

## Solving Global Challenges

Industrial Policy

EBPM

Economic Security

**Chairman's Activities**  
**Notable RIETI Research Findings**  
**Meet Our Fellows**

## What is RIETI Highlight?

RIETI's public relations magazine *RIETI Highlight* is published in Japanese on a quarterly basis, featuring RIETI's most recent activities with the objective of disseminating our research outcomes to a wider audience. This *RIETI Highlight Special Edition* is written in English and published annually as an overview of RIETI's undertakings for our international readers. We hope this Special Edition will be helpful not only in spreading information on our activities and research findings but also in deepening international readers' understanding of our mission as a leading Japanese policy think tank.

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- All titles and affiliations are as of the day of the event.
- Events and interviews are held online unless otherwise noted.
- Views expressed in this issue are solely those of the individual authors, and do not necessarily represent the views of the RIETI.



## RIETI co-hosted a symposium with Brookings Institution in Washington D.C., the United States

On October 3, 2023, the RIETI-Brookings Symposium “De-risking the economic relationship with China: Views from the Indo-Pacific” was held at the Brookings Institution in Washington D.C. From RIETI, Chairman Shujiro Urata participated as a panelist.

During the panel discussion, the panelists discussed the opportunities and challenges of implementing a de-risking economic strategy toward China. They also discussed areas of overlap and differences between the U.S. and other regions regarding decoupling and derisking strategies, as well as possible responses China might take to such initiatives.



Details of the symposium is available here:



Panel discussion

## Mr. HENG Swee Keat, Deputy Prime Minister and Coordinating Minister for Economic Policies, Singapore, meeting with RIETI Chairman URATA Shujiro.



Mr. Heng and Chairman Urata

Mr. Heng Swee Keat, who is Singapore’s Deputy Prime Minister and Coordinating Minister for Economic Policies, met RIETI Chairman Shujiro Urata on April 27, 2023. During the meeting between Deputy Prime Minister Heng and Chairman Shujiro Urata, they discussed global economic developments, economic security, free trade and other trade issues, and productivity. They also exchanged views on cooperation between Japan and Singapore, and between Japan and the Association of Southeast Asian Nations (ASEAN) in economic and trade matters.



The Research Institute of Economy, Trade and Industry (RIETI) is a policy think tank established in 2001. Our mission is to conduct theoretical and empirical research, to maximize synergies with those engaged in policymaking, and to make policy proposals based on evidence derived from such research activities. RIETI has developed an excellent reputation both in Japan and abroad for its work in these areas.

# Chairman's Activities

In an interview following his appointment as RIETI Chairman in January 2023, Dr. Shujiro Urata expressed his ambition to “further strengthen RIETI’s outstanding intellectual network and make it a world-class think tank.” In order to build a global network, he visited various overseas think tanks and international organizations to meet with researchers and economists to exchange views. We followed the activities of Chairman Urata.

In addition, as in 2022, many foreign dignitaries visited RIETI, and the chairman exchanged views with them. Some of the visitors who asked to meet Chairman Urata are listed (Page 4-5).



On April 11, he visited Bruegel, which is one of Europe’s leading economic think tanks, headquartered in Brussels, Belgium. He met with Director Jeromin Zettelmeyer to exchange views. This meeting enabled us to ask Director Zettelmeyer to deliver lectures at special seminars (July 21 and October 31) (see Page 43, 45).

On April 13, the CEPR-RIETI Joint Workshop “Changes in the Function of World Trade Governance” was held at the Centre for Economic Policy Research (CEPR) in Paris, France, the new home of the CEPR. From RIETI, Chairman Urata, RIETI Consulting Fellow Koji Ito, RIETI Consulting Fellow Akihiko Tamura, and Mr. Tetsushi Inomata (IDE-JETRO/OECD) participated. With the participation of CEPR President Beatrice Weder di Mauro and others, the discussion included the impact of the war in Ukraine and economic sanctions against Russia, cost pass-through and rising inflation, weaponized interdependence, and rules-based multilateralism.



Meeting with Jeromin Zettelmeyer (left), Director at Bruegel



CEPR President Weder di Mauro (left)



CEPR-RIETI Joint Workshop



RIETI, Korea Institute for Industrial Economics and Trade (KIET), and Taiwan Institute of Economic Research (TIER) held a joint international workshop, RIETI-TIER-KIET workshop “Sustainable Economic Growth in the Post COVID Era: Prospects and Challenges,” in Sapporo on October 17. From RIETI, Chairman Urata, RIETI Faculty Fellow Yasuyuki Todo, RIETI Fellow Daisuke Fujii, and others participated. Participants engaged in lively discussions on a wide range of topics, including global supply chains and the SDGs.



Chairman Urata is also Senior Research Advisor to the President of Economic Research Institute for ASEAN and East Asia (ERIA). He participated in meetings held at ERIA in Jakarta on a periodic basis.



Participating in the Japan Update Symposium (September 6) hosted by the Australia-Japan Research Centre of the Australian National University (ANU-AJRC), Chairman Urata gave a presentation during the Economic Security Session.







Chairman Urata participated in an event co-hosted by RIETI with think tanks and universities based in Washington D.C., U.S.A.

First, he took part in the RIETI-Brookings Symposium “De-risking the economic relationship with China: Views from the Indo-Pacific” (October 3). On October 4, he participated in the RIETI-PIIE Research Workshop “Disruption of Supply Chains (Focus on Resilience of Supply Chains)” at the Peterson Institute for International Economics (PIIE). In the workshop, RIETI Faculty Fellow Yasuyuki Todo and Mr. Ryo Nasu (General Manager, Japan Organization for Metals and Energy Security (JOGMEC) made presentations. In addition, at the Paul H. Nitze School of Advanced International Studies (SAIS), Johns Hopkins University, RIETI-SAIS Reischauer Center Joint Seminar on Global Political-Economic Transformation was held on October 5. The chairman gave a presentation on “Globalization and Economic Security: The Case of Japan” in the workshop.



With panelists at the RIETI-Brookings Symposium



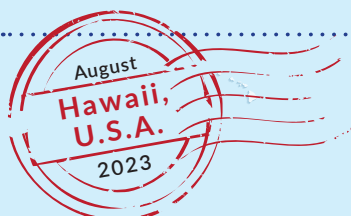
With participants of the RIETI-PIIE Research Workshop



RIETI Faculty Fellow Todo's presentation



Dr. Calder (third from right) and Dr. David Shear (first from right) of SAIS



The chairman participated in the Northeast Asia Economic Forum (August 1 and 2) in Honolulu, Hawaii. In the forum, researchers

from Japan, the United States, China, Korea and the EU were involved in meaningful discussions concerning the theme “Strengthening Bridges: Regenerative Innovation for Smart Futures.” Chairman Urata gave a presentation on digital trade rules at the session on trade. The other sessions covered energy, AI and other interesting presentations and discussions.



Organizers and moderators of the session in which Chairman Urata participated, Professor Denise Eby Konan of the University of Hawaii (center) and Professor Keith E. Maskus of the University of Colorado (right), who gave presentations on trade and economic security in the same session.



With Palau President Slangel S. Whippis Jr. who was a guest at the forum



As Senior Research Advisor to the President of the Economic Research Institute for ASEAN and East Asia (ERIA), Chairman Urata participated in ERIA's session in the 20th World Congress of the International Economic Association (IEA) held in Medellin, Colombia between December 11 and 15. The theme of the session was “Recent developments in East Asian economic integration.”



## Visitors to RIETI



May 11, 2023

**Dr. Mary E. LOVELY** (Anthony M. Solomon Senior Fellow, PIIE) and **Dr. Cullen S. HENDRIX** (Senior Fellow, PIIE)



The visit by two PIIE fellows was the catalyst for the October 4 RIETI-PIIE Research Workshop “Disruption of Supply Chains (Focus on Resilience of Supply Chains)” in Washington, D.C., U.S.A. .

November 13, 2023

**Centre for Security, Diplomacy and Strategy, Free University of Brussels (VUB- CSDS)**



VUB-CSDS is a Brussels-based think tank founded in 2021. The members of VUB- CSDS and RIETI discussed a wide range of issues, such as Japan’s industrial policy, free trade and economic security, and the impact of the U.S.-China confrontation. They also exchanged opinions about the implementation of a joint event between CSDS and RIETI in the coming year.

April 24, 2023

**The members of Chinese Academy of Social Sciences, Institute of Japanese Studies (CASS/IJS)**



Five members from CASS/IJS, which has concluded an MOU, visited RIETI. They held discussions with the chairman and the other participants of RIETI on economic security, regional economic issues (NAFTA, CPTPP, RCEP), etc. and future research collaboration.

June 28/July 10, 2023

**The members of Chung-Hua Institution for Economic Research (CIER)**



CIER wishes to strengthen its relationship with RIETI, and a survey team visited the office. The two organizations agreed to co-host a workshop or seminar in the next fiscal year to share views.

November 14, 2023

**The members of China Center for International Economic Exchanges (CCIEE)**



The members of CCIEE and RIETI exchanged views on common issues between China and Japan. From RIETI’s side, fellows mentioned population decline and aging, energy (GX), and nursing and medical care issues. RIETI and CCIEE agreed to continue exchanges in the future.

June 27, 2023

**The members of the Korea-Japan Parliamentary Diplomacy Forum**



June 28, 2023

**The members of the Chinese Academy of Social Sciences (CASS)**



September 11, 2023

**Mr. Ricardo SENNES** (Senior Fellow, Brazilian Center for International Relations (CEBRI))



## Other visitors to RIETI



April 27, 2023

**Mr. HENG Swee Keat, Deputy Prime Minister and Coordinating Minister for Economic Policies, Singapore**



Mr. Heng is the Deputy Prime Minister for Economic Affairs of Singapore. During the meeting with Chairman Urata, the global economic exhibition, economic security, free trade and other trade issues, and productivity were on the agenda.

May 9, 2023

**H.E. Mr. Raza Bashir TARAR, Ambassador of the Islamic Republic of Pakistan to Japan**



Ambassador Raza Bashir Tarar took office in March 2023. Chairman Urata introduced the RIETI organization and its research results, including the Global Intelligence Project. Ambassador Tarar, who is a Japan expert, expressed interest in RIETI activities.

October 10, 2023

**U.S. Congressional Staff Exchange Program**



The impact of the global economic turmoil on the Japanese economy and business was discussed during the visit to RIETI.

October 11, 2023

**H.E. Mr. ONG Eng Chuan, Ambassador of the Republic of Singapore to Japan**



Ambassador Ong Eng Chuan took office in June 2023 and visited RIETI to celebrate his inauguration. He addressed the importance of a digital trade framework between Japan and Singapore, and also asked questions about and discussed the current state of the Japanese economy.

November 16, 2023

**Dr. HOANG Thi Ha (Senior Fellow, ISEAS – Yusof Ishak Institute)**



Dr. Hoang and Chairman Urata exchanged views on a wide range of topics, including the danger of SMEs with advanced technologies being acquired by foreign companies, EV policy, the impact of RCEP, the importance of ASEAN, and the future outlook for China's economy.

November 20, 2023

**Dr. Inkyo CHEONG, President of Korea Strategic Trade Institute (KOSTI)**



KOSTI proposed collaborative research on export control with RIETI.

October 3, 2023

**Dr. André SAPIR, Senior Fellow, Bruegel / Professor, Université Libre de Bruxelles (ULB)**



October 12, 2023

**Dr. Jennifer JACKETT, National Security College, Australian National University**



October 20, 2023

**The members of the China Center for International Economic Exchange (CCIEE)**



November 16, 2023

**Dr. Robert DUJARRIC (Co-Director, Institute of Contemporary Asian Studies (ICAS), Temple University, Japan Campus (TUJ))**



# Notable RIETI Research Findings

Articles based on RIETI fellows' research findings have been published in peer-reviewed academic journals. The following are the part of these articles published in 2023.

## Impact of international investment agreements on Japanese FDI: A firm-level analysis

URATA Shujiro and BAEK Youngmin

In this study, we examine the impact of Japan's International Investment Agreements (IIAs) on the locational choice of Japanese firms' foreign direct investment (FDI) by considering the quality of IIAs. We estimate the conditional logit model covering 12,435 FDI cases by 3,838 Japanese companies in 92 host countries, 16 manufacturing sectors and 12 non-manufacturing sectors from 2000 to 2019. We found that the presence

of IIAs, particularly comprehensive and high-level ones, has a positive impact on Japan's FDI. On the contrary, the past incidence of investor-state disputes has a negative impact. These effects are found to be particularly strong for FDI by small- and medium-sized enterprises. High regulatory quality is found to attract FDI, whereas the positive impact of IIAs in attracting FDI is strong in a country with a low regulatory quality.



To read the full text (Full access)



RIETI Discussion Paper, 22-E-038



*The World Economy*, Volume 46, Issue 8 (2023), 2306-2334

## Productivity and wages of firms using COVID-19-related support policies

MORIKAWA Masayuki

### Objective

This study analyzes the performance over the past several years of firms that have taken advantage of various COVID-19-related support policies.

### Methods

This study uses survey data on Japanese firms linked with official firm statistics to analyze the productivity and wages over the past several years of firms.

### Results

The results indicate that the firms that used support policies had lower productivity and wages long before the pandemic. Firms that used multiple policy measures and those that repeatedly used support policies tended to show additionally lower performance.

### Conclusions

Firm support policies may have the side effect of preserving inherently inefficient firms and such a problem may increase in severity as support policies become prolonged.



To read the full text (Registration required)



RIETI Policy Discussion Paper, 22-P-021



*Social Science Quarterly*, Volume 104, Issue 3 (2023), 202-213

## Compliance costs and productivity: An approach from working hours

MORIKAWA Masayuki

This study proposes a new approach of measuring compliance costs of rules and regulations by focusing on labor input, and estimates the compliance costs in Japan based on a survey of workers. According to the results, the working hours required to comply with rules and regulations account for more than 20% of total labor input. By industry, this cost is higher in the finance and insurance

industry followed by the health and welfare industry, and by firm size, it is higher in large firms. If these costs were halved, overall economic productivity would increase by about 8%.



To read the full text (Open access)



RIETI Policy Discussion Paper, 22-P-025



*Journal of Regulatory Economics*, Volume 63, Issue 3 (2023), 117-137





The lists of academic journal articles based on RIETI research findings are as follows



## Productivity dynamics of remote work during the COVID-19 pandemic

MORIKAWA Masayuki

This study documents the productivity dynamics of remote work during the COVID-19 pandemic in Japan. The mean productivity at home has improved by more than 10 percentage points in the past year, although it is still approximately 20% lower than when working in the office. Selection effects and learning effects contributed almost equally to the productivity growth. Even

after adjusting for additional working hours from reduced commuting, the conclusion of relatively low productivity at home remains unchanged. The percentage of employees who want to continue frequent remote work after the pandemic has increased substantially, despite its lower productivity.



To read the full text (Open access)



RIETI Discussion Paper, 21-E-078



Industrial Relations, Volume 62, Issue 3 (2023), 317-331

## Labour segmentation and outmigration in Japan: Evidence using firm-worker matching data

LIU Yang

Determinants of foreigner outmigration from host countries have attracted considerable attention. However, minimal research examines the influence of firms' working environments. Although the third largest economy, Japan's inability to attract skilled foreign labour remains a concern. This study is the first to investigate the effect of Japanese firms' labour segmentation practices on foreign workers' outmigration intentions. Segmentation refers to firms' concentration on foreigner-specific skills, regarding foreign labour as complementary to local workers.

This is widely practised because of immigration policy's avoidance of substituting Japanese labour or causing unemployment. The findings suggest that although foreigner-specific skills are highly valued in Japan, segmentation could significantly increase foreign workers' outmigration intention. The lifetime employment system in Japan, job satisfaction and original migration motivations also affect outmigration. The results indicate that Japanese policies encouraging firms to employ foreign workers as complementary may harm its attractiveness to skilled foreign labour.



To read the full text (Registration required)



RIETI Discussion Paper, 18-E-028



International Migration, Volume 61, Issue 2 (2023), 123-137

## Small grant subsidy application effects on productivity improvement: Evidence from Japanese SMEs

TAKAHASHI Kohei and HASHIMOTO Yuki

This study examines the effects of a small grants subsidy on small- and medium-sized enterprises' (SMEs) productivity. Using rich Japanese firm-level data, we analyze the effects of both applying for and receiving subsidies. We employ a sharp regression discontinuity design for the receipt effects and a difference-in-differences (DID) design for the application effects. The result shows that there are no statistically significant changes in likelihood after receiving the subsidy. By contrast, applicants experienced

higher productivity and sales growth than non-applicants. These positive effects are most obvious in post-entry firms whose operating years are 6-10 years in the service sector. These results are robustly confirmed using a DID model with propensity score matching, controlling for both pre-intervention levels and trends in the outcome. Our findings imply that the subsidy application process with external support fosters entrepreneurship for firms that have survived the first 5 years after start-up, leading to their growth.



To read the full text (Open access)



RIETI Discussion Paper, 21-E-039



Small Business Economics, Volume 60, Issue 4 (2023), 1631-1658

# Notable **RIETI** Research Findings

## Social pressure in football matches: An event study of 'Remote Matches' in Japan

MORITA Hiroshi and ARAKI Shota

Sports matches during the COVID-19 pandemic have been held without spectators. Exploiting this unprecedented situation as a natural experiment, we examine the impacts of social pressure on the match outcomes in Japan's professional football league. As a result of the difference-in-differences estimation, we find that the number of fouls awarded to home team significantly decreases by about 1.05 in the matches

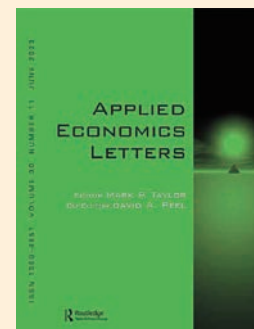
with spectators, supporting the referee bias due to social pressure by the home-team's supporters. In addition, the results indicate that the absolute number of the home-team's supporters is more dominant in the source of referee bias than their share in the stadium.



To read the full text (Registration required)



RIETI Discussion Paper, 21-E-095



*Applied Economics Letters*, Volume 30, Issue 11 (2023), 1522-1525

## Global value chains and domestic innovation

ITO Keiko, IKEUCHI Kenta, Chiara CRISCUOLO, Jonathan TIMMIS and Antonin BERGEAUD

This paper explores how changes in both position and participation in Global Value Chain (GVC) networks affect firm innovation. The analysis combines matched patent-firm data for Japan with measures of GVC network centrality and GVC participation using the OECD Inter-Country Input-Output (ICIO) Tables over the period from 1995 to 2011. We find that Japan's position in GVCs has shifted from being at the core of Asian value chains towards the periphery relative to other countries in the network, i.e., becoming

less "central". We use China's accession to the World Trade Organization as an instrumental variable for changes in Japanese centrality. Our analysis shows that increases in Japanese sectors' forward centrality—i.e. as a key supplier—tend to be positively associated with increasing firms' patent applications in these sectors and that firms in key hubs within GVCs, specifically as key suppliers, appear to benefit from knowledge spillovers from downstream markets.



To read the full text (Registration required)



RIETI Discussion Paper, 19-E-028



*Research Policy*, Volume 52, Issue 3 (2023), 104699

## Effects of being eligible for specific health guidance on health outcomes: A regression discontinuity analysis using Japan's data on specific health checkups

SEKIZAWA Yoichi

The significance of general health checkups and guidance is controversial. To examine the effectiveness of Japan's specific health checkup (SHC) and specific health guidance (SHG) programs, this study applied a regression discontinuity design (RDD) using the SHC results database collected by a private company. We applied a sharp RDD with a cutoff body mass index (BMI) of 25kg/m<sup>2</sup> for those with a waist circumference (WCF) of <85 cm in men and <90 cm in women, with risks of hypertension, dyslipidemia or diabetes, and aged between 40 and 64 years. Study outcomes were differences in BMI, WCF, and major cardiovascular risk factors between the baseline year and the following year. We analyzed the data of baseline years of 2015, 2016, and 2017 separately and their pooled data.

We judged the results to be robust significant when significant results in the same direction were found in all four analyses. A total of 1,041,607 observations out of 614,253 people were analyzed. We found robust significant results that those eligible for SHG in the baseline year had a lower BMI (both men and women) and lower WCF (men only) in the following year than those not eligible for SHG: BMI for men (-0.12kg/m<sup>2</sup>, 95% CI [confidence interval]: -0.15 to -0.09); BMI for women (-0.09kg/m<sup>2</sup>, 95% CI: -0.13 to -0.06); and WCF for men (-0.36cm, 95% CI: -0.47 to -0.28) in the pooled data. Robust significant results were not found in WCF for women or in major cardiovascular risk factors.



To read the full text (Open access)



*Preventive Medicine*, Volume 172 (2023), 107520





## Impact of the COVID-19 pandemic on exercise habits and overweight status in Japan: A nation-wide panel survey

OCHI Sae, SO Mirai, HASHIMOTO Sora, HASHIMOTO Yuki and SEKIZAWA Yoichi

A catastrophic disaster may cause distant health impacts like immobility and obesity. The aim of this research was to analyse the association of the COVID-19 pandemic and lifestyle factors -exercise habit and overweight status in the Japanese population. Nation-wide online questionnaires were conducted five times from October 2020 to October 2021. The changes in exercise habit, body mass index (BMI) and overweight status ( $BMI > 25 \text{ kg/m}^2$ ) were compared between the first questionnaire and a questionnaire conducted a year later. Risk factors for losing exercise habit or becoming overweight

were analysed using multiple regression. Data were obtained from 16,642 participants. In the early phase of the pandemic, people with high income and elderly females showed a higher risk for decreased exercise days. The proportion of overweight status increased from 22.2% to 26.6% in males and from 9.3% to 10.8% in females. Middle-aged males, elderly females, and males who experienced SARS-CoV-2 infection were at higher risk of becoming overweight. Our findings suggest that risks for immobility and overweight are homogeneous. Continuous intervention for elderly females and long-term

intervention for males infected with SARS-CoV-2 might be especially needed. As most disasters can cause similar social transformation, research and evaluation of immobility and obesity should address future disaster preparation/mitigation plans.

Published in : *PLOS Global Public Health*



To read the full text (Open access)

## The impact of exchange rates on the Turkish imports and exports

Willem THORBECKE and Ahmet SENGONUL

The Turkish lira has depreciated by 200% between 2012 and 2022. We investigate how exchange rates affect Turkish imports and exports. Nonlinear autoregressive distributed lag results indicate that appreciations during appreciation episodes increase imports and exports but exchange rate changes during depreciation periods frequently do not affect trade. These responses are inconsistent with the predictions of the imperfect substitutes

model and the dominant currency pricing model. Rather, they are consistent with models where firms need to import inputs in order to export and where appreciations ease credit constraints that firms face when they must borrow in foreign currencies to purchase inputs.



To read the full text (Registration required)



RIETI Discussion Paper, 22-E-043



*International Economics*, Volume 174 (2023), 231-249

## Escalation of a local conflict into a Cold War

KOIZUMI Hideto

Since the Russia-Ukraine conflict of 2022, the world has been headed toward a dichotomized world like the Cold War. The increasing division is not necessarily predicted by "rationalist" models based upon the costs and benefits of conflicts and trade. The existing scholarship theoretically and empirically finds that increasing trade between two countries makes it more likely that the two countries will avoid conflicts. The natural question is why the world is increasingly divided after one local conflict

despite the increasing costs of division. This note sheds light on the driving forces of a dichotomy and its robustness by studying a simple signed network game model. In this game, a country chooses to be an ally or enemy of every other country. I show that one local conflict together with a particular strategy by one of the countries implicated in the conflict is sufficient to lead the world to a dichotomized world. In particular, I demonstrate that if that country employs a policy that a friend of my enemy is my

enemy, then the world will always be divided into two groups, within which countries are allies and across which countries are enemies.

Published in:  
*Humanities & Social Sciences Communications*, 10,  
Article number: 648 (2023)



To read the full text (Open access)

# Are Workers with a Doctoral Degree Facing an Unfavorable Labor Market Situation?

## —Observations from the Employment Status Survey (2022)—



### MORIKAWA Masayuki

President and CRO, RIETI



Over the last decade, there has been increasing emphasis on the decline in Japan's research capacity, with a fall in the number of students who advance to doctoral courses cited as a factor (National Institute of Science and Technology Policy, 2023) (Note 1). Meanwhile, over the past several years, the government's Basic Policies for Economic and Fiscal Management and Reform have mentioned plans to nurture and support research talent with doctoral expertise. In particular, the 2023 Basic Policies for Economic and Fiscal Reform stated that in order to realize an environment that encourages competent young people to aspire for a doctoral degree, the government will strengthen support measures, such as: improving the treatment of students in doctoral courses; securing an environment in which the students can dedicate themselves to challenging research programs; and developing career paths that enable workers with a doctoral degree to achieve success in a broad range of fields, including in industrial sectors (Note 2). The fact that the government is promoting those initiatives implies that workers with a doctoral degree are facing an unfavorable labor market situation, but what is the reality?

#### Research on Wages for Workers with High Academic Achievement

In the United States and Europe, several empirical studies have been conducted with respect to wages for workers with a

doctoral degree (e.g., Jaeger and Page, 1996; Walker and Zhu, 2011; Engbom and Moser, 2017). Those studies have shown that the wage level for workers with a doctoral degree is higher than that for workers with a master's degree. For example, Engbom and Moser (2017), who looked at the situation in the United States, found that the wage level for workers with a doctoral degree is 47% higher than that for workers with a master's degree.

In Japan in recent years, there have been several studies that compared the labor market outcomes for workers who graduated from graduate school and workers who graduated from undergraduate programs (e.g., Morikawa, 2015; Yasui, 2019; Suga, 2020) (Note 3). According to those studies, workers who graduated from graduate school earn 20% to 30% more than workers who graduated from undergraduate programs (graduate school premium) after controlling for individuals' characteristics, and the employment rate is also higher for workers who graduated from graduate school. As a result, the rate of return from investments associated with advancement to graduate school—represented by the total sum of tuition fees and lost income during school—is fairly high, ranging from around 10% to 20%. However, there are significant limitations to those studies in that no distinction was made between workers with a master's degree and workers with a doctoral degree due to data limitation.



This author conducted original surveys (in 2017 and 2021) with Japanese workers that distinguished between those with a master's degree and those with a doctoral degree. According to calculations based on the data obtained from the surveys, after controlling for individuals' characteristics, the doctoral degree premium (compared with the wage level for workers with a master's degree) ranged from 15% to 20% among men and from 40% to 60% among women. However, it would be difficult to draw a definitive conclusion from this study given the limited sample size—the number of samples with a doctoral degree was just over 100 (the number of samples with a master's degree was around 400) in the surveys in both years, and the number of women with a doctoral degree in particular was only 20 to 30.

### High Employment Rate for Workers with a Doctoral Degree after Age of 60

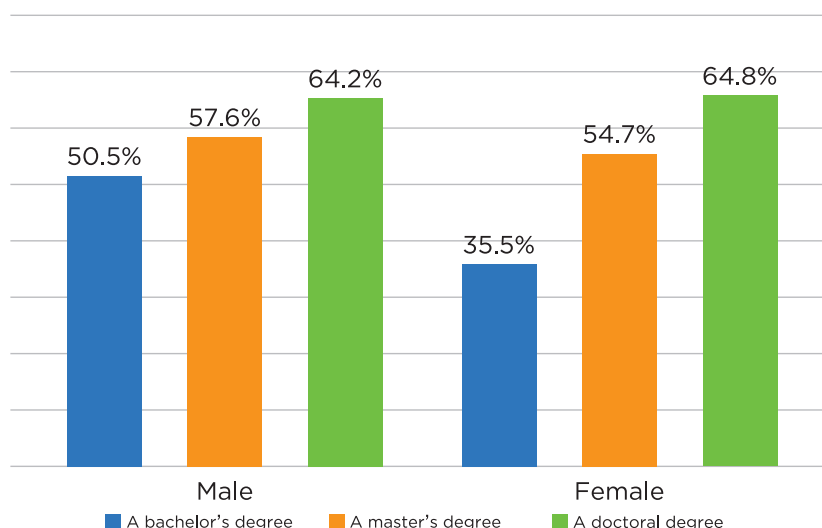
The Employment Status Survey (Ministry of Internal Affairs and Communications), which was conducted in 2022 and the results of which were announced recently, included some additional survey items whose importance has grown in the recent labor market, such as telework, freelance work and side businesses, and it also adopted a more detailed academic achievement categorization by subdividing the graduate school category into the master's degree, professional and doctoral degree categories.

Given the emphasis placed on human capital investment, those revisions were valuable improvements. This survey represents a major structural statistical dataset that captures Japan's labor market, and its sample size is sufficiently large, covering around 1.08 million people aged 15 or older.

Let us compare the labor market outcomes for workers with a doctoral degree and workers with a master's degree to the best possible extent based on published datasets. Although some people work while at school, this study looks only at those who have already graduated. The share of workers with a doctoral degree in the total number of samples was 1.0% in the case of men and 0.3% in the case of women, while the share of workers with a master's degree was 3.9% in the case of men and 1.7% in the case of women.

By age group, the employment rate is much higher for workers with a doctoral degree among men who were aged 60 or older. In the case of women, the employment rate was higher for workers with a doctoral degree in all age groups. Among those who were aged 60 or older, the employment rate for workers with a doctoral degree was 6.6 percentage points higher than the rate for workers with a master's degree for men and 10.1 percentage points higher for women (see Figure 1).

Figure 1: Employment Rate among Those Who are Aged 60 or Older



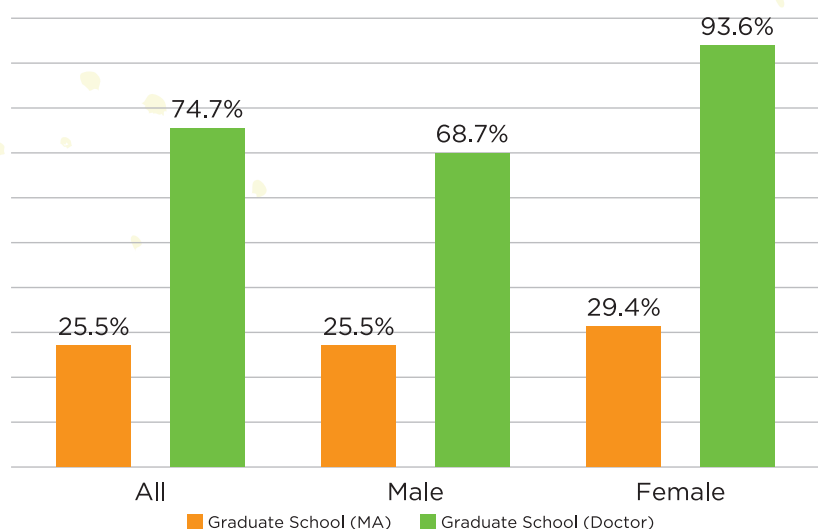
Note: The samples are workers who have already graduated (those who are at school are excluded).

### A Doctoral Degree Fetches a High Premium

Next, let us compare annual income from work. The comparison is made through a simple WLS estimation using the numbers of samples by the gender, age and academic achievement categories as weights and annual income (expressed in terms of the logarithm value of the mean value in each category) as the dependent

variable (Note 4). The results show that after controlling for age, the doctoral degree premium (compared with the income level for workers with a master's degree) is 43% for men and 64% for women (see Figure 2) (Note 5). When occupation (broad classification) was added as a controlling variable, the doctoral degree premium was 38% for men and 49% for women (Note 6).

Figure 2: Wage Premium for a Doctoral Degree and a Master's Degree



Note: Annual income of workers with a master's degree and workers with a doctoral degree compared with workers with a bachelor's degree.

A rough estimate of lifetime income that takes employment probability into account can be obtained by adding up income earned while in each age group, calculated by multiplying the employment rate for the age group by annual income (Note 7). According to the estimation, the average of the lifetime income of workers with a doctoral degree was 31% higher compared with workers with a master's degree for men and 57% higher for women. In terms of the present value of lifetime income calculated at a discount rate of 3%, the doctoral degree premium was 16% for men and 31% for women. In other words, although advancing to a doctoral course means three years' worth of lost income, workers with a doctoral degree earn a fairly high income over their lifetime even when that loss is taken into account. The doctoral degree premium in Japan is in no way small compared with the findings of foreign studies. On average, advancing to a doctoral course is an

effective human capital investment, particularly for women.

The distribution of workers with a doctoral degree by industry and occupation is very different from the distribution of workers with a master's degree.

By industry, "school education" and "medical services" together accounted for 60% of the total sample number for men and 68% for women. By occupation, the share of those engaged in professional and engineering jobs was very large. That is a natural result given the high level of skills possessed by workers with a doctoral degree. According to a more detailed classification, "researchers," "medical doctors" and "teachers" together accounted for slightly over 60% of the total number of employed people with a doctoral degree (see Table 1).

Table 1: Occupation-wise Distribution of Employed Workers Classified by Academic Achievement

	Male			Female		
	Bachelor	MA	Doctor	Bachelor	MA	Doctor
Professional/engineering jobs	26.2%	53.6%	80.6%	32.9%	53.0%	83.4%
Researchers	0.2%	3.1%	8.8%	0.2%	2.2%	7.8%
Engineers	11.6%	33.9%	11.1%	4.2%	12.5%	4.5%
Medical doctors	1.4%	0.4%	22.8%	0.9%	0.6%	18.9%
Teachers	4.3%	6.7%	29.0%	8.4%	13.7%	34.5%

Regarding workers engaged in professional and engineering jobs, the doctoral degree premium was 44% for men and 74% for women. Regarding workers engaged in other categories of jobs (e.g., management, clerical and production process jobs), the doctoral premium was 39% for men and 48% for women. Regardless of the occupation category, workers with a doctoral

degree earned higher income than workers with a master's degree.

Unfortunately, in the publicly available data, annual income can be identified only by broad classification of occupation. "Researchers," "medical doctors" and "teachers" are all included in the "professional and engineering jobs" category. As a result,

studies based on published data cannot conduct a comparison between workers with a doctoral degree and workers with a master's degree based on a more disaggregated classification of occupation. While it is desirable to conduct a more detailed analysis using micro data, the conclusion that would be arrived at through such an analysis is unlikely to be fundamentally different.

### Closing Remarks

Of course, among workers with a doctoral degree, there are some who are non-standard workers (10% of men and 24% of women) and some whose annual income is less than 3 million yen (10% of men and 33% of women). Therefore, it is desirable to encourage industries to increase the employment of workers with a doctoral degree as standard full-time employees. It is also important to use scholarship programs and fellowship programs like the Research Fellowship for Young Scientists of the Japan Society for the Promotion of Science to support competent students who cannot advance to a doctoral course due to financial constraints. However, as far as we can see from data available from the Employment Status Survey (2022), at least on average, it cannot be said that workers with a doctoral degree are facing an unfavorable labor market situation. Rather, the labor market outcome for them is successful. I look forward to increasing numbers of competent young people aspiring to advance to a doctoral course.

### Footnote(s)

1. However, very recently, the percentage of those who advanced to a doctoral course among people who have completed a master's course is increasing slightly. As to whether this trend is a temporary blip due to the effects of the COVID-19 pandemic or a sustainable rebound, careful monitoring is necessary.
2. Earlier, in order to fundamentally and comprehensively strengthen Japan's research capacity, the Comprehensive Package to Enhance Research Capacity and Support Young Researchers (January 2020, Council for Science, Technology and Innovation) presented measures such as improving the treatment of students in post-doctoral courses, steeply increasing the number of those who have acquired a doctoral degree in science and engineering fields employed by industries, and developing a better research environment (securing research time and promoting sharing of facilities).
3. Inui, Ikeda, and Kakino (2021) survey the literature in this field.
4. The value of incomes included in the top category of annual income, "15 million yen or higher," was treated as 17.5 million yen.
5. While the sample is limited to standard full-time employees,

the doctoral degree wage premium was 42% for men and 51% for women when controlling for the tenure.

6. There could be an argument that people who are highly competent in the first place tend to advance to master's and doctoral courses. However, according to previous studies related to the wage premium for those who graduated from graduate school, a selection effect like that has only a limited impact.
7. The calculation was made on the assumption that those who acquired a master's degree and those who acquired a doctoral degree start working at the ages of 25 and 28, respectively.

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## RESEARCH DIGEST

### The Effects of Financial Incentives on Small and Medium-sized Enterprises' Demand for Workers with Disabilities

**MATSUMOTO Kodai, Fellow (Policy Economist), RIETI**

2022 - Present Fellow, Research Institute of Economy, Trade and Industry (RIETI)

2011 - 2022 Tottori City

2022 - Ph.D. in Economics, Kobe University



The relative poverty and unemployment rates of people with disabilities are twice those of people without disabilities. People with disabilities face many problems in their daily lives, and measures to encourage companies to employ people with disabilities, in addition to policies to promote their social participation, are implemented in countries. In Japan, firms that do not meet the legal employment rate for people with disabilities must pay a levy, while companies that achieve this rate receive a grant (*chouseikin*) or reward (*hoshokin*). The scope of this levy-grant system was expanded in 2015. A four-person research group, including RIETI Fellow Kodai Matsumoto, used administrative data to analyze the extent to which the expansion of the scope of companies eligible for the levy-grant system promoted the employment of disabled persons at small and medium-sized enterprises (SMEs). In this interview, RIETI Fellow Shota Araki talks with Kodai Matsumoto about the background to this research, an overview of the analysis, and the results obtained.

#### Background to the Research

**Araki:** Please tell us about the circumstances that led you to undertake this research.

**Matsumoto:** After I graduated from university, I started working at my local municipal government office, where I was assigned to duties in the welfare and employment measures divisions.

Because I studied in the economics department at university, I wanted to engage in research into welfare and employment when I was assigned to the welfare division. A review of the existing literature revealed how little research there is in this area, and I thought that I could differentiate my research from others by focusing on it. I therefore entered graduate school at Kobe University and began my research as a mature student. I studied under Professor Kazufumi Yugami in Labor Economics, taking some time off work to complete my Ph.D. before joining RIETI in April 2022.

I am currently engaged in empirical analysis concerning the employment of people with disabilities, and my most recent research focused on the issue of Japan's labor demand-centered approach to employment. Japan has an employment quota system, where the government has set a legal employment rate for people with disabilities. Businesses that achieve their quota are subsidized through a grant, while those that do not meet the legal employment rate are required to pay a levy. In other words, the employment quota system effectively penalizes firms through this levy. In this context, the Japanese government's efforts to promote the employment of people with disabilities at SMEs are quite insufficient, a fact that motivated me to undertake this empirical analysis.

**Araki:** The paper based on this research was jointly written by Professor Yugami, who was your Ph.D. advisor, as well as Mr. Okumura and Mr. Morimoto. It seems like a somewhat unusual

23-E-019

**The Effects of Financial Incentives on Small and Medium-sized Enterprises' Demand for Workers with Disabilities: Evidence from changes in Japan's employment quota system**

MATSUMOTO Kodai (Fellow (Policy Economist), RIETI) / OKUMURA Yota (LITALICO Partners) / MORIMOTO Atsushi (Kobe University) / YUGAMI Kazufumi (Kobe University)



research group. Mr. Okumura, in particular, belongs to a company called LITALICO Partners. How did you come to undertake this joint research?

**Matsumoto:** Mr. Okumura, Mr. Morimoto and I are all Professor Yugami's former students. One of these former students, Mr. Okumura, was interested in the employment of people with disabilities and had written his master's thesis based on the data. Mr. Okumura did not pursue a doctoral degree, but he decided to put the valuable data he had obtained through his research to use by writing a paper on it. This, however, required intensive processing such as the aggregation of firm data, which would have been impractical for Mr. Okumura to attempt alone. Therefore, Professor Yugami, Mr. Morimoto and I joined as co-authors, resulting in the current research.

**Araki:** Regarding how you obtained the dataset, I understand that you obtained the dataset from LITALICO Partners.

**Matsumoto:** LITALICO is a firm engaged in employment support and other projects for people with disabilities, and applies for the disclosure of information from each prefectural labor bureau every year. It had access to data within the permitted scope of disclosure and, after Mr. Okumura had received permission from LITALICO, we were able to use this data in our analysis. Of course, our research does not represent the views of LITALICO.

### Differences from Previous Research

**Araki:** Please tell us what makes this research different from the existing research on the topic.

**Matsumoto:** The latest and most influential research in Japan is the joint paper written by Associate Professor Yuko Mori of Tsuda University and Associate Professor Norihito Sakamoto of the Tokyo University of Science. They use a regression discontinuity design as their analysis method. A legal employment rate is established under the employment quota system. For example, for a legal employment rate of 2%, a business with 100 to 149 employees is allocated a quota of two people with disabilities, while a company with 150 to 199 employees is allocated a quota of

three. Some analyses use this discontinuous exogenous change, and this type of approach is often used overseas.

The analysis method used in previous research focuses on the effect on firms with around the number of employees where the discontinuities in the quota occur. We decided to use difference-in-differences (DID) analysis to reveal the effect, including businesses that do not employ any people with disabilities and those that employ a number of people with disabilities that is far higher than the legal employment rate.

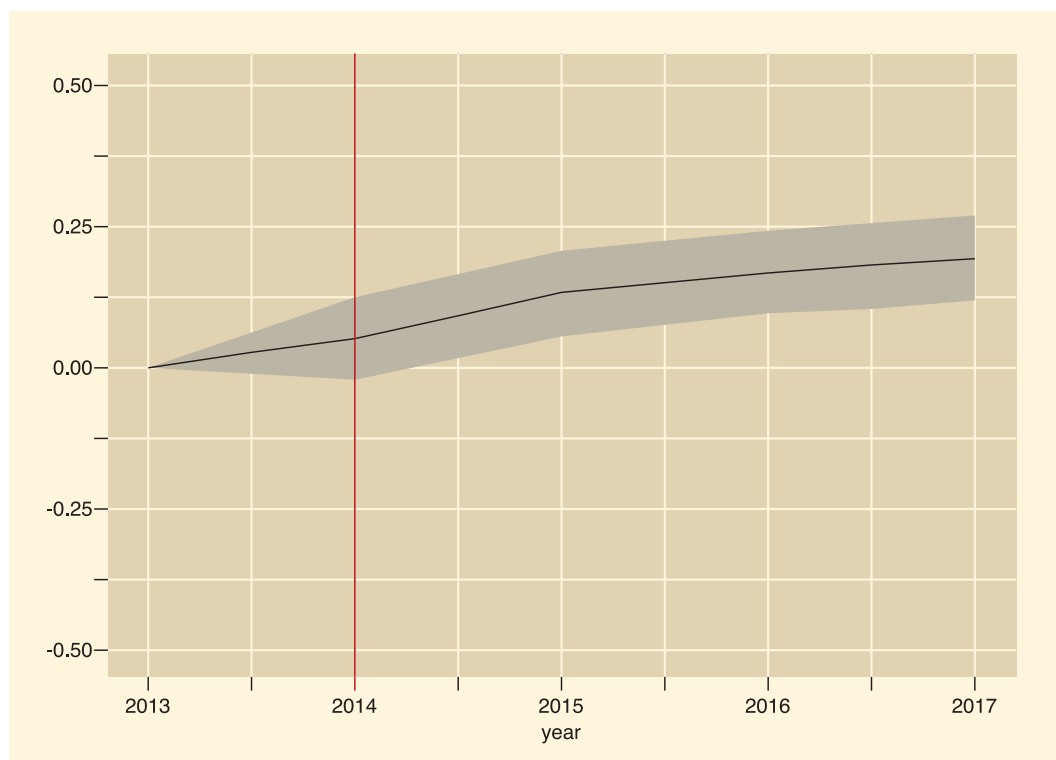
Specifically, in 2015, the scope of the levy-grant system for the employment of people with disabilities, where firms that meet the legal employment rate are subsidized through a grant and those that do not are required to pay a levy, was expanded from firms with over 200 employees to firms with over 100 employees. We considered firms with between 101 and 200 employees, which were affected by this change in scope, as the treatment group in our analysis. Firms with 100 employees or fewer were our control group. This approach was significantly different from the previous research.

In addition, whereas Associate Professor Mori and Associate Professor Sakamoto used cross-sectional data in their analysis, we used panel data for our DID analysis.

It is also a fact that 30.8% of Japanese SMEs do not employ any people with disabilities at all. We also examined whether firms employ any people with disabilities (extensive margin) to see if companies that previously employed no people with disabilities began employing them after the change in the levy-grant system. I think that this analysis of whether or not firms employ any people with disabilities—not only whether they have increased their number of disabled employees—also differentiated our research from the existing literature on the subject.

Furthermore, while Associate Professor Mori and Associate Professor Sakamoto only analyze the manufacturing industry, our research examines the effect in each industry and each region. This analysis of the regional and industrial heterogeneity also differs from the previous research.

Figure 1: Yearly Changes in the Employment Rate of People with Disabilities Based on 2013  
All samples <sup>(Note 1)</sup>



**Araki:** Your use of panel data makes it possible to compare how a company changed before and after the policy change, which adds robustness to your estimates. I also feel that being able to analyze whether or not a company employs any people with disabilities at all and being able to isolate the effect of the policy change by industry and region sets your work apart from the existing research.

## Policy Implication of the Research

**Araki:** So, please tell us about the results you obtained from this analysis.

**Matsumoto:** Our main conclusion is that firms began employing people with disabilities due to the change in the levy-grant system.

We also observed the extensive margin, as I just mentioned.

Specifically, we used a linear probability model for our analysis, which indicated a meaningful effect and—although somewhat of a deviation from our original focus—that this effect was meaningful even prior to the policy change in 2015, as firms began to employ people with disabilities in preparation for the change.

A comparison of the levy and grant revealed that the levy was more effective. Moreover, we concluded that heterogeneity was evident at the level of industry and region.

**Araki:** Those are fascinating results. What are their policy implications?



**Matsumoto:** We found that the policy changes have generally promoted the employment of people with disabilities in SMEs in Japan. I think the policy implication here is that stronger monetary incentives are an effective way to increase the employment of people with disabilities. Having said that, the effect of the policy differed by industry. For example, it was effective in the manufacturing industry and the wholesale and retail industries, but these are industries that already actively employed people with disabilities in Japan. The cost of employing people with disabilities is less than the amount of the levy, so they may only be employing more people with disabilities after the change in the levy-grant system to maximize their profits. Meanwhile, there are several possible reasons why the change was not effective in other industries. These include the fact that the cost of employing people with disabilities is higher than the levy, these industries are not exposed to a competitive environment, or people with disabilities are only employed to comply with legal requirements. For example, the change had no meaningful effect in the medical and welfare sectors, where there were a large number of samples and a high proportion of people with disabilities are already employed.

**Araki:** What kind of policy do you think this policy implication may be applied to?

**Matsumoto:** In terms of monetary incentives, the legal employment rate is currently 2.3%, but the government plans to continue to strengthen the employment quota system, progressively raising the legal employment rate to 2.5% in 2024 and 2.7% in 2026. However, there is no scheduled change in policy targeting SMEs, of the kind we considered with the 2015 change in scope from firms with 200 or more employees to 100 or more employees. Moreover, as the effect differs by industry, governments might also consider implementing policies for each industry. However, the introduction of any such policy would require careful discussion because it runs counter to the concept of normalization.

### Precautions When Interpreting Research Results

**Araki:** What precautions would you note when interpreting these research results?

**Matsumoto:** In this research, we did not verify the validity of the levy and grant amounts. Under the system, companies that do not comply with the legal employment rate must pay 50,000 yen for each person less than the required number, while companies that exceed the legal employment rate receive 27,000 yen per person



Interviewer

**ARAKI Shota, Fellow  
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in excess of the required number. I think that we could discuss the appropriateness of these amounts if a change in the system presented a good opportunity for analysis.

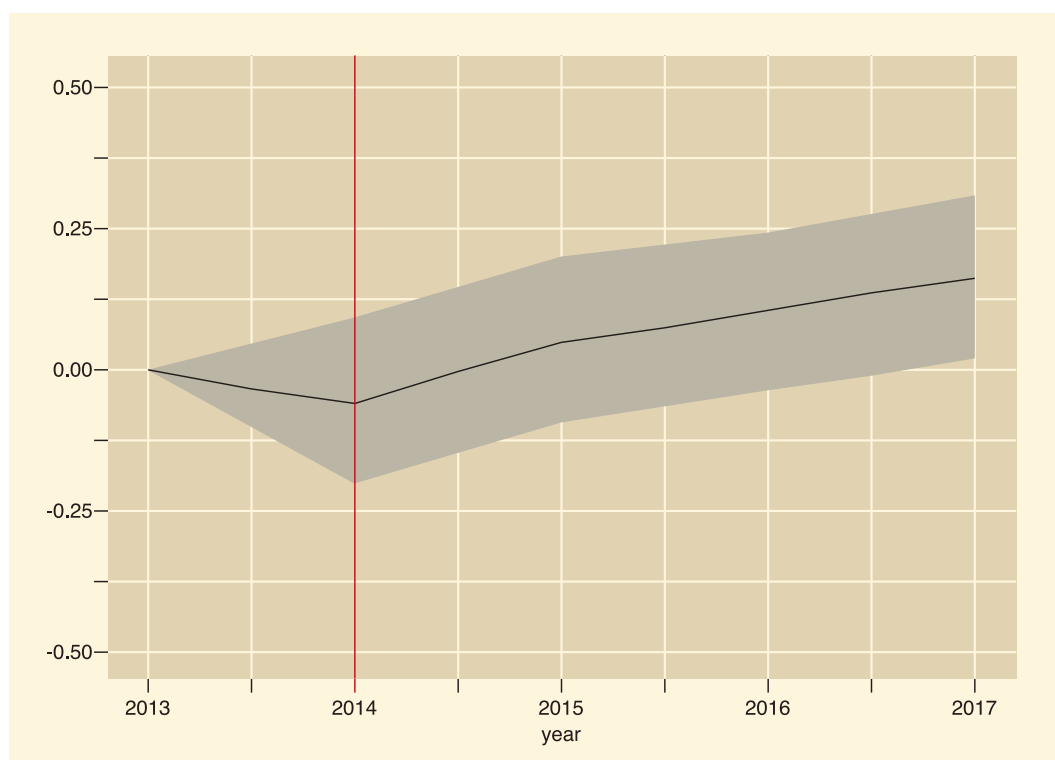
In addition, our panel data covers the period from 2013 to 2017, which was a period of economic recovery and worker shortages. I think we need to confirm whether our research results would still be applicable in a different economic situation.

I mentioned that some heterogeneity by region was evident in the data, but our paper does not examine in any detail the significance of this region-dependent effect. We have not thoroughly probed the detailed reasons why the policy change led to the greater employment of people with disabilities in some regions than in others, and I think this point is worthy of further analysis.

**Araki:** The scheme of this change in the levy-grant system was announced beforehand, leading some companies to respond in advance of the change. Even in this analysis, it is possible that some SMEs with 100 employees or less were already making preparations in anticipation of a further broadening of the scope of employment requirements for people with disabilities. Do you think that there is any bias in the data due to this?

**Matsumoto:** There may be. In this case, the 2015 change in the levy-grant system was first announced sometime around 2009. At present, I have not heard of any plans to further expand the scope of companies subject to the levy-grant system. I imagine that the government is considering policies to raise the legal employment rate.

**Figure 2: Yearly Changes in the Employment Rate of People with Disabilities Based on 2013 Companies that Meet the Legal Employment Rate (Effect of the grant) <sup>(Note 2)</sup>**



## Data Collection Method

**Araki:** The method used to collect data for this research was very interesting. Please tell us about it.

**Matsumoto:** As I mentioned at the beginning of the interview, we used data requested by LITALICO, with LITALICO's permission. However, there were, in fact, gaps in the data for some prefectures. We hope to undertake an analysis with the gaps filled, and we're currently attempting to obtain the raw data from prefectural labor bureaus and other authorities. We are actually calling each labor bureau on the telephone to confirm whether they have the relevant data. A very primitive method, I know.

In some prefectures, the document retention period has expired and the documents have been destroyed, so we may not be able to

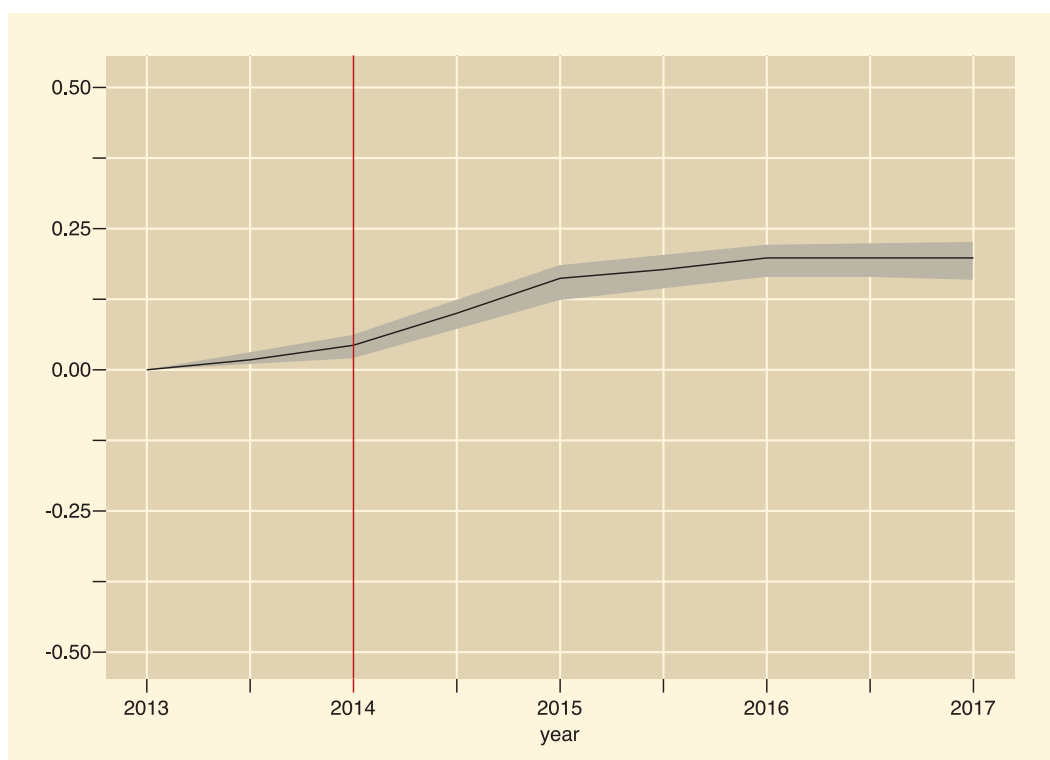
gather all of the data.

**Araki:** Students are not always able to collect all the data needed for microeconomic quantitative analysis from government statistics, but with a little effort, they should be able to gather data through information disclosure requests, enabling them to use it for microeconomic quantitative analysis. Do you have any advice for people thinking of undertaking such research?

**Matsumoto:** Information disclosure requests only cost a few hundred yen, and they have the advantage of being accessible to anybody, not only students.

I do have one piece of advice concerning how to make inquiries. In our research, we were fortunate in that the person responsible for processing the information disclosure application

**Figure 3: Yearly Changes in the Employment Rate of People with Disabilities Based on 2013 Companies that Do not Meet the Legal Employment Rate (Effect of the levy)** <sup>(Note 3)</sup>



Note 1, 2, 3: Hatched areas indicate 95% confidence intervals. The red line shows the year prior to the policy change (2014). Estimates are controlled for a fourth-order polynomial in the adjusted number of permanent employees, a dummy for firms that belong to a special subsidiary, year dummies, and prefecture dummies.

had processed similar applications several times in the past, so things went smoothly. If our inquiry had been handled by somebody without such experience, however, there might have been some confusion regarding how to proceed. Providing data to researchers is not the main job of the people who actually end up being responsible for handling information disclosure applications. They typically take time out of their busy schedules to provide this data, so it's probably best to make inquiries only after investigating the issue as far as possible yourself.

### Outlook for Future Research

**Araki:** What sort of research would you like to undertake in the future?

**Matsumoto:** There is not a lot of existing research analyzing whether implementing an employment quota for people with disabilities raises corporate productivity and profitability. In Japan, Associate Professor Mori and Associate Professor Sakamoto have analyzed this using cross-sectional data, but nobody has undertaken an analysis using a rich dataset such as panel data, so I think this is one way that we could differentiate our analysis.

**Araki:** Thank you for sharing such an interesting discussion today.



## NON TECHNICAL SUMMARY

# On the Trends of Technology, Family Formation, and Women's Time Allocation

**KITAO Sagiri** Senior Fellow (Specially Appointed), RIETI  
**NAKAKUNI Kanato** (The University of Tokyo)



The discussion paper on which this non-technical summary is based is available on the RIETI website.

This Non Technical Summary does not constitute part of the above-captioned Discussion Paper but has been prepared for the purpose of providing a bold outline of the paper, based on findings from the analysis for the paper and focusing primarily on their implications for policy. For details of the analysis, read the captioned Discussion Paper.

Over the past half century, the nature of the Japanese family has undergone substantial changes. In addition to structural changes, including the secular decline in marriage and fertility rates shown in Figure 1, we must not disregard the changes in time allocation within households (particularly among women). For example, married women now spend more time on leisure and child care than 50 years ago, and significantly less time on housework.

What are the factors that shape this long-term trend in the nature of the family? When considering long-term trends over the past half century, we cannot ignore the role played by the technological development that forms the foundation for our social and economic activity, and the resulting shift in wage structure. These key factors shape Japan's income levels and the way that income is distributed, influencing people's decisions and behavior, including family formation and time allocation.

Technological progress is not a simple one-dimensional object. Its forms and implications are heterogeneous, and not all workers are in a position to benefit from it equally. For example, technological progress of the kind that results in a broad-based improvement in workers' productivity and wages—a rise in total factor productivity (TFP)—is a concept often used in macroeconomics to understand changes in the level of technology. There are other kinds of technological progress, such as skill-biased technological change (SBTC)—the development of AI technology, for example—which contributes to increasing the productivity and wages of high-skilled workers who can utilize this technology better. Other important kinds of technological progress include gender-biased technological change (GBTC) and female specific skill-biased technological change (F-SBTC), which boost women's productivity and wages relative to men's. They have contributed to the contraction in the gender pay gap observed over the past few decades in Japan and overseas. Various factors,

such as the rise of service industries in which women represent a higher fraction of the labor force, the aging population and the growth of health care, welfare, nursing and other services, have influenced these technological changes.

In this research, we began by using long-term time-series data on wages and labor supply in Japan, grouped by gender and educational background, to estimate the degree of each kind of technological development described above (the rise in 1. TFP, 2. SBTC, 3. GBTC and 4. F-SBTC) over the past half century. We then undertook a quantitative analysis of the roles performed by each kind of technological progress in explaining long-term trends related to fertility and marriage rates, women's time allocation, children's education, and other aspects of families' behavior.

The main findings of this research are described below. To begin with, we found that technological progress that contributes to an increase in women's productivity and wages (GBTC and F-SBTC) has significantly influenced trends related to family formation, including the decline in fertility and marriage rates. According to our calculations, GBTC and F-SBTC exhibited annual growth rates of 0.55% and 1.52%, respectively, from 1970 to 2020. If this technological progress had not occurred, and these technologies had remained unchanged at 1970 levels, we found that the marriage rate in 2020 would be approximately 10 percentage points higher than the baseline in each case. This means that GBTC and F-SBTC explain approximately 70% of the decline in the marriage rate in Japan over the past 50 years. Likewise, the total fertility rate as of 2020 would be 0.3 to 0.4 percentage points higher if there had been no growth in GBTC and F-SBTC, meaning that GBTC and F-SBTC explain approximately 40% of the decline in the total fertility rate over the past 50 years. We highlight two implications of GBTC and F-SBTC to interpret these results. First, the (relative) rise in women's wages has increased the opportunity costs of having children and spending time on

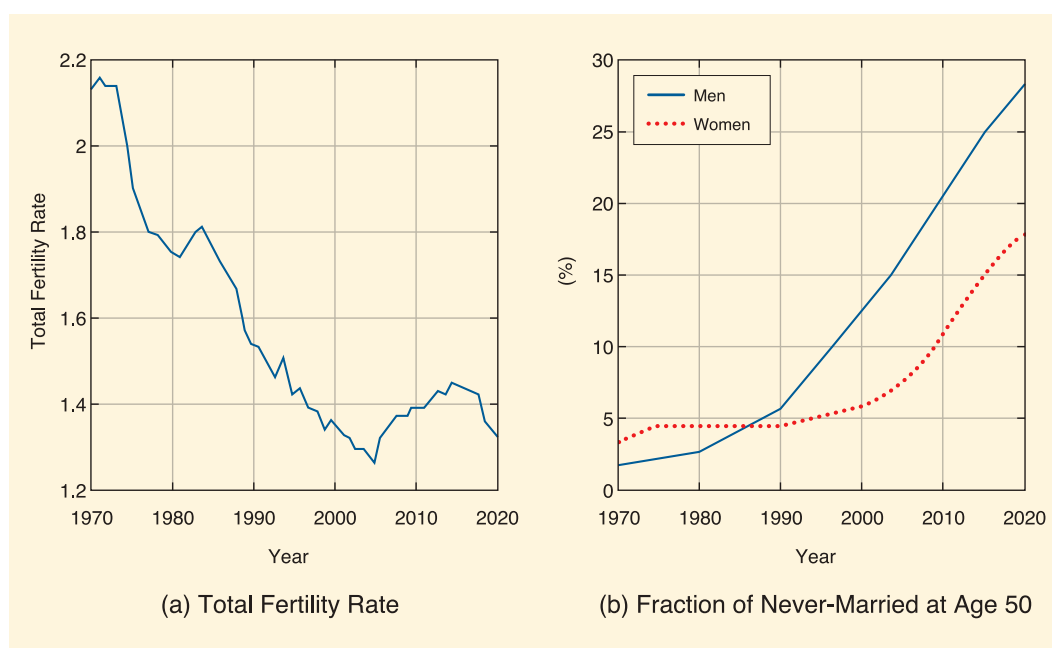
child care. Second, women's higher earning ability has diminished the economic attractiveness of marriage. Our findings suggest that GBTC and F-SBTC contribute significantly to the decline in fertility and marriage rates through these channels.

We found that the growth in TFP and SBTC plays a significant role in shaping trends related to women's time allocation, specifically the increase in leisure time and the decrease in work hours. (Whereas women's labor participation rate has been on the rise for the past few decades, the average number of hours worked has been declining.) TFP and SBTC exhibited annual growth rates of 0.22% and 0.41%, respectively, from 1970 to 2020. We found that if none of this technological progress had occurred, the working hours of married women in 2020 would be approximately 9% longer than the baseline, and 9-12% less time would be allocated to leisure. The TFP growth increases the productivity and wages of all types of workers, regardless of educational background and gender, while SBTC raises the wages of all high-skilled workers regardless of gender. This technological progress boosts household income, enabling people to work fewer hours and enjoy more leisure time while maintaining the same level of consumption. Our findings suggest that SBTC and TFP growth

have shaped the trend toward less working time and more leisure for married women through this income effect.

We have shown that trends in family behavior such as marriage and childbirth and time allocation within the households are affected by a combination of multiple factors that progress over time. These include various kinds of technological progress, changes in industrial and wage structures, and rising levels of education. When considering government policies related to family behavior, such as measures to combat the declining birthrate and to raise female labor participation, it is important to understand not only short-term trends in economic variables but also the current situation through the analysis of medium- and long-term data. This will enable us to establish realistic goals and to implement sustainable policies.

**Figure 1: Trends in the Total Fertility Rate and the Fraction of People Never Married at Age 50**



Source: (a) Vital Statistics, Ministry of Health, Labour and Welfare, (b) Population Census, Ministry of Internal Affairs and Communications

## NON TECHNICAL SUMMARY

# The Impact of Monetary Policy on the U.S. Stock Market since the Pandemic

Willem THORBECKE Senior Fellow, RIETI



The discussion paper on which this non-technical summary is based is available on the RIETI website.

This Non Technical Summary does not constitute part of the above-captioned Discussion Paper but has been prepared for the purpose of providing a bold outline of the paper, based on findings from the analysis for the paper and focusing primarily on their implications for policy. For details of the analysis, read the captioned Discussion Paper. (For the latest version of this paper, please visit <https://www.mdpi.com/2227-7072/11/4/134>)

News about COVID-19, inflation and monetary policy has buffeted the U.S. economy since 2020. As the pandemic emerged, the Federal Reserve lowered its target for the federal funds rate by 150 basis points in March 2020. The year-on-year change in the U.S. consumer price index (CPI) then rose from 1.5% in March 2020 to 8.6% in June 2022. The Fed raised its funds rate target by 500 basis points in 2022 and 2023. This paper investigates how monetary policy news has impacted the stock market since the coronavirus crisis began.

The Fed responded to the pandemic not only by lowering the funds rate but also by providing forward guidance that interest rates would remain low, purchasing Treasury and mortgage-backed securities, lending to Treasury security primary dealers, backstopping money market funds, and encouraging bank lending and credit extension. The government provided three rounds of stimulus checks. These policies increased demand while negative shocks associated with the pandemic, value chain disruptions and the Russia-Ukraine War restricted supply.

This combination contributed to inflation that proved higher and more persistent than the Fed expected. At the end of 2020, the median forecast of Federal Reserve Board members and Federal Reserve Bank presidents was that the personal consumption expenditures (PCE) price index would grow by 1.8% between the 2020Q4 and 2021Q4. It actually grew by 5.7%. At the end of 2021 the median forecast was for the PCE index to grow by 2.6% between 2021Q4 and 2022Q4. It again grew by 5.7%. In November 2021, Fed Chair Jerome Powell stopped calling inflation transitory and in 2022, the Fed began aggressively raising the funds rate.

This paper investigates how monetary policy has impacted financial markets since the pandemic began. To do this, it first estimates the exposures (betas) of 53 assets to monetary policy over the 1988 to 2019 period. It then uses these monetary policy

betas to examine how investors responded to news about monetary policy beginning in 2020. If investors believed that monetary policy would become contractionary, they would sell assets that are harmed by tighter policy and purchase assets that benefit from tighter policy. This would lower the prices of assets that are harmed by contractionary monetary policy and raise the prices of assets that benefit.

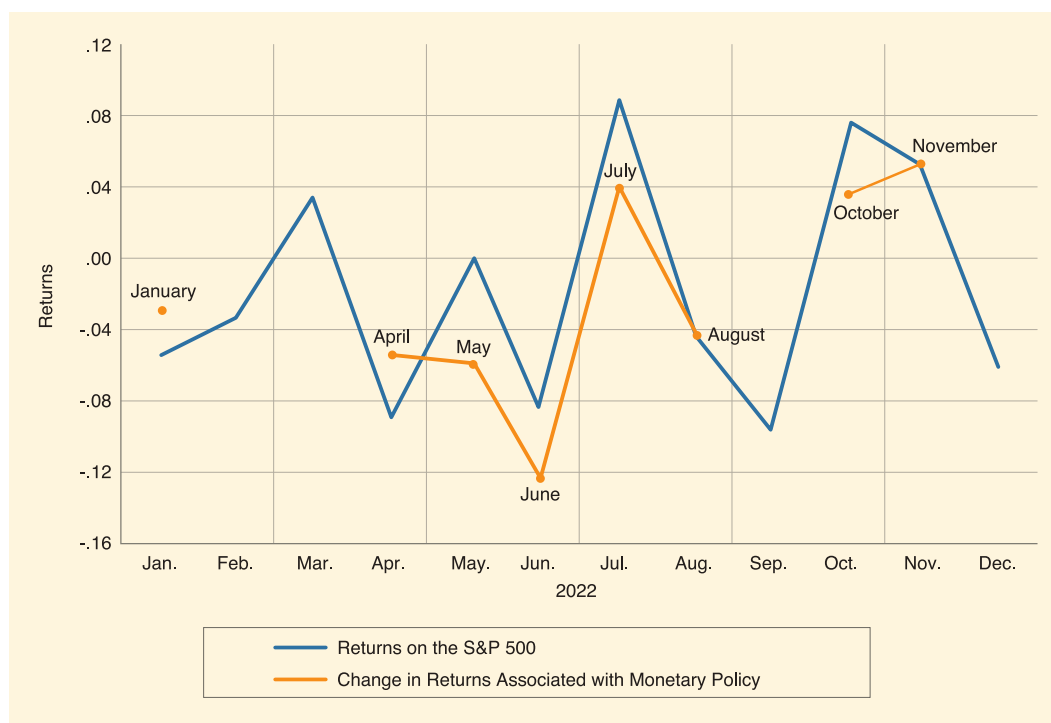
As Figure 1 shows, the results indicate that changing perceptions about monetary policy caused large swings in U.S. equity prices in 2022. The paper also reports frequent changes in stock prices at the daily level in 2022. As the Fed pursued drastic tightening it thus sowed confusion and multiplied volatility in the U.S. stock market, one of the world's most important financial markets.

Eggertsson and Kohn (2023) observed that, as inflation rose after the pandemic, many were uncertain of the Fed's intentions. Dietrich et al. (2022) found that better communication by the central bank to the public could have mitigated uncertainty. Arteta et al. (2022) reported that changing perceptions about the Fed's preferences towards inflation explained much of the movement in asset prices in 2022 and concluded that proper communication that clarified the Fed's reaction function could have reduced adverse spillovers. Improved communication could thus have helped to attenuate the wild swings in stock prices that arose because of uncertainty about monetary policy.

The Fed should have pursued improved communication in two areas. First, it should have clarified the economic model that Fed Chairman Powell was using when deciding whether inflation was transitory or lasting. Second, it should have specified ahead of time how the Fed would react if it decided that inflation was not transitory but lasting. Understanding these two issues would have reduced the uncertainty about monetary policy that was pervasive after the pandemic. The Bank of Japan and other central banks should similarly pursue clear communications with the public.



**Figure 1. The Return on the Standard and Poor's 500 and the Monthly Change in Returns Associated with Exposure to Monetary Policy in 2022**



Note: The figure presents the monthly returns on the Standard & Poor's 500 index of 500 of the largest companies in the U.S. and the change in returns associated with monetary policy. To calculate the change in returns associated with monetary policy, assets' monetary policy betas are estimated. The betas are obtained from an iterated nonlinear seemingly unrelated regression (INLSUR) of returns on 53 assets (minus the return on one-month Treasury bills) on the Bauer and Swanson (B&S) (2022) measure of Fed policy surprises, the difference in returns between 20-year and one-month Treasury securities, the monthly growth rate in industrial production, unexpected inflation, and the change in expected inflation. The B&S measure is constructed so that an increase represents a contractionary monetary policy surprise. If investors believe that monetary policy will tighten, they will purchase assets that benefit from contractionary monetary policy (those with larger betas to the B&S variable) and sell assets that are harmed by contractionary monetary policy (those with smaller betas to the B&S variable). There should thus

be a positive relationship between asset returns and assets' B&S betas on months when investors foresee monetary policy tightening. For each month between April 2020 and April 2023, returns on the 53 assets are thus regressed on the assets' monetary policy betas. To facilitate interpretation, the resulting regression coefficient is multiplied by the average beta coefficient for the 40 assets from the INLSUR regression that exhibited statistically significant exposures to contractionary monetary policy. The change in returns associated with monetary policy in the figure thus represents the change for an asset with an average level of exposure to contractionary monetary policy. Since the average B&S beta coefficient is negative, positive values in Figure 1 indicate that investors expect easier policy and negative values that they foresee tighter policy. The figure only reports months when there is a statistically significant relationship (at at least the 10 percent level) between returns on the 53 assets and the assets' monetary policy betas.

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## Special Interview

# Report on the Activities of the **RIETI EBPM** Center



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**HIRAI Mayuko**  
RIETI EBPM Research Coordinator



**YAMAGUCHI Akira**  
RIETI Policy Analyst  
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Moderator: **TANIMOTO Toko** (RIETI Deputy Director of PR Strategy)  
Job titles and positions are as of the time of this special interview.

Amid the growing geopolitical risk associated with U.S.–China antagonism, as well as the progress of global warming, a new direction is needed, including a redesign of economic and industrial policy to create new markets and promote innovation and measures to strengthen supply chain resilience. To this end, RIETI inaugurated the RIETI EBPM Center on April 1, 2022. In addition to data-driven retrospective policy assessments of the kind already undertaken by RIETI, the new center aims to make proposals on data design to facilitate the prospective assessment of large-scale projects and policy assessment. We asked the core members of the EBPM Center about the circumstances that led to the Center's establishment, its activities and its outlook for the future.

### Background to the Establishment of the Center

**Tanimoto:** Please begin by introducing yourselves, and tell us about the circumstances behind the inauguration of the EBPM Center.

**Sugiura:** My name is Sugiura, and I am the EBPM Senior Coordinator. I retired from the Ministry of Economy, Trade and Industry (METI) last spring, and took up this position at RIETI. I have been involved in the EBPM Center since its initiation.

**Hirai:** I am the Research Coordinator responsible for EBPM. I joined the EBPM Center in August 2022, on secondment from METI.

**Yamaguchi:** I joined RIETI as a policy economist from the National Institute of Science and Technology Policy (NISTEP) at the Ministry of Education, Culture, Sports, Science and Technology (MEXT) in April 2023. In June, I completed a doctorate in economics, and I currently serve as an intermediary between academic research and policies.

**Sugiura:** Regarding the background to the Center's inauguration,

RIETI has always been involved in ex-post assessment of policies with the causal inference. However, ex-post assessment requires several years for the data and analysis results to become available. It's therefore not suited to the agile policy approach outlined in METI's New Direction of Economic and Industrial Policies, which requires providing feedback for the flexible revision of policies currently being implemented. This led to calls to expand the concept of EBPM to enable the flexible revision of policies while they are still being implemented. It just so happened that the government's review of administrative projects had also recommended a similarly broad approach to EBPM and the agile and flexible practice of policymaking and assessment. These two initiatives came together in the establishment of the EBPM Center by adding the ex-ante assessment unit to the existing ex-post assessment unit. The newly added ex-ante assessment unit supports policymakers who create a framework for the ex-ante assessment of economic and industrial policy, which facilitates the simultaneous implementation and review of policies. At the EBPM Center, we adopt new approaches to policy assessment, based on advice from our four experts in economics and policy making (the Center's Advisory Board).

### Main Initiatives of the EBPM Center

**Tanimoto:** Tell us about your main activities so far.

**Hirai:** We are currently engaged in assessing policies including the “Green Innovation Fund,” the “establishment of an advanced semiconductor manufacturing base,” and the “promotion of a biomanufacturing revolution.” We advise policymakers on issues such as building logical models, setting outcome indicators, analytical models, and data design. As these large-scale projects are difficult to assess using conventional statistical methods, we are developing appropriate approaches in consultation with the members of the Advisory Board.

The Green Innovation Fund is a policy fund that will spend 2 trillion yen over 10 years (Note) to support technological development that contributes to global warming countermeasures. METI and the New Energy and Industrial Technology Development Organization (NEDO) are responsible for promoting the project and allocating the budget across approximately 20 fields such as solar power, wind power and ammonia. The EBPM Center focuses not on the technical assessment of each project but on the management of the entire fund. We have proposed an “expected value model” that enables the evaluation of the fund project as a whole referring to the portfolio management methods used by pharmaceutical companies. Under this model, we calculate the expected value of a project in terms of its outcome indicators:



economic flow-on effects and CO<sup>2</sup> emissions reduction. We do this by multiplying the “probability of success” based on the progress of technological development at the time of assessment by the “coverage ratio,” which takes into account factors such as the progress of technological development at competitors. The whole project needs to be managed to maximize the sum of the expected values of 20 projects for each outcome indicator. This method represents a new assessment model in technological development projects, which, if successful, we believe will be applicable to a broad range of technological development projects.

**Sugiura:** The key with large projects like these is that the administrative authorities remain steadily on target. That is why, in the case of the Green Innovation Fund, we advised METI to set and declare metrics and targets to achieve ultimate goals in terms of short-term, medium-term and long-term outcomes. Regarding these goals, the name “Green Innovation Fund” seems to suggest that its main objective is to reduce CO<sup>2</sup> emissions, but it also aims to achieve the economic effect of raising Japanese companies’ share of the global market through innovation. Declaring targets for the fund enables the organization to keep sight of its long-term goals and maintain appropriate management.

**Yamaguchi:** In organizations like government authorities, which are subject to regular personnel turnover, it is crucial to establish logical models for the long-term preservation of policy logic. I feel that RIETI also has a part to play as an external body that preserves the results and know-how of examining the effects of policy over the long term.

**Tanimoto:** Tell us about the advice you provided to the project to establish an advanced semiconductor manufacturing base.

**Sugiura:** Under this project, the government provides corporate subsidies to encourage companies to establish next-generation semiconductor factories in Japan. Attracting TSMC to Kumamoto was one well-known example of this. The project’s policy goals are to maximize the economic ripple effects and strengthen



economic security. With the cooperation of the Advisory Board, we advised to measure its value using three models in terms of economic ripple effects. For its effect on economic security, we suggested to quantify the amount of damage that the Japanese economy might sustain if the supply of semiconductors were interrupted. Specifically, we proposed using an input-output model to calculate the economic losses that would occur, assuming Japan had no semiconductor factories, if the supply of semiconductors were interrupted, based on the semiconductor shortage in recent years, which actually impacted the automotive industry through production cuts. This enabled a quantitative assessment, albeit partial, of the effect on economic security.

**Yamaguchi:** The EBPM Center also engages in its own analysis of semiconductor factories. We can ascertain the economic ripple effects of the establishment of new, large-scale semiconductor factories in Japan on regional economies using methods such as difference-in-differences (DiD) analysis of changes in certain variables. These include the new job opening-to-application ratio and active opening-to-application ratio in each prefecture when the news of the construction of each of the factories was announced. The involvement of the Japanese government in the construction of large-scale semiconductor factories through its subsidies, as we observed in this case, forms expectation about continuing investment into the region and makes economic revitalization more attainable.

**Sugiura:** The effect of building factories should be assessed after operation commences, or after the factory has operated for some time. Data, such as changes in the revenue of local companies, is generally only available a considerable time after the factory commences operation. This time, however, we selected “fast data”—in the sense of data that indicates the impact of setting up a factory from a very early stage—and swiftly analyzed this data. In the future, using big data to ascertain changes in variables such as the movement of people will enable us to detect and analyze trends before proper statistical data is even released. This is one of the missions that the EBPM Center will pursue.

## Outlook for the EBPM Center

**Tanimoto:** Tell us about the outlook for the Center.

**Hirai:** Looking ahead, EBPM for large-scale projects is set to expand in biomanufacturing and other areas, and we hope to expand our reach to encompass a broader range of fields. One of these fields is analysis using big data. Another is accumulating and preserving existing research and other materials related to EBPM.

Policymakers need a stock of relevant information that can be utilized as evidence when formulating policies, or as case studies when verifying effects, for example. The third field is to further expand our EBPM network.

**Yamaguchi:** Regarding the first field you just mentioned, big data, we would like to trace the activities around the TSMC factory in Kumamoto and compare them before and after the factory was constructed. We plan to use big data such as job advertisements and data on the flow of people when the factory was constructed to assess the impact of the construction phase, developing analytical methods that could be applied in other fields.

**Sugiura:** The second field, preserving EBPM knowledge, will address the need for a framework to enable government authorities to obtain information from external resources. These authorities are subject to frequent personnel changes, and it is difficult for them to accumulate information internally. For this purpose, we plan to create a prototype portal site, initially focused on economic and industrial policy, and expand it in the future. Regarding the third field, expanding our EBPM network, the links between academia, government, and the private sector in Japan are weaker than in Europe or the U.S., and this also applies to EBPM area. RIETI is an incorporated administrative agency: an ideal standpoint from which to build networks spanning the government and academia. We hope to function as a hub to facilitate these networks.

Note: At the initiation of the fund. Currently the fund has increased its budget several times and there are projects that exceed 10 years in duration.

NON  
TECHNICAL  
SUMMARYThe Effect of Silent Eating during Lunchtime  
at Schools on the COVID-19 Outbreaks

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The discussion paper on which this non-technical summary is based is available on the RIETI website.

This Non Technical Summary does not constitute part of the above-captioned Discussion Paper but has been prepared for the purpose of providing a bold outline of the paper, based on findings from the analysis for the paper and focusing primarily on their implications for policy. For details of the analysis, read the captioned Discussion Paper.

The COVID-19 has become one of the deadliest communicable diseases of the 21st century, causing approximately seven million deaths globally as of the time of this writing. Until effective vaccines were developed, measures such as social distancing, wearing face masks, and restricting travel constituted the main infection countermeasures. In Japan, the government closed all elementary, junior high and high schools from February to May 2020. After schools reopened, it encouraged children to avoid talking while eating lunch at school to prevent the risk of COVID-19 outbreaks, a policy known as silent eating (*mokushoku* in Japanese). Silent eating was implemented until November 2022, when the recommendation was removed from the Novel Coronavirus Response Headquarters' "Basic Policies for Novel Coronavirus Disease Control."

Despite the implementation of silent eating for over two and a half years, no study to date has examined its effectiveness in reducing the risk of COVID-19 outbreaks. Meanwhile, concerns have been raised regarding the potentially negative effects of the policy on children's well-being and educational attainment. The purpose of this research is to examine the impact of silent eating on the risk of COVID-19 outbreaks and provide scientific evidence regarding its effectiveness. In November 2022, the Japanese government decided not to require children to eat their school lunches in silence, and some public schools revised their silent eating rules in response. Using this revision of the silent eating requirement as a natural experiment, we investigated the effect of silent eating on class closures in public schools.

We analyzed data from public elementary and junior high schools in Chiba Prefecture from November 1, 2022, to February 28, 2023. During this period, on November 29, 2022, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) notified boards of education across Japan that, subject to the

implementation of necessary measures, it would no longer require silent eating at schools. On December 22, 2022, the government of Chiba Prefecture requested each local government board of education within the prefecture to revise silent eating rules, noting that such a revision was appropriate from the perspective of educational considerations. Our data was composed of (1) data from the survey conducted by Chiba Prefecture's board of education in mid-January 2023 on the status of implementation of silent eating and (2) administrative data on daily class closures at each school, recorded by the prefecture's board of education. The data in (1) showed that 45 schools in 11 cities in Chiba Prefecture had revised their silent eating rules. In our analysis, we used these 45 schools and their classes as our control schools. Meanwhile, 157 schools in these 11 cities maintained their silent eating rules, and we used these schools and their classes as the treated schools.

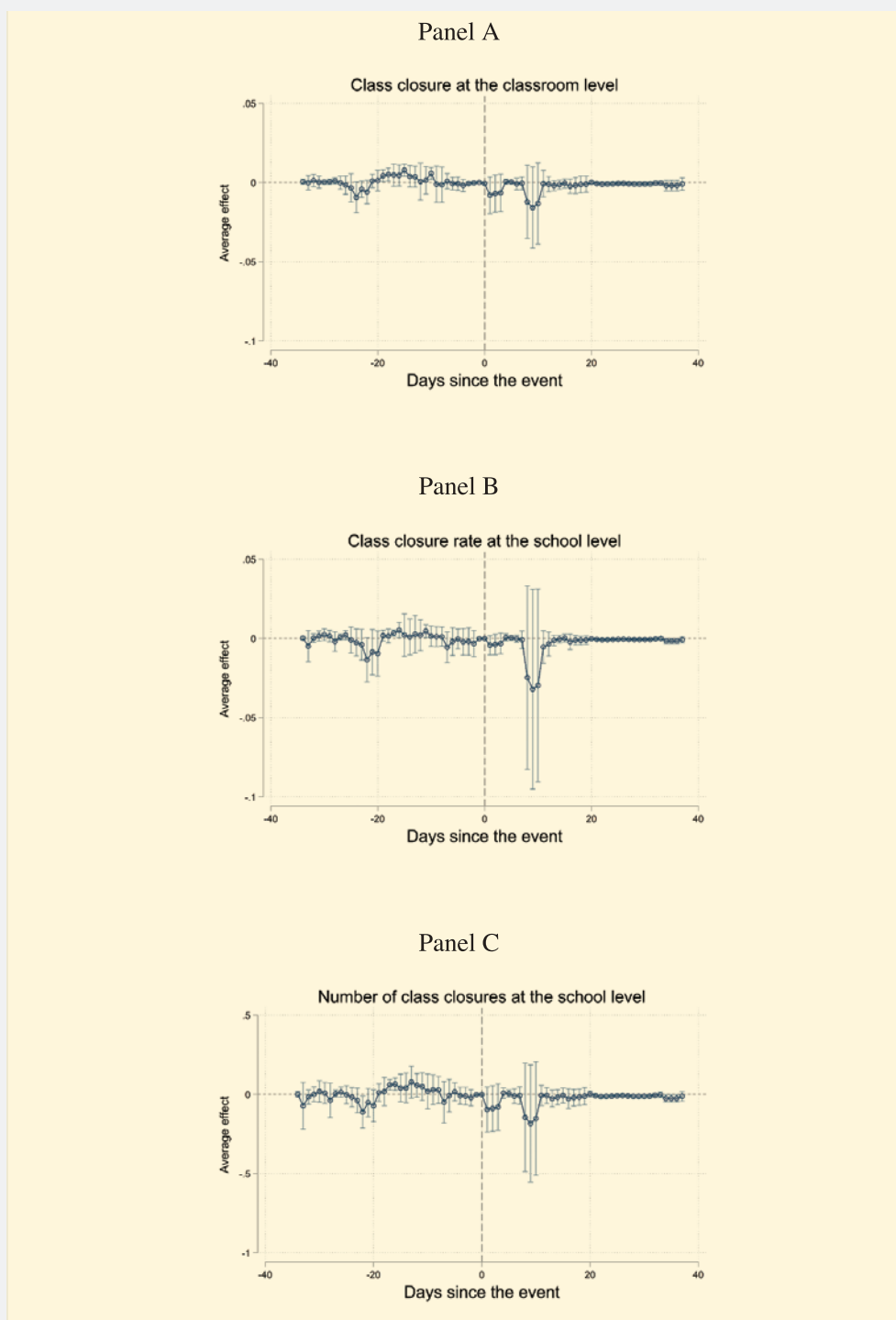
Based on the results of an event study analysis using the de Chaisemartin and D'Haultfoeuille (2020) estimator, we were able to confirm that the class closure rate at the classroom level and school level, as well as the number of class closures at the school level, decreased around 10 days after lifting the silent eating protocol. However, none of the estimated coefficients were statistically significant, and all estimated coefficients subsequently returned to zero (see the figure below). Applying a difference-in-differences model with two-way fixed effects, we found that the estimated values for the average treatment effects under each outcome were close to zero and insignificant. We were therefore unable to confirm any compelling evidence to support the idea that silent eating helped to prevent class closures.

These results indicate that silent eating during school lunchtimes had an extremely small and statistically insignificant effect on reducing the number of class closures and the class closure rate. This suggests that lifting the requirement to eat silently would

not increase the risk of class closure. Existing empirical research indicates the possibility that silent eating may have a side effect on children's skill formation. Our findings suggest that governments should account for the dynamic nature of pandemics and provide

greater flexibility to adopt to changing circumstances in their policies, striking a balance between infection prevention measures and the overall well-being and developmental needs of children.

**Figure: Results of the Event Study Analysis**



Note: Panel A shows the results for class closures at the classroom level, Panel B shows the results for class closure rates at the school level, and Panel C shows the number of class closures at the school level. Each panel plots the average treatment effects for each day, while the bar charts represent the respective 95% confidence intervals.

NON  
TECHNICAL  
SUMMARY

# Income Taxes, Gross Hourly Wages, and the Anatomy of Behavioral Responses: Evidence from a Danish tax reform

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**Jesper BAGGER** University of Edinburgh / Aarhus University / IZA



The discussion paper on which this non-technical summary is based is available on the RIETI website.

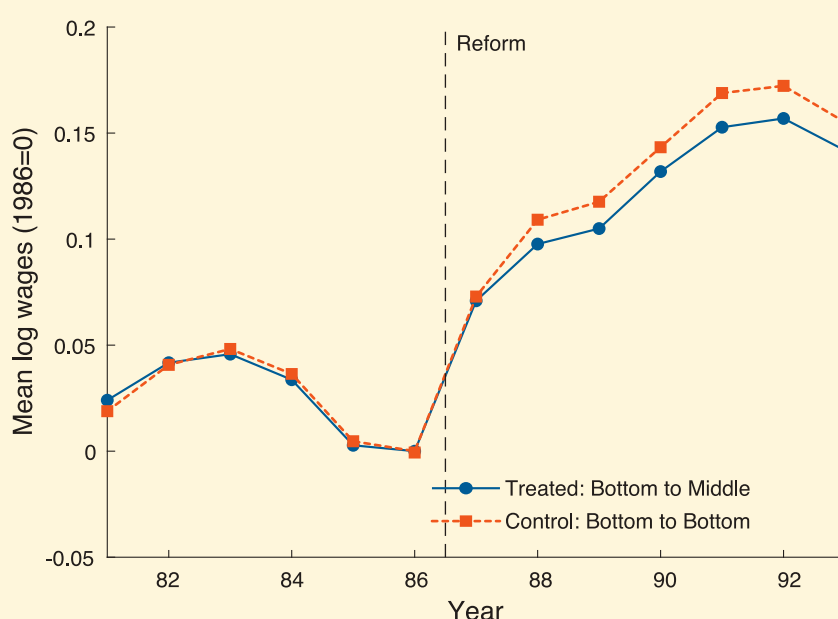
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Economists have long studied the distortionary and distributional effects of income taxes on labor market outcomes. While most empirical studies have focused on labor supply responses, there is scant evidence on the effects of taxes on gross hourly wages—the other key component of earnings. Moreover, these effects are theoretically ambiguous: Some economists predict that taxes have positive effects on wages because, in the standard labor supply-and-demand model, higher tax rates shift the labor supply curve leftward, inducing higher equilibrium wages. Others, by contrast, predict negative and dynamic effects because higher tax rates lead to lower wage growth by reducing incentives to accumulate human capital or search for higher-paying jobs—the two main drivers of wage growth. Therefore, to better understand policy implications, it is crucial to empirically identify both the

effects of taxes on wages and the channels through which wages respond to taxes.

Given these motivations, this paper asks the following research questions: Do income taxes have positive or negative effects on gross hourly wages? Are these effects static or dynamic? Through what channels do wages respond to taxes? How do wage responses compare to labor supply responses?

To answer these questions compellingly, we provide quasi-experimental evidence utilizing Danish administrative data and a tax reform that came into effect in 1987. First, our dataset is a population-wide annual panel containing extensive information on individual income and worker/job characteristics. We select





Outcome $Y$	Low-income	Medium-income
$Y$ : continuous		
Gross hourly wages		
$\widehat{e}^{2\text{step}}$	0.369 (0.065)	0.112 (0.089)
$\widehat{e}^{1\text{step}}$	0.400 (0.070)	0.096 (0.051)
Daily hours worked		
$\widehat{e}^{2\text{step}}$	0.000 (0.078)	
$\widehat{e}^{1\text{step}}$	0.053 (0.079)	
$Y$ : binary (semi-elasticity)		
Being a skilled worker or not		
$\widehat{e}^{2\text{step}}$	0.149 (0.077)	
$\widehat{e}^{1\text{step}}$	0.155 (0.079)	
Being a white-collar worker or not		
$\widehat{e}^{2\text{step}}$	0.226 (0.081)	
$\widehat{e}^{1\text{step}}$	0.233 (0.083)	
Making job-to-job transitions or not		
$\widehat{e}^{2\text{step}}$	0.370 (0.144)	
$\widehat{e}^{1\text{step}}$	0.396 (0.149)	

a sample of working married males. Next, we use the 1987 tax reform for our empirical strategy because it introduced joint taxation to a middle tax bracket, bringing large changes to the tax system faced by married couples. This unique institutional change allows us to exploit variation in spousal income and thus identify the following two groups located in a bottom tax bracket before the reform: one group with higher spousal income is pushed upward to the middle bracket by the reform, whereas the other group with lower spousal income remains in the bottom bracket. We compare the outcome dynamics of these two groups in a difference-in-differences (DID) design. Although previous studies also use this reform as a natural experiment, our approach is novel in its focus on the introduction of joint taxation.

We present clear non-parametric graphical evidence and regression results regarding the effects of taxes on various outcomes; for example, see a figure above. A table next to the figure lists the main elasticities with respect to net-of-marginal-tax rates estimated in this paper. Our findings are as follows.

First, taxes have heterogeneous effects on wages across income levels. Low-income workers respond to taxes negatively and dynamically. Higher marginal tax rates gradually depress wage growth over time; that is, distortion dynamically accumulates on wages, which we refer to as accumulating effects in this paper. Their elasticities of wages with respect to net-of-marginal-tax rates are 0.4. We obtain relatively large elasticities because our DID design uncovers the dynamic and accumulating effects rather than short-run effects attenuated by optimization frictions: workers change their behavior sluggishly in response to taxes and gradually

overcome optimization frictions, which leads to the accumulating effects with the relatively large elasticities. By contrast, for medium-income workers, the effects of taxes on wages are smaller and statistically insignificant. Given the large elasticities and novel accumulating effects, we move on to the details of low-income workers.

Second, we find that wages respond to taxes through promotions or job-to-job transitions. Workers facing higher marginal tax rates are less likely to be promoted to skilled or white-collar positions, arguably due to reduced incentives to accumulate human capital or work harder. Similarly, workers facing higher marginal tax rates are less likely to make job-to-job transitions, arguably due to reduced incentives to search for higher-paying jobs. These two dynamic channels can explain the negative and accumulating effects of taxes on wages. To the best of our knowledge, this paper provides the first quasi-experimental evidence on these channels.

Third, we find that labor supply responses, as measured by daily hours worked, are statistically insignificant and smaller in magnitude than wage responses. As a result, while wages respond negatively, hours respond insignificantly to taxes. These findings do not support the standard labor supply-and-demand model, which predicts negative labor supply responses and positive wage responses.

# The Impact of Export Controls on International Trade: Evidence from the Japan–Korea trade dispute in the semiconductor industry



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*Trade restrictions have increasingly been used for national security reasons in recent years. This column studies the impact of export controls in the semiconductor industry applied by Japan on South Korea in 2019. It finds these controls drastically cut trade of affected chemical inputs between Japan and South Korea, but increased trade of both countries with the U.S. Furthermore, the production of affected chemicals increased in South Korea, following a government program to promote domestic production. Ultimately, policy considerations need to take into account these complex trade reallocation effects, particularly for industries where global value chains are pervasive.*

Trade policy being used to address national security concerns has been pervasive in recent years. Notable examples are the U.S. trade restrictions against China in 2018, the U.S. trade sanctions against Russia following its invasion of Ukraine in 2022, and the U.S. export controls on the Chinese semiconductor industry in 2019. Research on trade policies has also been growing over the last 10 years (e.g. Amiti et al. 2019, Fajgelbaum et al. 2020, Bown 2021, Fajgelbaum et al. 2021, Latipov et al. 2022, Hayakawa et al. 2023). While most of the research analyzes the effect of tariffs on domestic economies, there is still relatively little empirical evidence on the effect of non-tariff trade policy on exports and imports in an industry with extensive global value chains (GVCs). What is the effect of such trade policy on international trade in an industry where the production process is characterized by global value chains? Is unilateral export control effective in an industry where firms change their production and sourcing patterns in response to export controls? In a recent paper (Makioka and Zhang 2023), we investigate the effect of non-tariff trade policy implemented in the name of national security on international trade in an industry characterized by global value chains—the semiconductor industry. We use a recent Japan–Korea trade dispute as a case study.

In July 2019, the Japanese government announced potential export controls on South Korea for three chemical inputs,

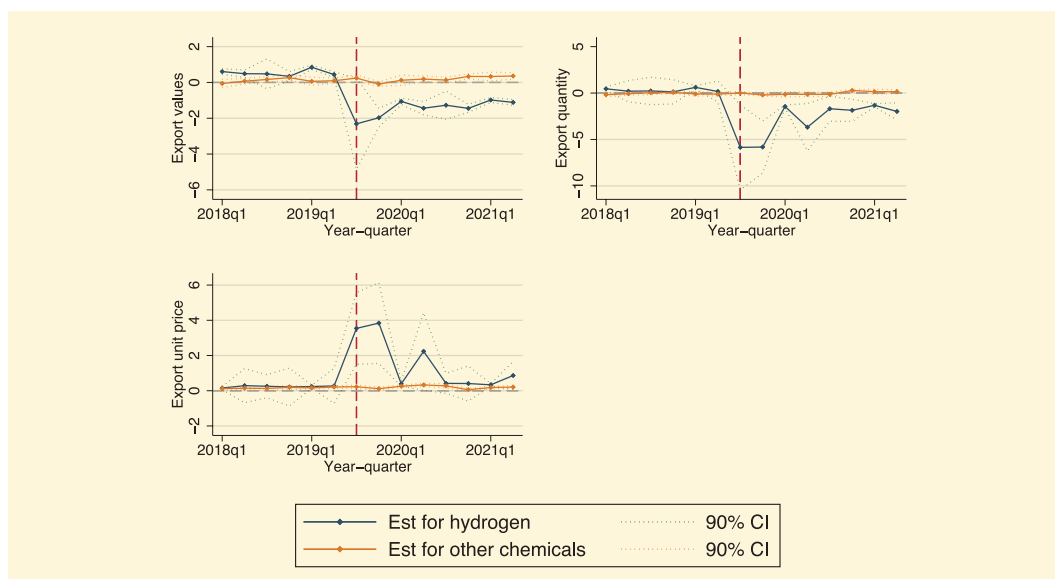
namely hydrogen fluoride, photoresist and fluorinated polyimide, all of which are essential in semiconductor production. As a result, Japanese exporters of these three chemical materials are required to apply for individual export licenses, rather than bulk export licenses, reporting information on end-user, product specifications, technology and so on for each export contract. The semiconductor industry has what is a typical example of a global value chain. The U.S., Taiwan and China have dominant sales shares in all design, manufacturing, and outsourced semiconductor assembly and test (OSAT) stages, while the design stage itself tends to be located in Europe and Japan, the manufacturing stage in Israel and South Korea, and the OSAT stage in Singapore and Japan. Given its sequential features, protectionist trade measures can potentially affect the entire production process and input sourcing patterns.

The semiconductor industry in South Korea was heavily dependent on these three chemical materials imported from Japan before the Japanese export control was introduced. For instance, Japanese firms supply more than 90% of South Korean imports of two out of the three key materials. The materials are then used in semiconductor production in South Korea, which comprises 20% of South Korea's total exports. We use a difference-in-differences approach and the synthetic control method to determine the causal effect of the export control on Japanese export, and Korean import and export. We also provide some preliminary statistics to investigate the response of domestic production in Japan and South Korea to the export controls.

## Findings

There are five findings. First, the Japanese exports of hydrogen fluoride to South Korea declined by 87.9% due to the export control, but this was not the case for the other two restricted chemical materials, photoresist and fluorinated polyimide (Figure 1). The latter could be partly because the Japanese Ministry of Economy, Trade and Industry allowed, in December 2019, three-year bulk export licenses for some photoresist transactions.

**Figure 1: Effects of the Export Controls on the Japanese Exports of Three Chemical Materials to South Korea**



Note: This figure plots the coefficients on the triple interactions of year-quarter, South Korea, and product dummies as in the even columns in Table 6 in Makioka and Zhang (2023), but using the year-quarter aggregated data and including product-country-month fixed effects. The coefficients are thus estimated with respect to their respective values in the year 2017 (all 12 months of 2017 are omitted). The vertical dashed line corresponds to the third quarter in 2019 when the export control was enacted.

Second, the restrictions increased Japanese exports of hydrogen fluoride to the U.S., and thus did not cause, on average, a decrease in the Japanese production of semiconductor-related products. It also suggests the possibility that Japanese firms substituted their exports of restricted chemical materials to the U.S. or exported the materials to South Korea through the U.S. (roundabout trade). The latter possibility is consistent with the next finding.

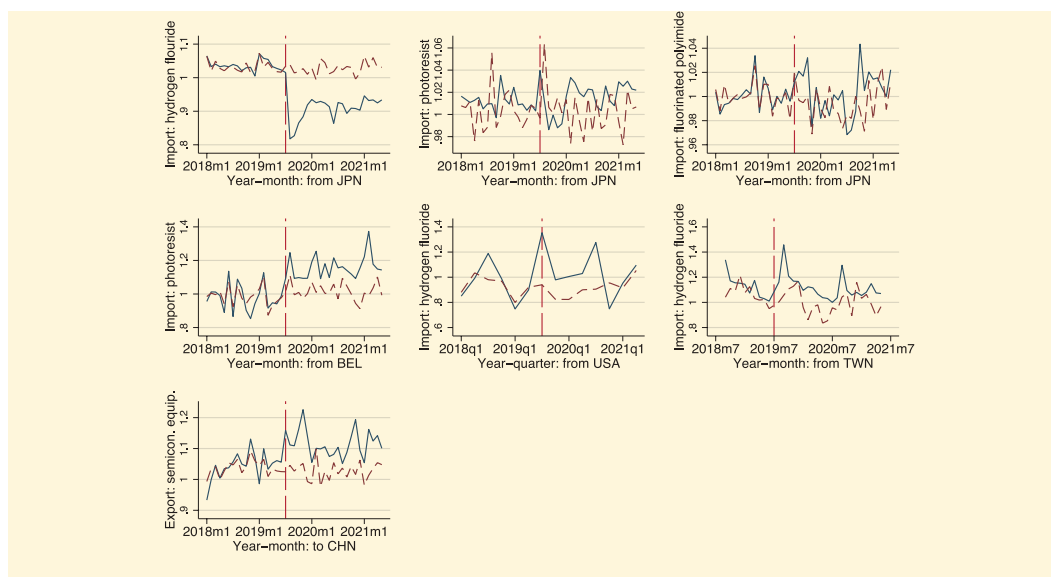
Third, South Korea increased their import of hydrogen fluoride from the U.S. and Taiwan and those of photoresist from Belgium, which is consistent with their reallocation of input sourcing from Japan to economies such as Belgium, the U.S., and Taiwan (the middle graph in Figure 2). Furthermore, their imports of semiconductor manufacturing equipment dropped from the Netherlands by 54.7% and from Germany by 72.6% respectively. This could reflect the fact that semiconductor manufacturing equipment, that is used complementarily with chemical materials in the production process, is no longer purchased due to the Japanese export restrictions of the chemical materials. Actually, a company in the Netherlands, ASML, supplies 75% of lithography (one of the production steps in semiconductor products) equipment in the global market and is the only company supplying extreme-ultraviolet lithography equipment in the world, which is required to produce the most advanced chips. On the other hand, high-quality photoresist is also used in the

extreme-ultraviolet lithography step, which is restricted due to the Japanese export control. Semiconductor manufacturing plants need to combine the material with the equipment to produce semiconductor wafers.

Fourth, the South Korean exports of semiconductor manufacturing equipment to China seem to increase substantially at the time of the introduction of the Japanese export controls (bottom left in Figure 2). This is consistent with the interpretation that these South Korean firms reallocate some of their production to China to securely source the necessary chemical materials under the export controls and require shipment of semiconductor manufacturing equipment to China.

Fifth, the production of the three chemical materials increased in Korean firms and Japanese affiliates in South Korea after the export controls. The former is consistent with the fact that the South Korean government announced 7.8 trillion won (about \$6 billion) of investment over seven years to promote domestic production of strategic products (including the three chemical materials) in August 2019. In addition, the latter is consistent with the story that Japanese multinational enterprises (MNEs) shifted their production of these three chemical materials due to the export controls.

Figure 2: Effects of the Export Controls on South Korean Imports and Exports



Note: The figure plots the results of the synthetic control method for South Korean imports of hydrogen fluoride from Japan (top left), their imports of photoresist from Japan (top middle), their imports of fluorinated polyimide from Japan (top right), their imports of photoresist from Belgium (middle left), their imports of hydrogen fluoride from the U.S. (middle middle), their imports of hydrogen fluoride from Taiwan, and their exports of semiconductor manufacturing equipment to China (bottom left). Within each window, the blue line is the log import values or log export values for each treatment group. The red dashed line is the corresponding value for the synthetic control group. The vertical red line denotes the timing of the Japanese export controls (July 2019 or third quarter in 2019).

## Conclusion

In the modern global economy where global value chains are pervasive, trade policies for national security purposes can face unintended consequences through changes in firm's sourcing strategy, production locations, and production decisions of multinational enterprises. This result suggests that the effectiveness of unilateral export controls is limited in the current global economy. Taking these effects into account when making policy decisions is necessary to mitigate the unintended negative effects of such policies. Further research should be done especially by using more detailed firm-level data to pin down the mechanisms.

*Editor's note: The main research on which this column is based (Makioka and Zhang 2023) first appeared as a Discussion Paper of the Research Institute of Economy, Trade and Industry (RIETI) of Japan.*

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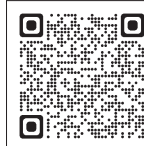
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## NON TECHNICAL SUMMARY

# International Economic Policy for Asia in an Era of Great Power Strategic Competition

Shiro ARMSTRONG Visiting Fellow, RIETI



The discussion paper on which this non-technical summary is based is available on the RIETI website.

This Non Technical Summary does not constitute part of the above-captioned Discussion Paper but has been prepared for the purpose of providing a bold outline of the paper, based on findings from the analysis for the paper and focusing primarily on their implications for policy. For details of the analysis, read the captioned Discussion Paper.

The United States and China, the world's two largest economies, are locked into strategic competition and rivalry that complicates international policy choices for the rest of the world, but particularly for their partners in Asia. Economics and security are increasingly entangled in a way that may cause damage to both, creating a dangerous trade-off and a negative feedback loop on both economic and security outcomes. Economic coercion is being deployed to narrow choices for countries.

The open multilateral trading system is under threat. A loss of confidence in the WTO will unravel the deep and complex economic interdependence in East Asia and make political differences difficult to manage. The existing network of bilateral, plurilateral and regional agreements that is the scaffolding of the multilateral trading system is no substitute for the WTO that is the structural pillar of the economic order. The gaps in membership and coverage of rules will likely fragment the global economic system without a functioning WTO at its core.

Open markets underpinned by the multilateral trading system give firms and consumers alternative sources and markets in the face of shocks, both economic and political. Fragmentation of the trading system or rising protectionism will amplify risk by reducing options and impede adjustment to shocks. Open international markets diffuse power and are a source of resilience.

Economic engagement and integration into markets reduces the costs of harmful international behavior for targeted countries and raises the costs of those actions for malignant actors. Interdependence enhances national security but inevitably involves some security risk. If security concerns and policies dominate economic choices, the policy space is narrowed significantly. It is the important job of security agencies to look for and mitigate risks, but economic interests also need to be balanced. Risks can be mitigated through a combination of international cooperation, multilateral rules and strong domestic laws.

Reducing trade or investment to avoid security risks is not the right strategic response in a world of integrated markets and economies, unless countries want to be poorer, weaker and live in a less certain and stable world. These are shared challenges and opportunities for countries navigating a more complex world.

Large powers, like the United States and China, naturally prefer to deal with countries bilaterally where the asymmetry of their power offers most leverage. That forces the world into even harder choices. The United States and China left to their own devices may try to decouple their economies and divide the global economy into two spheres. They are big and influential players in the system, but the response of the rest of the world to their behavior will be important to the outcome.

Small and middle powers need to get the balance of economics and security right in strategic policy making and work together to avoid a big-power dominated, bilateral world of zero-sum outcomes. Acting strategically and not falling into bilateralism is for them the sensible way forward. Agreements that support, and do not detract from, multilateral outcomes will help to preserve and expand policy options for countries in the region and make them better off economically and more secure, instead of poorer, weaker and less secure.

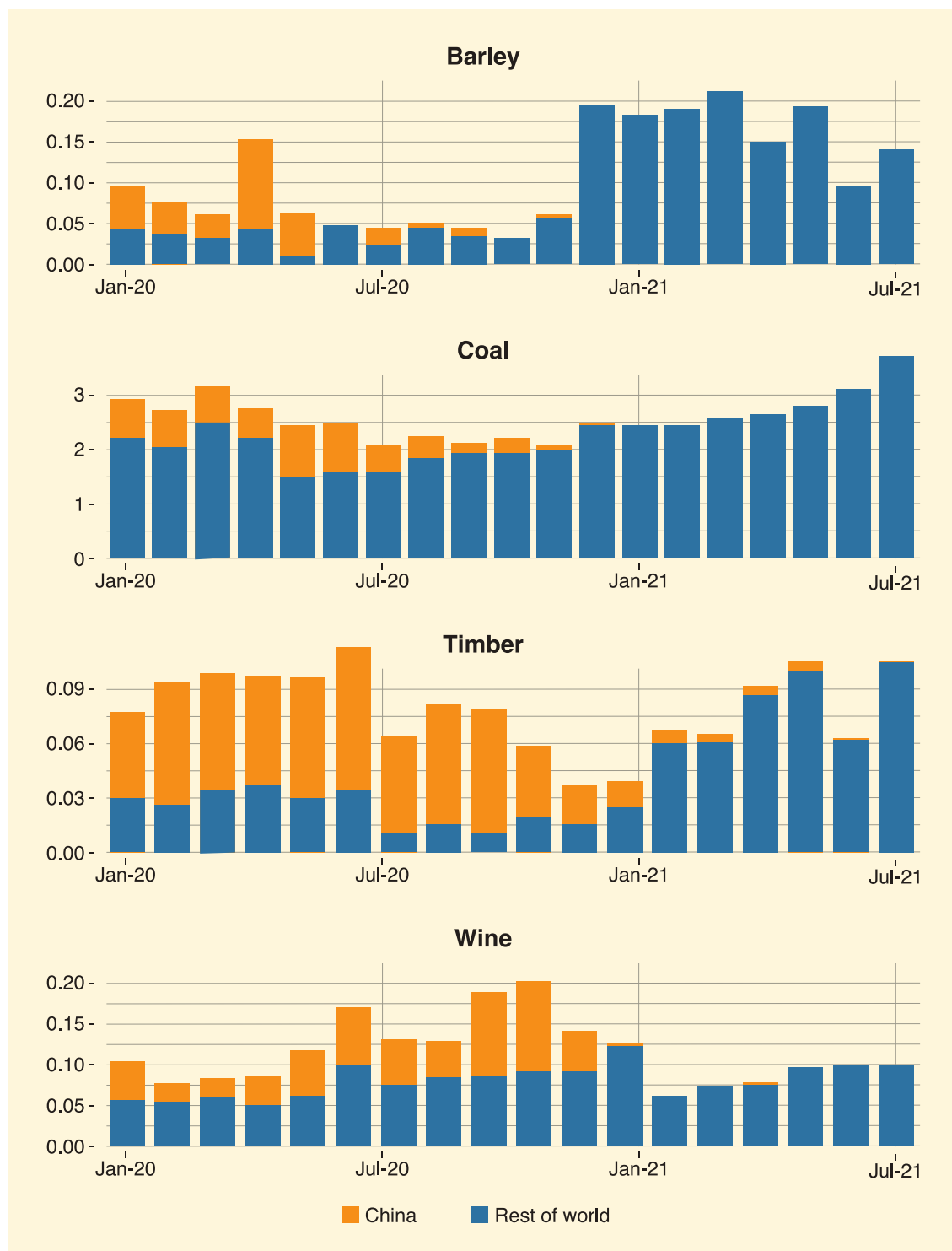
One of the most blatant recent experiences of attempted economic coercion demonstrates what protection small and middle powers have. From May 2020, Beijing blocked the import of a dozen or so Australian goods worth around \$20 billion annually, including coal, wine, barley, timber and lobsters where China was the major market (see Figure). The trade sanctions caused Australian exporters, especially wine and lobster exporters, huge losses. Most Australian exporters, however, were able to quickly find other markets. Imports of barley, coal and other commodities in China did not shrink, and exporters from countries other than Australia replaced Australia in filling that demand. Australian exporters, in turn, filled the new demand for those commodities

outside of China. Flexible markets in Australia helped, but the crucial external source of resilience was an open multilateral trading system, which ensures that trading options remain open. Beijing's economic weaponry was blunted by that system with the WTO, despite all its weaknesses, at its core.

This paper demonstrates the security value of the multilateral trading system and economic interdependence. Economic coercion

is blunted by an open multilateral trading system that significantly reduces the cost to targeted countries. Multilateral engagement helps manage important risks that countries face by diffusing power and providing forums for collective action by small and middle powers that provide leverage.

Monthly Australian Exports to China and the Rest of the World, Selected Commodities, Billion \$A



Source: UN Comtrade










# RIETI'S FIFTH MEDIUM-TERM PLAN

FY2020 to FY2023

In the Fifth Medium-term Plan period, RIETI will add research on the Fourth Industrial Revolution and the behavioral economics approach, which has been gaining popularity and credibility, to the AI-related research (e.g., using AI to analyze corporate performance and consumer behavior) it has promoted to date. The scope of this research creates opportunities for the participation of researchers in science disciplines outside economics and will gradually enable the establishment of a system that allows for integration of the humanities and sciences, including linkages between research in multiple disciplines and social science/economics. Additionally, RIETI will promote research on Evidence-Based Policy Making (EBPM), which is expected to become increasingly important in the future, to contribute to developing solutions to increasingly diverse and complex economic and social issues toward the formulation of economic and industrial policies.

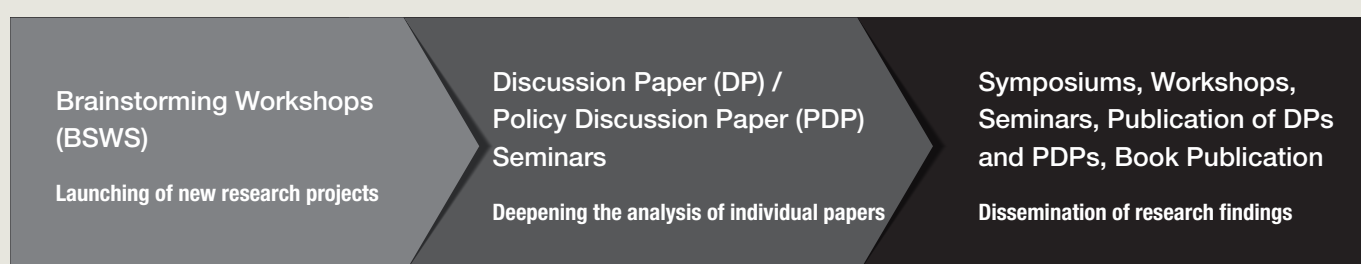
Guided by medium- and long-term policy directions from the government, including its economic and industrial policies, RIETI will continue to engage in research activities while working with experts in other areas to initiate integration between the humanities and sciences including linkages between research in multiple external disciplines and social science/economics. In doing so, it will contribute to an evidence-driven transformation of economics and social systems.

## Research Programs

I	II	III	IV	V	VI	VII	VIII	IX
								
Macroeconomy and Low Birthrate/Aging Population	International Trade and Investment	Regional Economics	Innovation	Industry Frontiers	Raising Industrial and Firm Productivity	Human Capital	Integrated Research	Policy Assessment

## Research Process


RIETI provides forums for discussion (e.g., brainstorming workshops and discussion paper/policy discussion paper seminars) and invites policymakers to these forums to improve the quality of our research and to build linkages between our research and future policies.



# Introduction of the Nine Research Programs

Program I

Macroeconomy and Low Birthrate/Aging Population




Program Director: KOBAYASHI Keiichiro

Faculty Fellow, RIETI / Professor, Faculty of Economics, Keio University / Research Director, The Canon Institute for Global Studies / Research Director, The Tokyo Foundation for Policy Research

<b>Active Projects</b>	
<b>Macroeconomic Policy and Political Philosophy toward Economic Growth</b> Project Leader: KOBAYASHI Keiichiro (Faculty Fellow)	<b>Firm Dynamics and Aggregate Fluctuations</b> Project Leader: SENGU Tatsuro (Fellow)
<b>Exchange Rates and International Currency</b> Project Leader: OGAWA Eiji (Faculty Fellow)	<b>Economic Shocks, the Japanese and World Economies, and Possible Policy Responses</b> Project Leader: Willem THORBECKE (Senior Fellow)
<b>Macroeconomy and Automation</b> Project Leader: FUJIWARA Ippei (Faculty Fellow)	

Program II

International Trade and Investment




Program Director: TOMIURA Eiichi

Faculty Fellow, RIETI / Professor, Faculty of Economics, Hitotsubashi University

<b>Active Projects</b>	
<b>Empirical Analysis of Japanese Firms' Relationships with China and Their Responses to Changing Globalization</b> Project Leader: TOMIURA Eiichi (Faculty Fellow)	<b>Economic Policy Issues in the Global Economy</b> Project Leader: ISHIKAWA Jota (Faculty Fellow)
<b>Restructuring the International Trade Law System Based on Sustainability</b> Project Leader: NAKAGAWA Junji (Faculty Fellow)	<b>Research on Relationships between Economic Networks and National Security</b> Project Leader: TODO Yasuyuki (Faculty Fellow)
<b>Comprehensive Research on the Current International Trade/Investment System (pt.VI)</b> Project Leader: KAWASE Tsuyoshi (Faculty Fellow)	<b>Globalization and Regional Economies</b> Project Leader: MATSUURA Toshiyuki (Faculty Fellow)
<b>Structural Changes in the World Economy and Responses from Japanese Firms and the Government</b> Project Leader: URATA Shujiro (Chairman)	<b>Micro-data Analysis of the U.S.-China Conflict</b> Project Leader: ZHANG Hongyong (Senior Fellow)

Program III

Regional Economies



Program Director: HAMAGUCHI Nobuaki

Faculty Fellow, RIETI / Professor, Research Institute for Economics and Business Administration (RIEB), Kobe University

<b>Active Projects</b>	
<b>Regional Economies as Platforms for the Emergence of Innovation</b> Project Leader: HAMAGUCHI Nobuaki (Faculty Fellow)	<b>Innovation, Globalization and Employment</b> Project Leader: SAITO Yukiko (Senior Fellow)
<b>Development of Quantitative Framework for Regional Economy Based on the Theory of Economic Agglomeration</b> Project Leader: MORI Tomoya (Faculty Fellow)	<b>Sustainable Development of Local Businesses and the Role of Regional Financial Institutions</b> Project Leader: YAMORI Nobuyoshi (Faculty Fellow)
<b>Evidence-Based Policy Making for Regional Revitalization</b> Project Leader: KONDO Keisuke (Senior Fellow)	<b>Urban Agglomeration Economies and Policy</b> Project Leader: NAKAJIMA kentaro (Faculty Fellow)



## Program IV

## Innovation



Program Director: **NAGAOKA Sadao**

Faculty Fellow, RIETI / Professor Emeritus, Hitotsubashi University

## Active Projects

**Assessment of the Innovation Capability of Japanese Industry from an International Perspective**

Project Leader: NAGAOKA Sadao (Faculty Fellow)

**Innovation, Knowledge Creation and Macroeconomy**

Project Leader: NIREI Makoto (Faculty Fellow)

**Penetration of Quantitative Performance Indicators of the Impact of "Design" on Organization Management**

Project Leader: WASHIDA Yuichi (Faculty Fellow)

**Entrepreneurship in High-tech and High-growth Start-ups**

Project Leader: HONJO Yuji (Faculty Fellow)

**Research on Digital Innovation Models**

Project Leader: MOTOHASHI Kazuyuki (Faculty Fellow)

## Program V

## Industry Frontiers



Program Director: **OHASHI Hiroshi**

Faculty Fellow, RIETI / Vice President, Professor, Graduate School of Public Policy, The University of Tokyo / Professor, Faculty of Economics, The University of Tokyo

## Active Projects

**Design and System Analyses of the Electricity Market and Its Implications for Japan**

Project Leader: OHASHI Hiroshi (Faculty Fellow)

**Study Group on Corporate Finance and Firm Dynamics**

Project Leader: UESUGI Ichihiro (Faculty Fellow)

**Heterogeneity across Agents and Sustainability of the Japanese Economy**

Project Leader: YOSHIKAWA Hiroshi (Faculty Fellow)

**Institutional Design to Achieve a Society of Well-being**

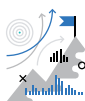
Project Leader: MANAGI Shunsuke (Faculty Fellow)

**Dynamics of Price in Crypto Assets and Real Economy and Their Underlying Complex Networks**

Project Leader: AOYAMA Hideaki (Faculty Fellow)

## Program VI

## Raising Industrial and Firm Productivity



Program Director: **FUKAO Kyoji**

Faculty Fellow, RIETI / University Professor, IER, Hitotsubashi University /

Professor Emeritus, Hitotsubashi University / President, Institute of Developing Economies, Japan External Trade Organization

## Active Projects

**East Asian Industrial Productivity**

Project Leader: FUKAO Kyoji (Faculty Fellow)

**Firm Dynamics, Industry, and Macroeconomy**

Project Leader: HOSONO Kaoru (Faculty Fellow)

**On Productivity Growth through Comprehensive Capital Accumulation**

Project Leader: MIYAGAWA Tsutomu (Faculty Fellow)

**Revitalization of the Japanese Non-metropolitan Economies**

Project Leader: OKUBO Toshihiro (Faculty Fellow)

## Program VII

## Human Capital



Program Director: TSURU Kotaro

Faculty Fellow, RIETI / Professor, Graduate School of Business & Commerce, Keio University

### Active Projects

#### Employment and Educational Reform in the AI Era

Project Leader: TSURU Kotaro (Faculty Fellow)

#### Productivity Effects of HRM Policies and Management Quality

Project Leader: OWAN Hideo (Faculty Fellow)

#### Fundamental Research for Restoring Vitality and Improving Productivity in the Japanese Economy and Society

Project Leader: NISHIMURA Kazuo (Faculty Fellow)

#### Wage Inequality and Industrial Dynamics

Project Leader: KAMBAYASHI Ryo (Faculty Fellow)

#### Research on Diverse Work Styles, Health and Productivity

Project Leader: KURODA Sachiko (Faculty Fellow)

#### Economic Analysis on the Problem of an Aging Population and a Declining Birthrate in China and Japan in the COVID-19 Pandemic

Project Leader: YIN Ting (Fellow)

## Program VIII

## Integrated Research



### Active Projects

#### Frontiers in Corporate Governance Analysis

Project Leader: MIYAJIMA Hideaki (Faculty Fellow)

#### Basic Research for Exploring Ideal Interventions in Medicine and Health

Project Leader: SEKIZAWA Yoichi (Senior Fellow)

## Program IX

## Policy Assessment



Program Director: KAWAGUCHI Daiji

Faculty Fellow, RIETI / Professor, Graduate School of Economics, The University of Tokyo / Graduate School of Public Policy

### Active Projects

#### Comprehensive Research on Evidence Based Policy Making (EBPM)

Project Leader: SEKIZAWA Yoichi (Senior Fellow)

#### Implementing Evidence-Based Policy Making in Japan

Project Leader: OHTAKE Fumio (Faculty Fellow)

#### Evaluation of the Effects of Institutional and Environmental Factors on Family Formation, Parental Labor Market Performance and Children's Academic Performance

Project Leader: KONDO Ayako (Faculty Fellow)

#### Analysis on Policies to Improve Firm Productivity: The case of Lao Textile industry and initial analysis on Japanese firms' foreign study tours

Project Leader: TANAKA Mari (Faculty Fellow)

#### Future Challenge and Empirical Analysis of Corporate Taxation

Project Leader: SATO Motohiro (Faculty Fellow)

#### Microeconomic Analysis of Education Policy

Project Leader: TANAKA Ryuichi (Faculty Fellow)

## Special Projects

### Active Projects

#### RIETI Data Management Project

Project Leader: SEKIGUCHI Yoichi (Senior Fellow)

#### Historical Evaluation of Industrial Policy

Project Leader: OKAZAKI Tetsuji (Faculty Fellow)

#### The Policy-Making Process of the Industrial Competitiveness Policies in Japan

Project Leader: WATANABE Junko (Faculty Fellow)

# International Institutions with RIETI

## EUROPE

## ASIA

## OCEANIA

### EUROPE

#### United Kingdom

1 Centre for Economic Policy Research (CEPR) London office  
Chatham House

2 Saïd Business School, University of Oxford

3 Durham University

4 University of Sussex

#### France

5 Banque de France  
Center for Economic Policy Research (CEPR) Paris office  
Fondation France-Japon de l'EHESS  
Institut national de la santé et de la recherche médicale (INSERM), Cremer3  
Institut Pasteur  
Organisation for Economic Co-operation and Development (OECD)

#### Germany

6 IZA Institute of Labor Economics (IZA)  
German Development Institute  
7 Deutsche Gesellschaft für Auswärtige Politik  
Institut für Mittelstandsforschung

8 Kiel Institute for the World Economy

#### Italy

9 European University Institute

#### Switzerland

10 Graduate Institute, Geneva  
IMD Business School  
University of St. Gallen

#### Netherlands

11 Clingendael Institute  
Utrecht University School of Economics

#### Belgium

12 Bruegel  
Centre for Security, Diplomacy and Strategy, Free University of Brussels (VUB-CSDS)  
European Commission (EC)  
European Corporate Governance Institute (ECGI)

#### Sweden

13 Varieties of Democracy (V-Dem), University of Gothenburg

#### Russia

14 New Economic School

### OCEANIA

#### Australia

23 Australian National University  
24 University of Adelaide

# ons that Collaborated in 2023



## NORTH AMERICA



### NORTH AMERICA

#### United States of America

**25** Council on Foreign Relations (CFR)  
Asia Society Policy Institute (Washington, D.C. Office)  
Brookings Institution  
Georgetown University  
George Washington University  
German Marshall Fund of the United States  
International Food Policy Research Institute  
International Monetary Fund (IMF)  
Peterson Institute for International Economics  
Johns Hopkins University

**26** Syracuse University  
**27** Yale University  
**28** Harvard University  
**29** University of Chicago  
**30** Portland State University  
**31** University of California San Diego

#### Canada

**32** Centre for International Governance Innovation

### SOUTH AMERICA

#### Brazil

**33** Fundação Dom Cabral  
**34** Centro de Estudos de Integração e Desenvolvimento  
BRICS Policy Center

#### Argentina

**35** Escuela Argentina de Negocios  
**36** Universidad Nacional de La Plata

## ASIA

### Republic of Korea

**15** Korea Institute for Industrial Economics and Trade (KIET)

### Taiwan

**16** Taiwan Institute of Economic Research (TIER)

### China

**17** Institute of Japanese Studies, Chinese Academy of Social Sciences (IJS, CASS)  
Peking University  
Tsinghua University  
University of International Business and Economics

**18** Asia Global Institute

### Mongolia

**19** The Mongolian National Development Agency (NDA)

### Singapore

**20** Asia-Pacific Economic Cooperation (APEC) Secretariat  
ISEAS – Yusof Ishak Institute  
Middle East Institute, National University of Singapore

### Indonesia

**21** Economic Research Institute for ASEAN and East Asia (ERIA)  
Indonesia Research Institute for Decarbonization (IRID)  
University of Indonesia

### India

**22** Centre for Policy Research Research and Information System for Developing Countries



July 19, 2023

## RIETI Open BBL Webinar

# “Innovation: A key pathway to Europe’s green deal and economic security”

Speaker: H.E. Jean-Eric PAQUET (Ambassador of the European Union (EU) to Japan)



### The European Green Deal

The European Union (EU) decided in 2019 to put the European Green Deal at the center as a compass of public policy in Europe for the transformation of its societies and economies around the global challenge of climate mitigation and adaptation, and the deep biodiversity, and environmental degradation which is occurring globally.

This European Green Deal is at the heart of the EU’s industrial policy and also has significant impact on its security and external policy. The EU is deploying a large set of instruments to achieve an ambitious target of at least a 55% reduction in CO2 emissions by 2030. For this, the EU has significant funding with many different EU instruments in their toolbox. During the recovery from the pandemic, it also deployed additional funding largely focused on that European transformation. However, Europe is also known for having a robust regulatory setup with specific targets. These regulations ensure that public policy design and the behavior of various entities, including economic actors, regional governments and local authorities, occur within the regulatory frameworks, often imposing strict obligations on these entities.

The European Green Deal plays a central role in policymaking, encompassing a broad toolbox that goes beyond funding, industrial policy, and regulatory frameworks to support technological development. Achieving the energy transformations that are being promoted both by Japan and the EU will require significant technological advancements and paradigm shifts in some industries. As a result, the European research and innovation effort is targeted at providing instruments and solutions to facilitate this green transformation.

### European Innovation Scoreboard and Performance Change

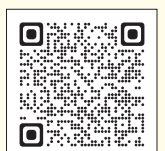
Regarding the innovation and research policy, the European innovation scoreboard annually ranks the individual EU Member States based not only on their static position but also on developments over time. The EU Member States have been ranked according to the EU average between innovation leaders and emerging innovators. There is a strong diversity in starting positions within the EU, both in innovation and research, which poses challenges but also enriches policymaking. Notably, the Nordic countries and Benelux, along with Germany, France, Austria and Ireland, are leading in innovation, while many other EU Member States are progressively catching up.

This scoreboard also includes a ranking of the EU in the broader international competition; the EU (27 Member States) is placed at 100 as the reference point, almost on par with Japan. The U.S. and Canada are performing better in the ranking compared to the EU. A more interesting point is the performance change happening over the last seven years, and China’s progress has been particularly spectacular in comparison with other countries. The indicators used in the scoreboard include, among others: human resources, digitalization, finance and venture capital, R&D expenditure, publications, and patents data.

### Horizon Europe

The EU is well-known as a research powerhouse, particularly in recent years, as demonstrated by a large number of Nobel Prizes awarded to European scientists, many of whom have been supported by the European Research Council (ERC), which was established in 2007 to promote cutting-edge research. The EU is becoming also a leader in innovation. European innovation is characterized by a robust science and engineering foundation, particularly in life sciences, biotech and deep tech. However, it is still lagging in terms of venture capital and venture capital financing, which can be partially attributed to the as-yet partial integration of capital markets at the EU level. So, there is a need for further efforts in this area of EU’s internal market (as set out in the EU Capital Markets Union action plan).

Each of the EU 27 Member States has its own research and innovation ecosystem, including public funding frameworks. To integrate and leverage this diversity effectively, in 1984 the EU established the EU Framework Programme for Research and Innovation, currently Horizon Europe, which is the largest publicly funded research and innovation program in the world, with a budget of approximately 100 billion euros. It represents around 9% of research and innovation public funding in the EU and accounts for approximately a quarter of project funding available across the Union.



To read full text :

July 21, 2023

## RIETI Special Seminar

# “Europe’s Response to the U.S.’ Inflation Reduction Act”

Speaker: Jeromin ZETTELMEYER (Director, Bruegel)



### Bruegel

Bruegel, a Brussels-based think tank, was founded in 2004 on the 50th anniversary of the Élysée Treaty between France and Germany. It employs 50-60 individuals total and is in some ways similar to an international organization because of the government members. Initially limited to EU governments, the charter was modified after the UK’s departure from the EU, allowing for other governments to hold membership. Despite its contributions, Bruegel has maintained its independence from the European Commission.

### Net Zero Industry Act (NZIA)

This presentation has a particular emphasis on the EU’s NZIA, which focuses on the domestic dimension of the EU response to the Inflation Reduction Act (IRA). It is the most recent and weakest response by the EU to the IRA.

### Philosophy of EU Economic Policymaking (at the EU level)

Europe’s market-based model, developed in Germany after World War II, gained consensus in the 1970s and the 1980s, and was codified in the Lisbon Treaty. The treaty defines the competencies of the European Commission, responsibilities of member states and functioning of the EU. The treaty emphasizes that competition within the EU promotes efficiency and growth without a trade-off between competition and external competitiveness.

This is an important framework, especially in the historical context of some European countries, including Germany and Italy, which during the interwar period believed that limiting competition within their countries benefitted their competitiveness in international markets. They prioritized the promotion of national champions into global markets, with somewhat disastrous results for the world. The European Treaty’s philosophy of competition and external competitiveness is a stark contrast to that perspective, and it is maintained in order to ensure that a single market is in fact possible throughout the EU by preventing national governments from bolstering their own corporations at the expense of other EU corporations and market-based competition.

The EU also supports the multilateral trading system and World Trade Organization (WTO) because of the belief that international trade and multilateral rules benefit the EU.

The EU has the perspective that growth and development among the EU and its trading partners such as Japan, the U.S., and emerging markets, such as China are positive developments for the EU as well.

The EU institutions, such as the European Commission, are strong regulators, meaning that any laws passed by the EC and at the EU level must be respected by all member countries and in fact supersede national laws.

However, there isn’t a strong fiscal function at the EU level, meaning that it cannot provide public goods or large amounts of spending for the purpose of redistribution, etc. All spending items are essentially member states competencies. Although the EU has a budget and supports innovation and regional development to increase cohesion throughout the region, the most significant spending functions are all within a national context. The EU budget is very small, amounting to 1.5% of the gross domestic product (GDP), compared to federal state budgets which range from 10%-20%.

### Challenges Faced by EU

Three issues are being addressed simultaneously, reflecting recent developments over the past three or four years.

Traditional horizontal industrial policy in the standard model focuses on improving the framework conditions for all firms to bolster innovation globally. In economic literature related to decarbonization, due to the presence of “path dependencies” in innovation, there is an argument for promoting specific sectors and firms, in this case in the direction of “clean tech,” due to their increased chance of making new discoveries in that field and related fields, rather than more horizontal policy.

The next issue is economic security, fueled originally by increased concerns about China. The EU was the last of the three closely allied trade partners—the EU, Japan and the U.S.—to perceive China’s potential threats, with Japan having been the first of these regions to experience hostility from China with the rare earths embargo from 2010.



To read full text :

## RIETI Open BBL Webinar: RIETI-METI Joint Project–“New Horizons of Economic Security” Series

### “An Overview of Economic Security (5): From an Industrial Policy Perspective”

December 20, 2023

Speaker: Gill PRATT (Chief Scientist, Toyota Motor Corporation / CEO, Toyota Research Institute)



The international economic order surrounding Japan has been shaken by the forming of the U.S.-China confrontation, Russia's aggression against Ukraine, the dysfunction of the WTO, and the weaponization of economies. In this RIETI session series, Hirohide Hirai, special adviser and former Vice Minister for International Affairs in METI, who has been in charge of steering Japan's foreign economic policy, will discuss economic security with experts from universities and other institutions that are engaged in cutting-edge research both in Japan and overseas, corporate executives who are dealing with the business scene, and government officials (including former employees) who are familiar with the relevant fields.

Starting with Mr. Kazuto Suzuki in the first session, and followed by Nobukatsu Kanehara, Mitsunobu Koshiba, Matthew Goodman, and Daleep Singh, we have had discussions with prominent domestic and foreign experts and officials in the field of economic security. For this sixth session, we invited Dr. Gill Pratt, Chief Scientist and Executive Fellow for Research of Toyota Motor Corporation (TMC). Based on his experience at the Defense Advanced Research Projects Agency (DARPA), as well as his experience as a university researcher and corporate executive, he talked about how Toyota can apply the lessons of DARPA's technological development and innovation in his presentation titled “Thoughts about Organization from DARPA to TOYOTA.” The lessons mentioned in this presentation regarding the management of technology development will be meaningful to many industrial sectors. After the presentation, Hirohide Hirai, who has led Japanese economic and industrial policy discussed a wide range of topics, such as the role of DARPA in U.S. industrial policy, securing talented researchers and engineers in an increasingly globalized world, the future of start-ups, and the relationship between economic security policy and innovation policy in the private sector.

## RIETI Open BBL Webinar

### “Hidden Exposure: Measuring U.S. supply chain reliance”

December 19, 2023

Speaker: Richard BALDWIN (Professor of International Economics, IMD Business School, Lausanne)



Supply chain disruptions, previously relegated to specialized journals, now appear in G7 Leaders' Communiqués.

This talk looks at three core elements of the problems: measurement of the links that expose supply chains to disruptions; the nature of the shocks that cause the disruptions, and the criteria for policy to mitigate the impact of disruptions. Utilizing global input-output data, we show that U.S. exposure to foreign suppliers, and particularly to China, is ‘hidden’ in the sense that it is much larger than what conventional trade data suggest. We argue that many recent shocks to supply chains have been systemic rather than idiosyncratic. Moreover, systemic shocks are likely to arise from climate change, geoeconomic tensions and digital disruptions. Our principal policy conclusion is that concerns regarding supply chain disruptions, and policies to address them, should focus on individual products, rather than the whole manufacturing sector.

The talk is based on a BPEA paper presented September 28, 2023, co-authored with Rebecca Freeman (Bank of England) and Angelos Theodorakopoulos (Aston Business School).

## RIETI Open BBL Webinar

### “What is ‘Supply Chain and Technological Basis for Economic Security’? –Securing the future of computing–”

December 13, 2023

Speaker: Mukesh KHARE (General Manager, IBM Semiconductors and Vice President of Hybrid Cloud Research, IBM)



Advanced technologies, such as semiconductors, artificial intelligence (AI) and quantum, are becoming more critical for businesses and for economic security. Each year more industries rely on advanced computing, which makes these technologies a critical component in the overall supply chain. In order for these technologies to thrive, they need to be comprehensively developed into a “computing technological base” that goes from hardware to software and to end applications. Mukesh Khare will share IBM's view of the opportunities ahead for the future of computing.

## RIETI Open BBL Webinar: RIETI-METI Joint Project–“New Horizons of Economic Security” Series

### “An Overview of Economic Security (4): Economic Statecraft for Economic Security”

November 29, 2023

Speaker: Daleep SINGH (Chief Global Economist and Head of Global Macroeconomic Research at PGIM Fixed Income / Former Deputy National Security Advisor and Deputy Director of National Economic Council)



The international economic order surrounding Japan has been shaken by the formation of the U.S.-China confrontation, Russia's aggression against Ukraine, the dysfunction of the WTO, and the weaponization of economies.

In this RIETI session series, Hirohide Hirai, special adviser and former Vice Minister for International Affairs in METI, who is in charge of steering Japan's foreign economic policy, through a series of conversations and presentations, will discuss economic security with experts from universities and other institutions engaged in cutting-edge research in Japan and overseas, corporate executives who are dealing with the business scene, and government officials (including former employees) who are familiar with the relevant fields.

Following the first session with Kazuto Suzuki, the second with Nobukatsu Kanehara, the third with Mitsunobu Koshiba, and the fourth with Matthew Goodman, we invited Daleep Singh, the Chief Global Economist and Head of Global Macroeconomic Research at PGIM Fixed Income and Former Deputy National Security Advisor and Deputy Director of National Economic Council for a discussion. Based on his experience working in government agencies such as the White House and the National Security Council, and his experience dealing with global issues as a G20 and G7 Sherpa, he talked about the consideration of the G7's response to sanctions and other measures against Russia after Russia's invasion of Ukraine, as well as the future of economic diplomacy and how to promote economic statecraft. Specifically, he emphasized the importance of each country articulating a doctrine of economic statecraft in the current international situation, which he elaborated on in this presentation.

After the presentation, Hirohide Hirai, who has been at the front lines for numerous global issues, including economic sanctions against Russia, discussed with Mr. Singh the efficacy of economic sanctions by the G7 countries and the need for cooperation with the so-called Global South on the theme of Russia's aggression against Ukraine.

## RIETI Open BBL Webinar: RIETI-METI Joint Project–“New Horizons of Economic Security” Series

### “An Overview of Economic Security (3): From an academic perspective (U.S. version)”

November 17, 2023

Speaker: Matthew GOODMAN (Distinguished Fellow for Global Economic Policy and Director of the Greenberg Center for Global Economic Studies at the Council on Foreign Relations, U.S.A.)



The international economic order surrounding Japan has been shaken by the U.S.-China confrontation, Russia's aggression against Ukraine, the dysfunction of the WTO, and the weaponization of economies.

In this RIETI session series, Hirohide Hirai, special adviser and former Vice Minister for International Affairs in METI, who has been in charge of steering Japan's foreign economic policy, will discuss economic security with experts from universities and other institutions engaged in cutting-edge research in Japan and abroad, corporate executives who are dealing with the business scene, and government officials (including former employees) who are familiar with the relevant fields.

Following the first session with Kazuto Suzuki, the second with Nobukatsu Kanehara, and the third with Mitsunobu Koshiba, we invited Matthew Goodman, Distinguished Fellow for Global Economic Policy and Director of the Greenberg Center for Global Economic Studies at the Council on Foreign Relations, U.S.A. Based on his experience working at government agencies such as the White House and the National Security Council, as well as at U.S. think tanks, he gave us an overview of the main economic and security policies of the Biden administration of the United States and his evaluation of those policies.

After the presentation, Hirohide Hirai, who has led numerous international negotiations and has been at the forefront of driving Japan's economic security policy, discussed with Mr. Goodman the differences between U.S. and Japanese economic security, and what efforts are needed to build a stronger economic security system between the two countries. Finally, we heard what role METI is expected to play in this process.

## RIETI Open BBL Webinar

**“What Can We Conclude from the Evidence on Minimum Wages and Employment? –Recent progress”**

November 9, 2023

Speaker: David NEUMARK (Distinguished Professor of Economics, University of California, Irvine)



The U.S. research literature on the employment effects of minimum wages is often described as contradictory and conclusive. In this lecture, Prof. Neumark will present new evidence from a survey and empirical analysis that shows that indeed most work finds that higher minimum wages reduce employment of low-skilled workers, and that some important evidence suggesting the opposite is flawed and reaches the wrong conclusion.

## RIETI Special Seminar

**“Advanced Country Options to Accelerate Decarbonization in Emerging and Developing Economies (EMDEs)”**

October 31, 2023

Speaker: Jeromin ZETTELMEYER (Director, Bruegel)



While the success of decarbonization efforts in advanced countries is paramount, advanced countries could potentially have an even bigger impact on global emissions reductions by supporting the decarbonization of EMDEs, where emissions continue to rise. At the same time, emissions per capita in most EMDEs remain far lower than they are in advanced countries, limiting the willingness of EMDEs to pursue aggressive mitigation. What are economically and politically feasible ways to create emissions reduction incentives in EMDEs? How can free riding as well as monitoring and verification of emissions reductions be addressed? The presentation will discuss the rationale for, and limitations of, two main approaches, based on trade-related incentives and financial incentives, respectively. It will argue that the latter shows promise but requires a much larger financing, coordination and implementation effort than has happened so far.

## RIETI Special Seminar

**“North Korea as a Complex Humanitarian Emergency”**

September 29, 2023

Speaker: Marcus NOLAND (Executive Vice President and Director of Studies, Peterson Institute for International Economics and Non-Resident Senior Fellow, East-West Center)



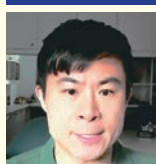
North Korea is a complex humanitarian emergency with food insecurity at its core. As of July 2023, quantity and price data point to a deteriorating situation, and on one metric, food availability is the worst since the 1990s famine. Yet despite this situation, North Korea continues to invest in its military, financed in significant part by illegal activities. In this context, the diplomatic leverage conferred by aid is unclear, nor is North Korea's priority as a recipient, due to competing needs elsewhere. Resolution of North Korea's chronic food insecurity would require changes in the regime's domestic and foreign policy commitments, but this seems unlikely due to enablement by China and Russia.

## RIETI Special Seminar

**“Grow the Pie: How Great Companies Deliver Both Purpose and Profit”**

September 14, 2023

Speaker: Alex EDMANS (Professor of Finance, London Business School)



Purpose is the corporate buzzword of today, with politicians, the public and even shareholders calling on businesses to serve wider society. But purpose is also controversial because companies have a responsibility to deliver returns to investors. Is there a trade-off between purpose and profit, or is it possible for companies to achieve both? This talk will critically examine the case for purposeful business, using rigorous evidence and real-life examples to show what works—and, importantly, what doesn't. It will explore issues such as: What does it mean for a business to be purposeful? How can purpose guide a company's day-to-day decisions? How can it ensure that the pursuit of purpose is consistent with long-run shareholder returns? Professor Alex Edmans will draw on his book, “Grow the Pie: How Great Companies Deliver Both Purpose and Profit”, a Financial Times Book of the Year that was recently translated into Japanese.

## RIETI Special Seminar

**“Japan in the Middle: The geo-economic conflict between China and the United States”**

July 20, 2023

Speaker: C. Fred BERGSTEN (Nonresident Senior Fellow and Director Emeritus, Peterson Institute for International Economics (PIIE))



The U.S. can no longer provide its traditional leadership of the world economy. China is an essential participant in resolving most global economic problems. The two must therefore work together, but their increasingly intense competition raises serious doubts about the future stability and sustainability of the international economic order.

Middle powers such as Japan (and the Europeans) are caught in the middle and thus face two major challenges. First, they must encourage (and indeed push) the two superpowers to cooperate sufficiently on global economic issues to avoid further deterioration. Second, they must step in themselves to provide the global economic leadership that is necessary to maintain an open and progressive system. For example, Japan needs to build on its exemplary leadership of the CPTPP to devise a strategy that will eventually bring both China and the U.S. into the agreement to preserve prosperous and harmonious trade and investment in the Asia-Pacific.

## RIETI Open BBL Webinar

**“Trade Tensions and the U.S. Soft Power”**

June 7, 2023

Speaker: WEI Shang-Jin (Professor of Finance and Economics, Professor of International Affairs, and N.T. Wang Professor of Chinese Business and Economy, Columbia University / Former Chief Economist of Asian Development Bank)



One of the unintended consequences of economic tensions between the United States and China is its effect on the U.S. soft power. It has been long recognized that an appreciation for U.S. movies by citizens in other countries constitutes a form of U.S. soft power in influencing world affairs, extending and complementing its “hard powers” in military and economic might. The trade war, increases in U.S. tariffs on imports from China beyond its WTO commitment, launched by President Trump and maintained so far by President Biden, can either enhance or diminish the U.S. soft power in China. If citizens in the target country regard it as a righteous and justified penalty for their government's unfair trade policies and other transgressions, they may respond to the trade war by increasing their appreciation for U.S. movies (and other symbols of U.S. soft power). On the other hand, if they regard the U.S. tariff increases as a tactic to increase narrow U.S. commercial interests, inconsistent with the U.S. brand image as a defender of a rules-based world economic order, it can backfire and reduce their demand for U.S. movies. We use changes of viewership of U.S. movies in China as a lens to investigate how the trade tension has affected the U.S. soft power in China.



# MAJOR EVENTS 2023

## RIETI Open BBL Webinar

### “The East Asian Electronics Sector: The roles of exchange rates, technology transfer, and global value chains”

April 26, 2023

Speaker: Willem THORBECKE (Senior Fellow, RIETI)



The lion's share of smartphones and other electronic goods is made in Asia. Electronic goods are assembled in China and parts and components such as semiconductor chips and image sensors are produced in Japan, Korea and Taiwan. How did Asia become the center of electronics manufacturing? How did Asian workers learn to produce cutting-edge products? Are there lessons for countries like the United States that seek to reshore semiconductor manufacturing? This presentation addresses these issues based on Dr. Thorbecke's recent book, “The East Asian Electronics Sector” published by Cambridge University Press in April 2023.

## RIETI Open BBL Webinar

### “Asia's Response to the Collapsing Consensus on Trade”

April 19, 2023

Speaker: Deborah ELMS (Founder and Executive Director, Asian Trade Centre / President, Asia Business Trade Association)



There are three challenges ahead for global trade: a collapse in global leadership on trade; a rise in alternative approaches to managing trade; and uncertainty over the appropriateness of different approaches to trade. Addressing these three points requires efforts to entice bigger players to return to the multilateral system, building coalitions of middle powers, and creating a network of trade agreements. This presentation considers some of the challenges in greater detail, with a focus on what Japan and Asia can or should be doing to help address the growing risks facing the trade system.

## RIETI Special Seminar

### “Reimagining the TPP—Revisions that could facilitate U.S. reentry”

March 2, 2023

Speakers: Wendy CUTLER (Vice President, Asia Society Policy Institute (ASPI)), Clete WILLEMS (Partner, Akin Gump Strauss Hauer & Feld LLP)



Ms. Wendy Cutler and Mr. Clete Willems will discuss their new report titled “Reimagining the TPP: Revisions that could facilitate U.S. reentry”, which aims to start a meaningful conversation about potential U.S. re-entry into the CPTPP. According to the report, since the United States withdrew from the Trans-Pacific Partnership (TPP) in 2017, the trade deal developments in the Asia-Pacific region and the Chinese forceful assertion of its economic and national security interests have increased the urgency for the United States to step up its economic engagement in the world's fastest-growing region. A return to the CPTPP would provide an immediate boost to U.S. economic competitiveness and geopolitical influence. However, many concerns about the original TPP are legitimate, and U.S. trade policy views have shifted since the agreement was concluded. The authors provide recommendations for improvements and updates to the agreement that are needed to meet U.S. economic interests and facilitate U.S. re-entry.

## BBL Webinar

### “The Benefits and Costs of Big Cities”

March 1, 2023

Speaker: Diego PUGA (Professor of Economics, Center for Monetary and Financial Studies (CEMFI))



Firms are more productive on average in larger cities, and this is due to agglomeration economies raising their productivity and not tougher competition selecting the most productive firms. Individual earnings are also higher in bigger cities. This is not because workers there have greater intrinsic ability. Instead, workers obtain an immediate premium while working in bigger cities and accumulate more valuable experience, increasing their earnings faster. While higher-ability workers benefit more from bigger cities, they are not more likely to move to one, and flawed self-assessment is partly to blame. Those in big cities enjoy the benefits from higher productivity and earnings but also suffer from the higher costs of housing and longer and slower commutes.

Over the last few decades, important changes have made cities increasingly different from each other but more interdependent. Innovations most frequently arise in bigger and more diverse cities, which foster trial and experimentation, but those innovations can then be exploited in smaller cities to save on costs. Cities have also become less specialized by sector and more specialized by function, with management concentrated in big cities and production in smaller cities.

In this seminar, Professor Diego Puga from Spain, who specializes in spatial economics, will explain the benefits and costs of large cities.

## BBL Webinar

### “The Japanese Economy: Strategies to cope with a shrinking and aging population”

February 1, 2023

Speaker: Randall S. JONES (Professional Fellow, Center on Japanese Economy and Business (CJEB) at Columbia University / Former Head of the Japan / Korea Desk at the OECD)



Japan's total population is projected to fall by nearly one-fifth to around 93 million by 2060, while the share of elderly (65 and older) rises from 28% to 39%. The elderly dependency ratio is forecast to reach 80%, reducing the number of working-age persons to 1.3 per elderly. If labor market entry and exit by age and gender remain constant, the labor force would contract by more than 30% by 2060. The rapid demographic shift threatens Japan's ability to fulfill its commitment to provide universal health and long-term care and pensions for the elderly. Meeting the demographic challenge requires a comprehensive strategy:

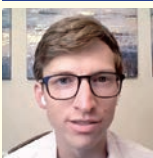
- Mitigating the decline in the labor force by further increasing female employment, extending the careers of older persons and making greater use of older workers.
- Boosting labor productivity, which has fallen below the OECD average.
- Increasing the efficiency of health and long-term care.
- Implementing effective macroeconomic policies.

## BBL Webinar

### “‘Chip War’ and Its Implications for Japanese Industrial and Security Policies”

January 27, 2023

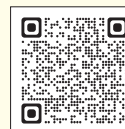
Speaker: Chris MILLER (Associate Professor, International History, Fletcher School, Tufts University)



Semiconductors are as important to the 21st century economy as oil was in the past. They are the scarce resource on which the modern world depends. Today, military, economic and geopolitical power are built on a foundation of computer chips. Virtually everything—from missiles to microwaves, smartphones to the stock market—runs on chips. Today, an alliance of companies from the U.S., Japan, Taiwan, the Netherlands, and South Korea designed and manufacture the most advanced chips. However, China is catching up rapidly. Moreover, Taiwan, which today produces 90% of the world's most advanced processor chips, faces a growing military threat from Beijing. The future of the chip industry will therefore shape the geopolitical balance of power.

# LIST OF EVENTS IN 2023

In 2023, RIETI hosted 67 events, welcoming various speakers from Japan and overseas. The seminars covered a wide range of topics including geopolitical issues, DX, Japan-Asia cooperation, and economic security. For the video and summaries on the events, please visit: <https://www.rieti.go.jp/en/events/>



Date	Event
2023/12/22	<b>RIETI Open BBL Webinar</b> Indo-Pacific Geoeconomics and the U.S.-China Rivalry for Global Hegemony: The evolution of economic power in international politics
2023/12/20	<b>RIETI Open BBL Webinar: RIETI-METI Joint Project—“New Horizons of Economic Security” Series</b> An Overview of Economic Security (5): From an industrial policy perspective
2023/12/19	<b>RIETI Open BBL Webinar</b> Hidden Exposure: Measuring U.S. supply chain reliance
2023/12/13	<b>RIETI Open BBL Webinar</b> What is “Supply Chain and Technological Basis for Economic Security”? —Securing the future of computing—
2023/12/11	<b>RIETI Open BBL Webinar</b> The Economics of Human Resources for Japanese Companies: Key points and policy implications
2023/12/1	<b>RIETI Open BBL Webinar</b> White Paper on the Labor Economy 2023
2023/11/29	<b>RIETI Open BBL Webinar: RIETI-METI Joint Project—“New Horizons of Economic Security” Series</b> An Overview of Economic Security (4): Economic statecraft for economic security
2023/11/22	<b>Waseda-RIETI Symposium</b> Digital Reskilling: Challenges and strategies
2023/11/17	<b>RIETI Open BBL Webinar: RIETI-METI Joint Project—“New Horizons of Economic Security” Series</b> An Overview of Economic Security (3): From an academic perspective (U.S. version)
2023/11/15	<b>RIETI Open BBL Webinar</b> Defense of Japan 2023 (Annual White Paper)
2023/11/9	<b>RIETI Open BBL Webinar</b> What Can We Conclude from the Evidence on Minimum Wages and Employment? —Recent progress
2023/11/8	<b>RIETI Open BBL Webinar</b> World Economic Outlook and the Asia-Pacific Region: Navigating global divergences
2023/10/31	<b>RIETI Special Seminar</b> Advanced Country Options to Accelerate Decarbonization in Emerging and Developing Economies (EMDEs)
2023/10/28	<b>The International Workshop</b> Blockchain Kaigi 2023 (BCK23)
2023/10/16	<b>RIETI Open BBL Webinar: RIETI-METI Joint Project—“New Horizons of Economic Security” Series</b> Economic Security and Enterprise (1) —From the perspective of digital industry—
2023/10/12	<b>RIETI-The 21st Century Public Policy Institute BBL Webinar</b> Hitachi's Business Transformation and Future Value Creation
2023/10/11	<b>RIETI Open BBL Webinar</b> Energy Security and Carbon Neutrality: Messages of the Innovation Cool Earth Forum (ICEF)
2023/10/5	<b>RIETI-SAIS Reischauer Center Joint Seminar on Global Political-Economic Transformation</b>
2023/10/5	<b>RIETI Open BBL Webinar</b> Annual Report on the Japanese Economy and Public Finance 2023—Prices and wages begin to move
2023/10/3	<b>RIETI-Brookings Symposium</b> De-risking the Economic Relationship with China: Views from the Indo-Pacific
2023/9/29	<b>RIETI Open BBL Webinar: RIETI-METI Joint Project—“New Horizons of Economic Security” Series</b> An Overview of Economic Security (2): The China-Taiwan situation and Japan
2023/9/29	<b>RIETI Special Seminar</b> North Korea as a Complex Humanitarian Emergency
2023/9/28	<b>RIETI Open BBL Webinar</b> The Digital Divide and Business Opportunities in ASEAN—Insights from the ASEAN regional fact-finding survey
2023/9/22	<b>RIETI-ANU Symposium</b> An Asian Agenda for Securing the Multilateral Rules-based Economic Order
2023/9/19	<b>RIETI Open BBL Webinar: RIETI-METI Joint Project—“New Horizons of Economic Security” Series</b> An Overview of Economic Security (1): From an academic perspective
2023/9/15	<b>RIETI Open BBL Webinar</b> Annual Report on the Environment, the Sound Material-cycle Society and Biodiversity in Japan 2023
2023/9/14	<b>RIETI Special Seminar</b> Grow the Pie: How great companies deliver both purpose and profit
2023/9/8	<b>RIETI EBPM Symposium</b> Is an Evidence-Based Policy Making Approach Necessary for Good Policymaking?
2023/7/31	<b>RIETI Open BBL Webinar: DX Series</b> Societal Impacts of Generative AI and Strategic Approaches to the AI Era
2023/7/25	<b>RIETI-JRI Webinar</b> Hydropower Utilization of Flood Control Dams—Decarbonizing investments for the future of dam watersheds
2023/7/21	<b>RIETI Special Seminar</b> Europe's Response to the U.S.' Inflation Reduction Act
2023/7/20	<b>RIETI Special Seminar</b> Japan in the Middle: The geo-economic conflict between China and the United States

# LIST OF EVENTS IN 2023

2023/7/19	<b>RIETI Open BBL Webinar</b> Innovation: A key pathway to Europe's green deal and economic security
2023/7/13	<b>RIETI Open BBL Webinar Seminar</b> White Paper on International Economy and Trade 2023
2023/7/12	<b>RIETI Open BBL Webinar: DX Series</b> Use Cases and Challenges Facing Generative AI in Medical DX
2023/7/7	<b>RIETI Open BBL Webinar</b> What is Needed to Improve Japan's Potential Growth Rate: Analysis using the 2023 JIP database
2023/7/5	<b>RIETI Open BBL Webinar</b> Consumption Analysis in Contemporary Japan: Our current status based on "Life Cycle Theory"
2023/7/4	<b>The Delegation of the European Union to Japan, RIETI and the EU-Japan Center for Industrial Cooperation Joint Hybrid Seminar</b> Resilient Supply Chains in Times of Geopolitical Tensions
2023/6/21	<b>RIETI Open BBL Webinar</b> Japan's Energy Policy Analysis Based on the Energy White Paper: From the Russian invasion of Ukraine to GX
2023/6/19	<b>Nordic 5 Countries Embassy Seminar</b> New Form of Capitalism in Japan and the Nordic Vision: Part 3—Child care and family policy
2023/6/8	<b>RIETI Open BBL Webinar</b> The 2023 White Paper on Manufacturing Industries (Monodzukuri)
2023/6/7	<b>RIETI Open BBL Webinar</b> Trade Tensions and the U.S. Soft Power
2023/6/5	<b>ASEAN-Japan Business Week</b> RIETI-ERIA Session "Changing Global Situation and the Roles of ASEAN and Japan"
2023/6/2	<b>RIETI Open BBL Webinar</b> World Economic Outlook and the Asia-Pacific Region: A Rocky recovery
2023/5/31	<b>RIETI Open BBL Webinar</b> The Application of Origins of Capitalism in Japan for the New Era
2023/5/26	<b>RIETI Open BBL Webinar</b> The Invisible Truth about the Japanese Economy—There is no simple "Growth Strategy"
2023/5/25	<b>RIETI Open BBL Webinar</b> Entertainment Industry Strategy Based on Collaboration Among Government, Industry and Academia: Insights from METI's two-year project to strengthen competitiveness for overseas expansion of Japanese content (media mix, anime and mobile games)
2023/5/19	<b>RIETI Open BBL Webinar</b> 2023 White Paper on Small and Medium Enterprises in Japan / 2023 White Paper on Small Enterprises in Japan
2023/5/17	<b>RIETI Open BBL Webinar</b> A New Era of INVEST JAPAN—Case studies relating to the use of inbound M&A transactions (cases studies of Japanese companies that leveraged foreign capitals for corporate reforms, management enhancement and dramatic growth)
2023/4/26	<b>RIETI Open BBL Webinar</b> The East Asian Electronics Sector: The roles of exchange rates, technology transfer and global value chains
2023/4/19	<b>RIETI Open BBL Webinar</b> Asia's Response to the Collapsing Consensus on Trade
2023/4/14	<b>RIETI Open BBL Webinar</b> Cutting Edge Digital Technology to Solve Societal Problems
2023/4/5	<b>RIETI Open BBL Webinar: DX Series</b> Manufacturing × DX: The challenge of creating new value
2023/3/29	<b>RIETI Open BBL Webinar</b> DX Thinking and Startups: The final seminar in the "DX Thinking" series
2023/3/22	<b>RIETI EBPM Symposium</b> EBPM—Introduction and practice of Evidence-Based Policy Making
2023/3/17	<b>RIETI Open BBL Webinar: DX Series</b> Do With XR (Extended Reality)—How is it changing the future?
2023/3/10	<b>RIETI-CEPR Symposium</b> Two Speed Inflation: Implications for policy around the globe
2023/3/2	<b>RIETI Special Seminar</b> Reimagining the TPP—Revisions that could facilitate U.S. reentry
2023/3/1	<b>RIETI Open BBL Webinar</b> The Benefits and Costs of Big Cities
2023/2/22	<b>RIETI Open BBL Webinar: DX Series</b> How Far has VR Medicine Come? Advanced examples of metaverse and web3 technology utilization in the medical field
2023/2/16	<b>RIETI-ANU Symposium</b> Towards Comprehensive Regional Security in Asia
2023/2/15	<b>Nordic 5 Countries Embassy Seminar</b> New Form of Capitalism in Japan and the Nordic Vision: Reskilling and labor mobility
2023/2/9	<b>RIETI Open BBL Webinar</b> Kasumigaseki in Transition—Central ministries and agencies opening more doors for mid-career workers
2023/2/1	<b>RIETI Open BBL Webinar</b> The Japanese Economy: Strategies to cope with a shrinking and aging population
2023/1/27	<b>RIETI Open BBL Webinar</b> "Chip War" and Its Implications for Japanese Industrial and Security Policies
2023/1/25	<b>Tohoku University-RIETI Symposium</b> Synthesizing Knowledge: How we can best create innovation through industry-academia collaboration
2023/1/20	<b>RIETI Open BBL Webinar</b> Public Policy in the 22nd Century
2023/1/13	<b>RIETI Open BBL Webinar</b> The Economics of SME Finance: The roles of financial institutions and the government

# Meet Our Fellows

Comments on  
Current Research

Meet Our Fellows



**ARAKI Shota**

Fellow (Policy Economist)



Labor Economics, Personnel  
Economics, Applied  
Microeconomics

Comments

My research is based on two main research interests.

The first is an applied microeconomic analysis using the COVID-19 pandemic as a natural experiment. I analyze the impact of spectators on players' performance in sports, focusing on non-spectator games. I also conduct a study to measure the effects of policies to support shopping district events, focusing on interruptions caused by the COVID-19 pandemic.

The second is a study of workers' aptitude ability for capital and technology. Using the PIAAC survey, which simultaneously examines the abilities required for a job and the abilities possessed by individual workers, I am studying the process by which workers find a suitable job. I also analyze how promotions and personnel transfers occur using firm personnel data.



**ARATA Yoshiyuki**

Fellow



Macroeconomics, Firm Growth  
Dynamics, Stochastic Processes

Comments

The importance of high-growth firms (HGFs) for economic growth and job creation has been widely recognized in recent literature. Using comprehensive firm-level data and the probability theory, I am currently studying the existence of statistical features that characterize the firm growth dynamics for HGFs.



**FUJII Daisuke**

Fellow (Policy Economist)



International Trade, Firm  
Dynamics and Macroeconomics,  
Supply Chain and Firm Networks,  
Urban Economics

Comments

My current research focuses on international trade and inter-firm networks, as well as issues related to the location of foreign direct investment. Specifically, we use data from Tokyo Shoko Research to estimate which Japanese firms export indirectly from and import indirectly to Japan. We then empirically examine how a trade collapse triggered by a financial recession or pandemic can spread through the supply chain to such domestic firms. Such spillover effects can amplify shocks from abroad at the macro level, which is important for economic policy considerations. In addition, I research use data on firm-level overseas production activities to develop a framework in which heterogeneous firms can export, import and produce abroad, and to estimate the fixed and transportation costs associated with various activities. Based on these various findings, I am working to quantify geopolitical risks, including the relocation of overseas production bases.



## Comments

**HASHIMOTO Yuki**

Fellow (Policy Economist)



Labor Economics, Immigrant Workers, Small and Medium-sized Enterprises (SMEs), Evidence-Based Policy Making (EBPM)

My research focuses on both foreign workers in Japan and on the policy effects of industrial policy. In our research on foreign workers in Japan, we analyze job segregation and wage distribution between Japanese and foreign workers, and measure productivity of firms employing foreign workers. In the EBPM analysis of industrial policy, we examine whether the application and adoption of subsidy programs for small and medium-sized enterprises (SMEs) have increased the productivity of firms.

## Comments

**IKEUCHI Kenta**

Senior Fellow (Policy Economist)



Empirical Analysis on Research and Development (R&D), Innovation and Productivity

I conduct empirical analyses on R&D, innovation and productivity. In particular, I am interested in basic scientific and academic research at universities and other institutions, industry-academia collaboration, how university-launched ventures and academic start-ups contribute to innovation and economic growth, dynamic analysis of knowledge networks using patent and academic literature databases, and the effects of R&D tax incentives. I also participate in the OECD's international comparative project on the dynamics of employment and productivity (DynEmp/MultiProd) and contribute to providing analysis of Japanese data. I am also involved in promoting Evidence-Based Policy Making (EBPM) on science and technology innovation policy by participating in research projects at the National Institute of Science and Technology Policy (NISTEP) and the Science of Science, Technology and Innovation Policy Program of the Japan Science and Technology Agency (JST), Research Institute of Science and Technology for Society (JST/RISTEX).

## Comments

**ITO Arata**

Senior Fellow



Macroeconomics

My research focuses on uncertainty and social learning. I currently conduct a research project on the effects of policy uncertainty on the real economy and financial markets. As part of this project, I am updating data on news-based economic policy uncertainty indices for Japan each month. The data is available on the RIETI website as well as at PolicyUncertainty.com. I am also engaged in a research project on social learning using big data on consumption and newspaper coverage in the early stages of the COVID-19 pandemic.

## Comments

**KOIZUMI Hideto**

Fellow (Policy Economist)



Public Economics

I specialize in public economics and currently conduct empirical research related to policy evaluation and the ideologies involved in policy making. As an example of my research, I am currently studying the small and medium-sized enterprise (SME) investment promotion tax system, which has been in place since 1998 in Japan. The SME investment promotion tax system is designed to encourage capital investment and increase productivity by providing tax savings to companies based on the nature and amount of equipment they purchase. I am examining whether the effects of this policy spread through the supply chain to other firms.

## Comments

**KONDO Keisuke**

Senior Fellow



Spatial Economics, Development Economics, Labor Economics, Applied Econometrics (Microeconometrics, Spatial Econometrics, Bayesian Econometrics)

As Japan faces a declining population, there is an increasing need to consider how to maintain and develop urban and rural economies. My research aims to bridge the gap between academic research and policy making so that I can contribute to the Japanese government's Evidence-Based Policy Making (EBPM) for regional revitalization. I have enhanced policy discussions by publishing RIETI discussion papers on analysis of regional differences in fertility rates, evaluation of compact city policies, ex-ante evaluation of migration subsidy policies, evaluation of productivity gains from urban agglomeration, evaluation of market competition through markups, and evaluation of the causal impact of minimum wage on young people's migration. Recently, I have been conducting empirical research integrating geospatial information and micro data in relation to data science, with the hope of developing a framework for systematic evaluation of urban and regional policies.

## Comments

**KONISHI Yoko**

Senior Fellow



Econometrics, Statistics, Service Industries (Tourism Policy, Energy-saving Labels, and Consumer's Behavior)

In recent years, I have been combining data from public statistics, government records and private-sector data to develop new economic indicators and analyses that can be used for Evidence-Based Policy Making (EBPM). During the COVID-19 pandemic, especially, I used big data (POS data and household book-keeping applications data) to record consumption behavior from 2020 to 2023. I have also worked on an analysis of changes in the accommodation industry and local tourism due to the increase in inbound tourists to Japan, the actual rate of e-commerce in Japan, and an analysis of the penetration rate of cashless transactions and its economic impacts. As part of my contribution to statistical administration, I also aim to develop and release economic indicators that complement public statistics.



## LIU Yang

Fellow



Labor Economics, Employment,  
Wage, Human Capital, Labor  
Market, Migration

Comments

1. My first research topic is job creation and job destruction that occur simultaneously within the same firm in Japan, focusing on the effects of firm behaviors and characteristics on the job creation and destruction.
2. The second research topic is an examination of labor market outcomes of immigrants living in Japan. A large-scale dataset of individuals is used for this study.
3. The third research topic is identification of economic and cultural factors in determining Japanese and foreign female labor force participation in Japan. Despite living in the same social and economic environment that has long been considered disadvantageous for women, we notice a higher probability of female labor force participation for immigrants than for Japanese. The reasons are examined using a large dataset of both groups in Japan.
4. The fourth research topic is an investigation of the impact of women's reservation wage on the gender gap, based on original individual data from China.



## MATSUMOTO Kodai

Fellow (Policy Economist)



Labor Economics, Public  
Assistance Policy

Comments

There are three studies on which we are currently working. The first is the impact of the employment of persons with disabilities on corporate profits. In Japan, the minimum number of employees with disabilities in a company is mandated based on the total number of employees in that company. By using this system, we estimate its causal effects. In the second study, we examine the impact of policies to promote employment of persons with disabilities on employment figures. If a company fails to meet its quota of employees with disabilities, it must pay a levy based on the size of the company, but in 2015, the number of eligible companies changed. The impact of this policy intervention will be assessed. The third is the impact of receiving welfare on well-being. Receiving welfare benefits may reduce well-being due to stigmas and other factors, but we will empirically verify whether this is the case.



## NAKATA Daigo

Senior Fellow



Public Economics, Public  
Finance, Social Security, Health  
Care

Comments

I performed the following analyses on taxation and social security systems:

1. Simulation analysis of fiscal sustainability
2. Impact on household savings, employment, and labor supply
3. Impact on firms' labor demand

In recent years, I have studied impacts of household financial literacy, future insecurity and social capital.

In particular, I analyze the effects of these factors on the following:

- A) Impact on risky asset ownership and asset accumulation behavior
- B) Employment and saving behavior of no-asset households
- C) Behavior of middle-aged and elderly persons in terms of deciding to receive pension benefits earlier or later
- D) Changes in subjective life expectancy prediction and asset accumulation due to health shocks
- E) Decision-making on living legacy gifts



## ONUMA Hiroki

Fellow (Policy Economist)



Environmental and Energy  
Economics, Climate Change  
Policy, Disaster Management

Comments

My research focuses on environmental economics and disaster risk management. My recent work has investigated what factors encourage or hinder the implementation of household disaster prevention measures. More specifically, I have quantitatively examined whether "charity hazard" exists in Japanese household preparedness for natural disasters using survey data. I have also explored the impact of carbon pricing on firms' environmental performance and residential energy consumption in Japan.



## SABURI Masataka

Senior Fellow



Innovation Policy, Societal  
Medicine (How to solve societal  
problems)

Comments

Society faces a myriad of challenges, including war, poverty and global warming. The difficulty in resolving such issues lies in the fact that society is a complex system, making prediction and control challenging. However, human beings have managed to control the complexities of the human body through advancements in medical science. Consequently, if medical methodologies were applied to societal problems, it should be possible to control them in a similar manner. The current research theme involves developing theories and methods for 'Societal Anatomy,' 'Societal Physiology,' 'Societal Pathology,' 'Societal Pharmacology,' 'Societal Immunology,' and 'Societal Diagnostics' to establish an academic system where government officials can act as 'medical doctors of society' and provide treatment regimes. Concurrently, my research is also being advanced using societal medicine approaches in the fields of innovation and economic security.



## SEKIGUCHI Yoichi

Senior Fellow



Local Economy

Comments

I conduct research and make policy recommendations related to the revitalization of regional economies, including tourism.

After publishing the book "Wellness Tourism to Energize the Body, Mind, and Community" in December 2022, I have continued the research on wellness tourism, including changes in subjective health status associated with the implementation of activities, and the economic ripple effects on the region from welcoming such tourists.

## Comments



### SEKIZAWA Yoichi

Senior Fellow



Japan's FTA Policy, Application of Cognitive Therapy to Social Science

My research interest is whether psychological variables, especially emotion-related variables, influence personal political or economic decisions, and whether psychological intervention, such as cognitive behavioral therapy and mindfulness, can correct inappropriate political or economic decisions and behaviors. For this purpose, I work with psychiatrists and social scientists.

## Comments



### SUMIYA Kazuhiko

Fellow (Policy Economist)



Labor Economics, Public Economics, Applied Microeconomics

I have three research topics. The first is to estimate the effect of income taxes on labor supply, wages and other labor market outcomes using Danish administrative data. Second, as part of the Evidence-Based Policy Making (EBPM) project at RIETI, I work with METI to evaluate their policies. So far, I have analyzed the effects of receiving the "Nadeshiko brand" and the "Manufacturing subsidies." Third, I am interested in developing methods for program evaluation.

## Comments



### TAMURA Suguru

Senior Fellow



Science and Technology, Innovation Policy, Strategy, Scientometrics, Bibliometrics

I have administrative experience in the Technology Evaluation and Research Division of MITI and the Council for Science, Technology and Innovation. In the Technology Evaluation and Research Division, I was in charge of conducting evaluations of METI and NEDO Research and Development (R&D) project achievement, building evaluation systems, and, in particular, designing evaluation items. Based on this experience, I am interested in the evaluation of R&D policies. In recent years, I have been trying to elucidate the actual status of standardization activities. So far, I have conducted five surveys, collected the related data, and published them. I am working to establish and disseminate measurement methods by providing this data to the research repositories of the International Organization for Standardization. I intend to continue this research in order to improve the methods of measuring standardization activities. The results of my studies are published in journals such as *Technovation*, *Computer Standards & Interfaces*, *Science and Public Policy*, and other innovation research journals.

## Comments



### Willem THORBECKE

Senior Fellow



International Economics, Monetary Economics

The world economy has been hit by the China-U.S. confrontation, the COVID-19 pandemic, inflation, the Russia-Ukraine War, high oil prices, exchange rate changes, and other events. These have disrupted economic activity. My project first investigates how the structure of the Japanese and world economies have changed over the last 20 years. It then examines how the shocks in recent years have impacted firms, industries and economies throughout the world. Finally, it recommends steps that businesses, governments and others can take to steer the Japanese and world economies in healthy directions.

## Comments



### YAMADA Takahiro

Fellow (Policy Economist)



Development Economics, Economic Geography, Applied Econometrics, Policy Evaluation

Based on my experience in working as an economist for government agencies and international organizations, and on my awareness of relevant issues, my research has been aimed at unraveling the effects and mechanisms of various problems associated with economic development and providing prescriptions for these problems. In addition to analysis on economic issues in developed countries such as Japan, my research has focused primarily on developing and emerging countries to examine the long-term effects of war and natural disasters in recent years. Using causal inference methods based on satellite images and sophisticated identification strategies that are advancing in the natural sciences, I am engaged in empirical research to examine the actual state of damage from the calamities mentioned above more objectively, extensively and in detail, and contribute to providing evidence that will be useful for recovery of the affected economies in Asia and socioeconomic development.

## Comments



### ZHANG Hongyong

Senior Fellow



International Trade, Chinese Economy, Applied Microeconomics

1. Using multiple government statistics, I conduct a quantitative analysis of the production networks of Japanese firms in Japan and overseas, the impact of supply chain disruptions and firms' responses, trends in the reshoring of manufacturing industry and friend-shoring, and the effects of subsidies to strengthen domestic production and diversify supply chains.
2. I carry out an empirical analysis using micro data on the impact of Chinese industrial subsidies on Chinese firms' innovation activities, exports and international competitiveness.
3. Using text data containing press coverage of Chinese President Xi Jinping and data on Chinese listed companies, I provide a quantitative analysis of the impact of economic policy uncertainty (EPU), policy agenda setting, progress of state capitalism, and the relationship between political visits and company performance.

# List of Fellows

(As of the end of December 2023, alphabetical order)

Name	RIETI Title	Expertise
Senior Fellow		
KITAO Sagiri	Senior Fellow (Specially Appointed)	Macroeconomics, Fiscal and Social Security Policy
SAITO Yukiko	Senior Fellow (Specially Appointed)	Spatial Economics, Network Analysis, Industrial Organization
TAKEMORI Shumpei	Senior Fellow (Specially Appointed)	International Trade, International Finance
YAMASHITA Kazuhito	Senior Fellow (Specially Appointed)	Food and Agricultural Policy, Issues for Intermediate and Mountainous Areas, WTO Agricultural Negotiations, Trade and Environment, Trade and Food Safety
Fellow		
ADACHI Daisuke	Fellow (Specially Appointed)	International Economics, Labor Economics
SENGA Tatsuro	Fellow (Specially Appointed)	Macroeconomics, Macro-Finance, Firm Dynamics
YIN Ting	Fellow (Specially Appointed)	Macroeconomics, Household Economics, Chinese Economy, Labor Economics
Research Associate		
GOTO Yasuo	Research Associate	Industrial Organization, Small and Medium Enterprise (SME) Research, Financial Economics
ITO Banri	Research Associate	International Economics, Research and Development (R&D), Innovation
IWAMOTO Koichi	Research Associate	1. Digital Economics 2. Offshore Wind Power 3. German Economy (Hidden Champion, Industry 4.0) 4. Regional Economy and Employment Issues, Small and Medium Enterprises (SMEs) 5. Research on Germany's High Productivity 6. Telework and Digital Reskilling
KAMEI Kenju	Research Associate	Experimental Economics, Behavioral Economics, Business Economics, Public Economics, Applied Economics
KATO Atsuyuki	Research Associate	Economic Growth, Productivity Analysis, Trade and Development
KAWAMURA Satoshi	Research Associate	Economic History of Japan, History of Transportation Industry, Industrial Safety Administration
KIYOTA Kozo	Research Associate	International Economics and Data Science
KODAMA Naomi	Research Associate	Applied Microeconomics, Labor Economics
MAKIOKA Ryo	Research Associate	Applied Microeconomics, International Economics
NAKATA Hiroyuki	Research Associate	Microeconomic Theory, Financial Economics
NISHITATENO Shuhei	Research Associate	International Economics, Environmental Economics, Applied Microeconometrics
ODA Keiichiro	Research Associate	Game Theoretic Analysis of Investors' Strategic Interactions in Financial Markets
OKIMOTO Tatsuyoshi	Research Associate	Financial Econometrics, Macroeconometrics, Energy Economics
TANAKA Ayumu	Research Associate	International Trade, Foreign Direct Investment, Natural Disasters
TOMOHARA Akinori	Research Associate	International Economics, Labor Economics, Public Economics
TSUKADA Naotoshi	Research Associate	Economics of Innovation, Industrial Organization
WAKABAYASHI Midori	Research Associate	
YAMAUCHI Isamu	Research Associate	Innovation, Research and Development (R&D) Management, Intellectual Property
YOKOO Hide-Fumi	Research Associate	Environmental and Resource Economics
YUDA Michio	Research Associate	Health Economics, Public Economics, Applied Microeconometrics
Faculty Fellow		
AOYAMA Hideaki	Faculty Fellow	Theoretical Physics, Econophysics
ARIMURA Toshi H.	Faculty Fellow	Environmental Economics, Energy Economics, Applied Econometrics, Climate Policy
FUJIWARA Ippei	Faculty Fellow	Macroeconomics, Monetary Economics, International Finance
FUKAO Kyoji	Faculty Fellow	Macroeconomics, International Economics, Historical Economics
HAMAGUCHI Nobuaki	Faculty Fellow	Spatial Economics, Regional Studies (Brazil)
HIROTA Shigeru	Faculty Fellow	Health and Economy, Regional Economics
HONJO Yuji	Faculty Fellow	Entrepreneurship and Small Business, Business Economics
HOSONO Kaoru	Faculty Fellow	Banking Regulations, Corporate Finance, Monetary Policy, Aggregate Productivity
INUI Tomohiko	Faculty Fellow	Economic Policy, Productivity, International Economics
ISHIKAWA Jota	Faculty Fellow	International Trade Theory
ITO Asei	Faculty Fellow	Chinese Economy, Asian Economy
JINJI Naoto	Faculty Fellow	International Economics, Environmental and Natural Resource Economics, Industrial Organization
KAMBAYASHI Ryo	Faculty Fellow	



Name	RIETI Title	Expertise
KAWAGUCHI Daiji	Faculty Fellow	Labor Economics, Empirical Microeconomics
KAWAHAMA Noboru	Faculty Fellow	Antitrust Law, Competition Policy
KAWASE Tsuyoshi	Faculty Fellow	International Economic Law, Trade Policy
KOBAYASHI Keiichiro	Faculty Fellow	Endogenous Growth Theory, General Equilibrium, Business Cycles, Bad Debt Problem, Debt Control Policy, Macropolitical Economy
KONDO Ayako	Faculty Fellow	Labor Economics
KURODA Sachiko	Faculty Fellow	Field of Specialization: Labor Economics, Applied Microeconomics Research Topics: Work Hours, Time Allocation/Time Use, Mental Health and Workplace, Health and Productivity Management
KWON Hyeog Ug	Faculty Fellow	Productivity Analysis, Industrial Organization
MANAGI Shunsuke	Faculty Fellow	Environmental Economics, Resource Economics, Applied Microeconomics
MATSUURA Toshiyuki	Faculty Fellow	International Economics, Industrial Organization, Regional Economics
MIYAGAWA Tsutomu	Faculty Fellow	Macroeconomics, Japanese Economics, Asian Economic Trends
MIYAJIMA Hideaki	Faculty Fellow	Japanese Economy, Economic History of Japan, Corporate Finance, Corporate Governance Comparative Financial Systems
MORI Tomoya	Faculty Fellow	Spatial Economics, Urban and Regional Economics
MOTOHASHI Kazuyuki	Faculty Fellow	Applied Microeconomics, Economic Statistics, Econometrics, International Comparison of Productivity, Economic Analysis of Information Technology, Technological Innovation and Economic Growth, Innovation System, Input-output Analysis
NAGAOKA Sadao	Faculty Fellow	Policy and Institutions for Innovation
NAKAGAWA Junji	Faculty Fellow	International Economic Law, Global Governance
NAKAJIMA Kentaro	Faculty Fellow	Spatial Economics, Urban Economics
NAKAMURA Ryohei	Faculty Fellow	Regional Science and Urban Economics
NAKAMURO Makiko	Faculty Fellow	Educational Economics
NIREI Makoto	Faculty Fellow	Macroeconomics
NISHIMURA Kazuo	Faculty Fellow	Nonlinear Economic Dynamics, Educational Economics, Neuroeconomics
OGAWA Eiji	Faculty Fellow	International Currency, International Finance
OHASHI Hiroshi	Faculty Fellow	Industrial Organization, Competition Policy, Science & Technology Innovation Policy, Trade Policy, Economic Policy
OHTAKE Fumio	Faculty Fellow	Behavioral Economics, Labor Economics
OKAZAKI Tetsuji	Faculty Fellow	Economic History, Development Economics, Comparative Institutional Analysis
OKUBO Toshihiro	Faculty Fellow	
ONO Yoshikuni	Faculty Fellow	Japanese Politics, Electoral Systems, Voting Behavior
OWAN Hideo	Faculty Fellow	Personnel Economics, Organizational Economics, Labor Economics, Innovation Economics
SAHASHI Ryo	Faculty Fellow	International Politics in East Asia
SATO Motohiro	Faculty Fellow	Public Finance, Local Public Finance
SHIROYAMA Hideaki	Faculty Fellow	Public Administration, International Public Administration, Science, Technology and Public Policy
TANAKA Mari	Faculty Fellow	Labor Economics, Development Economics, International Economics
TANAKA Ryuichi	Faculty Fellow	Labor Economics, Economics of Education
TODO Yasuyuki	Faculty Fellow	International Economics, Development Economics, Japanese Economy, Applied Microeconometrics
TOMIURA Eiichi	Faculty Fellow	Empirical International Trade
TSURU Kotaro	Faculty Fellow	Comparative Institutional Analysis, Organizational Economics, Labor Market Institutions
UCHIYAMA Yu	Faculty Fellow	Japanese Politics, Comparative Politics
UESUGI Iichiro	Faculty Fellow	Banking, Corporate Finance, Small and Medium Enterprises (SMEs), Japanese Economy
UNAYAMA Takashi	Faculty Fellow	Household Behavior, Applied Econometrics, Index Theory
WASHIDA Yuichi	Faculty Fellow	Marketing, Diffusion of Innovation, Design Research, Foresight Studies
WATANABE Junko	Faculty Fellow	Economic History, History of Economic Policy, History of Industry, Business History
YAMORI Nobuyoshi	Faculty Fellow	Empirical Research on the Japanese Financial System
YOSHIKAWA Hiroshi	Faculty Fellow	Macroeconomics, Japanese Economy
Consulting Fellow		
AKAHOSHI Yasushi	Consulting Fellow	
AMBASHI Masahito	Consulting Fellow	Applied Microeconomics, Industrial Organization, Industrial Policy, Innovation, Economic Development (Asian Economy)
ANDO Haruhiko	Consulting Fellow	

Name	RIETI Title	Expertise
ANJO Takayuki	Consulting Fellow	International Relations
AOYAMA Tatsufumi	Consulting Fellow	Hospital Management, Health and Medical Services, Life Science Industry, Innovation
ARAKAWA Kiyoaki	Consulting Fellow	Interregional Migration
ARIMA Jun	Consulting Fellow	Energy and Climate Policy
Chi Hung KWAN (C.H. KWAN)	Consulting Fellow	China's Economic Reform, Regional Integration in Asia, Yen Bloc
ENDO Noriko	Consulting Fellow	Policy Development for Regional Industries, Entrepreneurship, Marketing, Organization (Network, Community, Nonprofit organization)
ENOMOTO Shunichi	Consulting Fellow	International Business, Servitization under IoT, Digitalized Production
ETO Manabu	Consulting Fellow	Management of Technology, Standardization, Innovation Policy
FUJI Kazuhiko	Consulting Fellow	Effects of Trends in Crude Oil and Natural Gas on International Affairs, Impacts of Super Aging Society on Japan (Including community theory), China's Political Economy, U.S. Political Economy, Energy Cooperation with Russia (Natural gas pipeline project in Sakhalin)
FUKUNAGA Kai	Consulting Fellow	Macroeconomics, Firm Dynamics, Network, Industrial Organization, Labor Market, Causal Inference, Machine Learning
FUKUNAGA Yoshifumi	Consulting Fellow	International Economic Law, International Political Economy, Regional Economic Integration of ASEAN and East Asia
FUKUOKA Noriyoshi	Consulting Fellow	Industrial Policy, Health Care Policy, Energy Policy
FUKUYAMA Mitsuhiro	Consulting Fellow	Globalization, International Political Economy, Trade, U.S.-China Relations, Regional Integration, Poverty Reduction
HARA Keishiro	Consulting Fellow	Future Design, Technology Policy and Innovation, Environmental and Energy Policy, Sustainability Science
HARADA Takashi	Consulting Fellow	Intellectual Property Policy, Small and Medium Enterprise (SME) Policy, Innovation Policy, Organizational Design Theory, Public Relations
HASHIMOTO Kenji	Consulting Fellow	Human Resources, Education, Human Capital, Productivity, Artificial Intelligence (AI), Labor Market
HATA Shigenori	Consulting Fellow	Innovation Policy, Research and Development (R&D) Evaluation
HATTORI Takashi	Consulting Fellow	International Relations, Trade Policy, Environment and Energy Policy
HAYAFUJI Masahiro	Consulting Fellow	Trade and Related Policies, Trade Regimes, Economic History, Environmental Economics
HIBIKI Akira	Consulting Fellow	Environmental and Resource Economics, Law and Economics (In the Area of Accident Law)
HIRAI Hirohide	Consulting Fellow	Industrial Policy, Energy Policy
HIRAYAMA Yuka	Consulting Fellow	Design and Art Policy, Organizational Design Theory, Innovation Policy, Public Relations and Public Affairs, Industrial Human Resources Policy
HIRONO Ayako	Consulting Fellow	Global Research Trends in Economics and Management, Journalism, Innovation
HISHINUMA Takeshi	Consulting Fellow	Intellectual Property, Private International Law and International Relations
IDEYAMA Yuki	Consulting Fellow	
IKARI Hiroshi	Consulting Fellow	Development Finance, Capital Formation, Pension, Asset Management
IKEDA Yoko	Consulting Fellow	Policy and Institutions for Innovation, Rulemaking, Global Governance
ISHII Yoshi(aki)	Consulting Fellow	Small and Medium Enterprise (SME) and Venture Business Policy, Industrial Organization, Innovation Policy
ISHIKAWA Toshiki	Consulting Fellow	Official Statistics, New Statistics Development with Utilizing Big Data, Data Visualization, Design Policy, Design Management
ITO Koji	Consulting Fellow	Firms' International Activity (Trade, Foreign Direct Investment (FDI), etc.), Economic Sanctions
IWASAKI Fusanori	Consulting Fellow	International Relations, Trade Negotiations, East Asia Economic Integration
KAMEI Hiromichi	Consulting Fellow	Macro Economy, Tax/Finance/Social Security
KANKE Masaru	Consulting Fellow	
KANNEN Masato	Consulting Fellow	
KAWASAKI Kenichi	Consulting Fellow	Economics (Economic Model Analysis)
KAWASHIMA Yusaku	Consulting Fellow	Artificial Intelligence (AI), AI Ethics, Data Science, Statistics, Finance, Economics, Technology Policy, Leadership, Design Thinking, System Dynamics, Foresight Methodologies
KIDO Fuyuko	Consulting Fellow	Quantum Chemistry, Innovation
KIKUCHI Yasuyuki	Consulting Fellow	Macroeconomics, Monetary Policy, Regional Finance, Growth Theory
KIMURA Fukunari	Consulting Fellow	International Trade, Development Economics, East Asian Economies
KIMURA Takuya	Consulting Fellow	Trade and Investment Policy, Rulemaking, Management
KITAMURA Kenta	Consulting Fellow	
KOBAYASHI Hirokazu	Consulting Fellow	Learning Organization, Innovation, Southeast Asia and Indo-Pacific Affairs
KOBAYASHI Masanori	Consulting Fellow	International Public Policy, Regional Economy, Urban Policy, Real Estate Studies, etc.
KOBAYASHI Yohei	Consulting Fellow	Public Economics, Applied Econometrics, Tax Policy, Public Finance, Social Security, Evidence-Based Policy Making (EBPM), Urban Economics
KOMETANI Kazumochi	Consulting Fellow	
KUNITO Takayuki	Consulting Fellow	

Name	RIETI Title	Expertise
KUTSUZAWA Ryuji	Consulting Fellow	Urban Economics, Analysis of Real Estate Prices, Real Estate Investment Trusts (REITs) and Institutions for Innovation
MASAKI Yusuke	Consulting Fellow	Policy Making, Evidence-Based Policy Making (EBPM), Public Management, Local Administration, Economic Growth
MASUDA Kosuke	Consulting Fellow	Evidence-Based Policy Making (EBPM), Using Text as Data in Administrative Record Information for EBPM, Theory of Small and Medium Enterprise (SME), Active Labor Market Policy, Foreign Human Resources, Education Policy
MATSUMOTO Hideyuki	Consulting Fellow	International Financial Markets, Multinational Investment Banking, Global Strategic Information Systems Management, Offshoring and Outsourcing, Cross-cultural Studies
MATSUMOTO Rie	Consulting Fellow	Artificial Intelligence (AI) and Robotics, Digital Transformation and Innovation Ecosystem
MATSUNAGA Akira	Consulting Fellow	
MATSUYAMA Masayuki	Consulting Fellow	
MIURA Satoshi	Consulting Fellow	
MIYOSHI Yoshiyuki	Consulting Fellow	Public Finance, Regional Economics, Macroeconomics, Housing Policy, Infrastructure Policy
MIZUNO Ryota	Consulting Fellow	
MONDEN Yuichiro	Consulting Fellow	System Dynamics, Agent-based Modeling, Systems Engineering, Information Technology Industrial Policy, Competition Policy, Intellectual Property Policy, High Field Science, High Energy Density Science
MORIMOTO Takuya	Consulting Fellow	Small and Medium Enterprise (SME) Financial Policy, Labor Economics
MUNAKATA Naoko	Consulting Fellow	International Trade Regime, Economic Security, Innovation, Intellectual Properties, Risk Management, Data Governance
NAGAMACHI Daisuke	Consulting Fellow	Macroeconomics, Public Investment, Public Policy
NAKADATE Naoto	Consulting Fellow	Science, Technology & Innovation Policy / Startup Supporting Policy / Research of Disruptive Technologies / Gene Editing and Synthetic Biology / Uncertain Management under Pandemic, Disaster & Accident / Diversity Leading to the High Quality of Organizational Decision / FoodTech / Middle East Oil Money to Japanese DeepTech / Production Management & Manufacturing
NAKAGAMI Yasunori	Consulting Fellow	
NAKAJIMA Atsushi	Consulting Fellow	
NAKAMURA Yoshiaki	Consulting Fellow	Industrial Theory, Industrial Policy, Management of Technology
NAKANISHI Tasuku	Consulting Fellow	Trade/Investment Agreements, Industrial Development
NAKATOMI Michitaka	Consulting Fellow	International Economy, Trade Law, Trade Policy, Intellectual Property and International Standards, Investment Policy, Technology Policy, Digital Economy, Global Value Chains, Industrial Policy
NAKAZAWA Norio	Consulting Fellow	Economic Thought, Market Analysis, Public Finance, Personnel Economics
NAMBU Tomoshige	Consulting Fellow	Public Finance, Tax Policy, Trade Policy
NISHIGAKI Atsuko	Consulting Fellow	
NISHIOKA Takashi	Consulting Fellow	Social Security
NUMAMOTO Kazuki	Consulting Fellow	
ODAKI Kazuhiko	Consulting Fellow	
OGURO Kazumasa	Consulting Fellow	Public Economics
OIKAWA Keita	Consulting Fellow	Macroeconomics, International Economics, Econometrics, Public Economics, Industrial Organization
OKADA Yo	Consulting Fellow	Macroeconomic Policy and Analysis, International Trade and Investment Policy, Corporate Tax and Financial Accounting Policy
OKAMURO Hiroyuki	Consulting Fellow	Empirical Studies in Industrial Organization and Business Economics, Especially on Small Business, Start-ups, Innovation, Research and Development (R&D) Collaboration, and Innovation Policy
OKAWA Tatsuo	Consulting Fellow	
OOTA Yuto	Consulting Fellow	Environmental & Energy Policy, Corporate Finance (Passed uniform U.S. certified public accountant exams of New York State in 2023), Start-up Finance
OSABE Yoshiyuki	Consulting Fellow	Bibliometrics, Intellectual Property Rights, Science, Technology and Innovation (STI) Policy
SAITO Takashi	Consulting Fellow	Official Statistics, New Statistics Development with Utilizing Big Data
SAKAMOTO Masazumi	Consulting Fellow	Sustainable Development, History
SANO Tomoki	Consulting Fellow	
SATO Katsuhiro	Consulting Fellow	Strategic Management, Corporate Finance, M&A
SATO Yukihiro	Consulting Fellow	Science and Technology, Innovation, Science Advisory System, Information Industry, Technology Diffusion
SEKIGUCHI Kunio	Consulting Fellow	
SHIRAI Hiroaki	Consulting Fellow	Urban Economics, Infrastructure Planning, Disaster Risk Management
SHONO Yoshihisa	Consulting Fellow	Macroeconomics, Econometrics, Policy Evaluation, Economic Inequality
SUGIYAMA Seiji	Consulting Fellow	Regional Economic and Industrial Policy, Productivity Analysis, Information Policy
SUZUKI Kenichi	Consulting Fellow	
TADOKORO Hajime	Consulting Fellow	
TAKAGI Seiji	Consulting Fellow	International Trade Policy in Asia Pacific, Economic Security Policy, Finance
TAKEDA Takuya	Consulting Fellow	Trade Policy, Economic Cooperation Policy, Economic Security Policy, South East Asia

Name	RIETI Title	Expertise
<b>TAKEGAHARA Keisuke</b>	Consulting Fellow	
<b>TAKEGAMI Shiro</b>	Consulting Fellow	Industry-University Cooperation, Innovation, Medical Device and Health Care Innovation, Regional Industrial Development, Security Export Control, Start-up Support Program, Research Project Management
<b>TAKEUCHI Maiko</b>	Consulting Fellow	Economic Sanctions, Economics and National Security, Strategic Trade Control, Non-proliferation, Arms Control
<b>TAMURA Akihiko</b>	Consulting Fellow	International Political Economy, Global Governance, International Economic Law, Regional Integration (Especially EU and East Asian Region), Corporate Social Responsibility, China
<b>TANABE Yasuo</b>	Consulting Fellow	
<b>TANI Midori</b>	Consulting Fellow	Consumer Policy, Environment Policy
<b>TASHIRO Takeshi</b>	Consulting Fellow	
<b>TOMOZAWA Takanori</b>	Consulting Fellow	Economic Growth, Innovation, Energy & Environment, Mobility, Digital, System Design
<b>TSUDA Hirokazu</b>	Consulting Fellow	Evidence-Based Policy Making (EBPM), Behavioral Economics, Entrepreneurship, Regional Economy
<b>TSURUTA Hitoshi</b>	Consulting Fellow	
<b>UNO Yuya</b>	Consulting Fellow	Public Economics
<b>YAMADA Masato</b>	Consulting Fellow	Work-Life Balance (WLB), Intellectual Property Policy, Consumer Policy, Regional Economies, Energy Policy
<b>YOSHIDA Hiroki</b>	Consulting Fellow	Digitalization of Government Service, Design Thinking for Government Service, Management Strategy for Corporations and Government Agencies
<b>YOSHIDA Ryohei</b>	Consulting Fellow	Macroeconomy, Japanese Economy, Monetary Policy, Social Security Policy
<b>YOSHIDA Yasuhiko</b>	Consulting Fellow	Trade Policy, Trade Control, Infrastructure Export, Small Businesses, Manufacturing Industry, Industrial Development Policy

Visiting Fellow		
<b>Shiro ARMSTRONG</b>	Visiting Fellow	International Trade and International Economic Policy, Foreign Direct Investment, East Asian Economy, Japanese Economy, Chinese Economy, Cross Straits Economic Relation, South Asian-East Asian Economic Integration, Australia-Japan Relations
<b>ITO Hiroyuki</b>	Visiting Fellow	International Macroeconomics, International Finance, Monetary Economics
<b>MENG Jianjun</b>	Visiting Fellow	Development Economics, Industry Development, Environmental Policy
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## Editorial Note:



Thank you for reading RIETI Highlight Vol. 99. We hope that your interest in RIETI's activities increases through reading the articles in this edition.

Compared to previous years, this winter has been quite strange, with daily high temperatures and low temperatures often reaching 20 degrees Celsius and 10 degrees respectively. In mid-February 2024 when we were still editing the magazine, early spring daffodils bloomed, heralding the arrival of spring.

With the coming of spring, RIETI will also be making a fresh start. The Sixth Medium-term Plan period will begin in April 2024. New research projects have begun, and events are also in full swing, including a symposium co-hosted with the

Centre for Economic Policy Research (CEPR) and BBL Seminars, in which an array of guest experts share their research and views. We hope that our activities will continue to pique the interest of our followers and will strive to produce more insightful and interesting work into the future.

\*We pray that the souls of those who lost their lives in the 2024 Noto Peninsula Earthquake may rest in peace and express our deepest sympathy to those who were affected by the disaster.

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