1990s, the Bank of Japan has cut the policy rate several times until the rate finally reached the zero lower bound in 2001. At the same time, consumer price inflation has been below zero since the mid-1990s, indicating the presence of persistent deflation. Importantly, similar phenomena are now beginning to take shape in the United States and European countries. The purpose of this project is to understand the mechanisms behind the liquidity trap, with a special focus on the interaction between problems in the monetary side of the economy, such as deflation and the zero interest rate, and in the real side of the economy, such as low productivity growth. We will conduct cross country analyses with the Japanese economy as the benchmark.

【Research Methods】

This project consists of three stages: fact finding, model validation, and counterfactual simulation. In the fact finding stage, we will compare episodes of deflation that occurred in the past. Specifically, we will collect data regarding these episodes of deflation to conduct a comparative panel analysis. Next, in the model validation stage, we will consider the following six hypotheses for persistent deflation in Japan: (1) the “bad luck” hypothesis (i.e., Japan’s economy happened to be hit by multiple adverse shocks); (2) self-fulfilling expectations for the price level and/or the exchange rate; (3) deleveraging; (4) debt deflation à la Irving Fisher; (5) the Balassa-Samuelson effect; and (6) a shortage of inside money. Finally, in the counterfactual simulation stage, we will use the model(s) chosen in the second stage to quantitatively compare various policy options, including ones which have not actually been adopted by central banks, in terms of their costs and benefits.

【Expected Research Achievements and Scientific Significance】

There are two strands of research regarding the interaction between problems in the monetary and real sides of the economy. The first is based on the idea that a decline in the natural rate of interest below zero causes a liquidity trap, which goes back to Lawrence Klein in the 1940s and was revived more recently by Krugman (1998). Recent papers based on this idea include Jung, Teranishi, and Watanabe (2005), which characterizes the optimal policy response to a negative natural rate of interest. However, in these papers, the natural rate of interest is assumed to be an exogenous variable, so that it is next to impossible for them to consider the interaction between problems in the real and monetary sides of the economy. In this project, we will depart from previous studies by considering an environment in which the natural rate of interest is endogenously determined reflecting, for example, productivity growth, frictions in financial markets, and demographic changes. The second strand of research emphasizes the role of self-fulfilling deflationary expectations as a cause of the liquidity trap. In this project, we will conduct a survey on inflation expectations among households and firms to test whether deflation was driven by expectations.

【Publications Relevant to the Project】

- [1] “Closely Competing Firms and Price Adjustment: Some Findings from an Online Marketplace,” T. Mizuno, M. Nirei, T. Watanabe, *Scandinavian Journal of Economics*, Volume 112, Issue 4, 673-696, December 2010.
- [2] “Monetary and Fiscal Policy in a Liquidity Trap: The Japanese Experience 1999-2004,” M. Iwamura, T. Kudo, T. Watanabe, in T. Ito and A. Rose (eds.) *Monetary Policy with Very Low Inflation in the Pacific Rim*, NBER-EASE Volume 15, 233-273, 2006.

【Term of Project】 FY2012-2016

【Budget Allocation】 152,000 Thousand Yen

【Homepage Address and Other Contact Information】

watlab@e.u-tokyo.ac.jp

【Grant-in-Aid for Scientific Research(S)】

Humanities and Social Sciences (Social sciences)



**Title of Project : Brain mechanisms behind executive function:
Uncovering operating principles of the mind by
applying innovative techniques to the structural
and functional organizations of neural circuits.**

Kenichiro Tsutsui
(Tohoku University, Graduate School of Life Sciences, Associate
Professor)

Research Area : Experimental Psychology

Keyword : Physiology

【Purpose and Background of the Research】

“Executive function” is a higher cognitive process that is necessary for achieving goal-directed behavior, including the inhibitory control of instinctive desires and the planning and execution of actions on the basis of inferred outcomes of possible actions. Cases in clinical neuropsychology indicate that the prefrontal cortex serves as the neural basis of executive function. The purpose of this study is to investigate the neural basis of executive function within the prefrontal cortex.



Fig. 1 Elements of executive function and their correlates in neural activity in the prefrontal cortex.

So far several characteristic neuronal firing patterns have been identified within the prefrontal cortex as shown in Fig. 1. 1) Sustained activity: Some prefrontal neurons show sustained activity while the subject is holding information related to a sensory cue or intended motor action. This activity is thought to be related to working memory. 2) No-go activity: Some prefrontal neurons show phasic or tonic activity in response to a sensory cue for withholding a response. This activity is thought to be related to the inhibitory control of motor habit or instinctive actions. 3) Anticipatory activity: Some prefrontal neurons show a gradual increase of firing anticipating a sensory or motor event in a specific behavioral context. This activity is thought to be related to the context dependent control of behavior.

【Research Methods】

In order to fully understand the neural mechanisms behind the executive function, it is

necessary to reveal the structural and functional organization of the neural circuits in which these prefrontal-specific activities arise. In this study, by using a new technique to label individual neurons with fluorescent protein after recording their activity extracellularly, we perform various histological analyses on the labeled neurons whose functions have been identified during the behavioral performance. This method should enable us to directly compare the chronically recorded neuronal activity and the histological characteristics of the recorded neurons, for the first time in the long history of behavioral electrophysiology. We also intend to apply in vitro electrophysiology to identified types of neurons in order to investigate their functional properties in more depth.

【Expected Research Achievements and Scientific Significance】

This study will reveal the neural mechanisms behind executive function on the neuron and circuit level in detail for the first time, and will contribute to our understanding of the executive functions and operating principles of the mind. Moreover, it will provide important indications for the curing of neural disorders related to the prefrontal cortex, such as schizophrenia, depression/bipolar disorder, autism, and ADHD.

【Publications Relevant to the Project】

Yamada M, Pita MC, Iijima T, Tsutsui K. (2010). Rule-dependent anticipatory activity in prefrontal neurons. *Neurosci Res.* 67: 162-71

【Term of Project】 FY2012-2016

【Budget Allocation】 144,700 Thousand Yen

【Homepage Address and Other Contact Information】

<http://researchmap.jp/kenichirotsutsui>
tsutsui@m.tohoku.ac.jp