

ICES 2020



**Pan Pacific Association of Input-Output Studies
(PAPAIOS)**



27-29 March 2020

Kyoto University, Japan

(Address: Graduate School of Management, Kyoto University, Yoshida-honmachi, Sakyo-ku,
Kyoto 606-8501 JAPAN)

The 4th International Conference on Economic Structures at Kyoto University

March 27, 2020

Special Session co-hosted by PAPAIOs and Kyoto University

13:45 – 17:00 Venue: Clock Tower Centennial Hall, 2nd floor International Hall II

Welcome Reception 17:30-19:30 Venue: Research Bldg No.2 (1F) Lecture Hall

March 28, 2020

Opening Session 9:10-9:50 Venue: Research Bldg No.2 (1F) Lecture Hall

	Venue A Research Bldg No.2 (3F) Large Seminar Room 1	Venue B Research Bldg No.2 (3F) Multimedia Lecture Room	Venue C Research Bldg No.2 (3F) Case Study Seminar Room	Venue D Research Bldg No.2 (3F) Large Seminar Room 2
10:00-12:00	Organized Session (by Kyoto U 1) Sat-A-1	Organized Session (DCCE) Sat-B-1	Regional I-O 1 Sat-C-1	Int'l Economy 1 Sat-D-1
13:00-15:00	Organized Session (by Kyoto U 2) Sat-A-2	Organized Session (IEECEA) Sat-B-2	Environment 1 Sat-C-2	Regional I-O 2 Sat-D-2
15:30-17:30	Organized Session (by KESRA) Sat-A-3	Organized Session (LMDC) Sat-B-3	Int'l Economy 2 Sat-C-3	Regional I-O 3 Sat-D-3

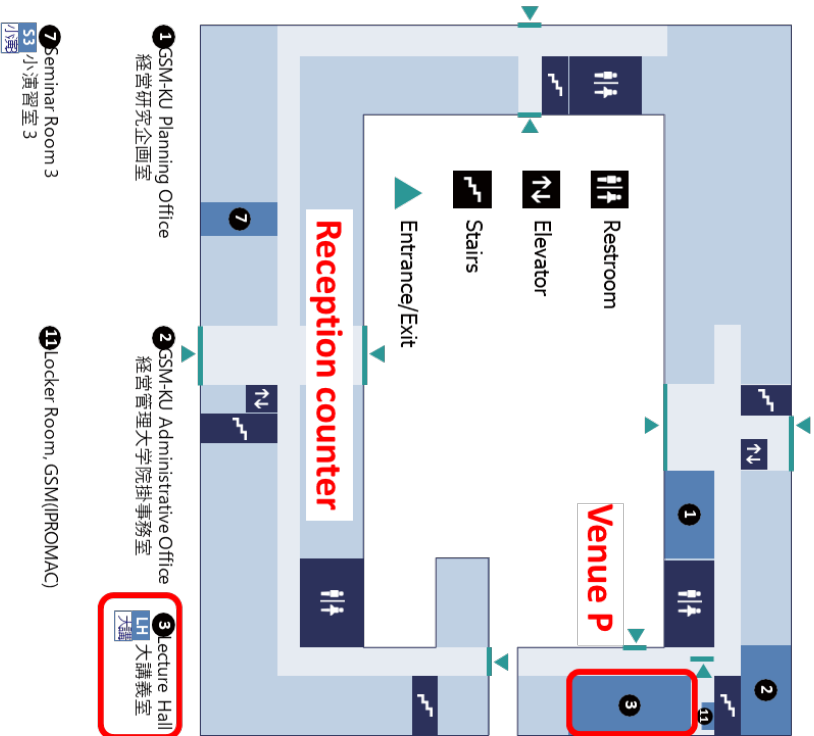
Social Gathering 18:00-20:00 North Cafeteria

March 29, 2020

	Venue A Research Bldg No.2 (3F) Large Seminar Room 1	Venue B Research Bldg No.2 (3F) Multimedia Lecture Room	Venue C Research Bldg No.2 (3F) Case Study Seminar Room	Venue D Research Bldg No.2 (3F) Large Seminar Room 2
9:00-9:50	PAPAIOU President Lecture Sun-A-0			
10:00-12:00	Organized Session (by TAIOU) Sun-A-1	Regional I-O 3 Sun-B-1	Theory of I-O 1 Sun-C-1	Environment 2 Sun-D-1
13:00-15:00	Organized Session (NTITT) Sun-A-2	Int'l Economy 3 Sun-B-2	Productivity 1 Sun-C-2	Organized Session (PECC) Sun-D-2
15:30-17:30				

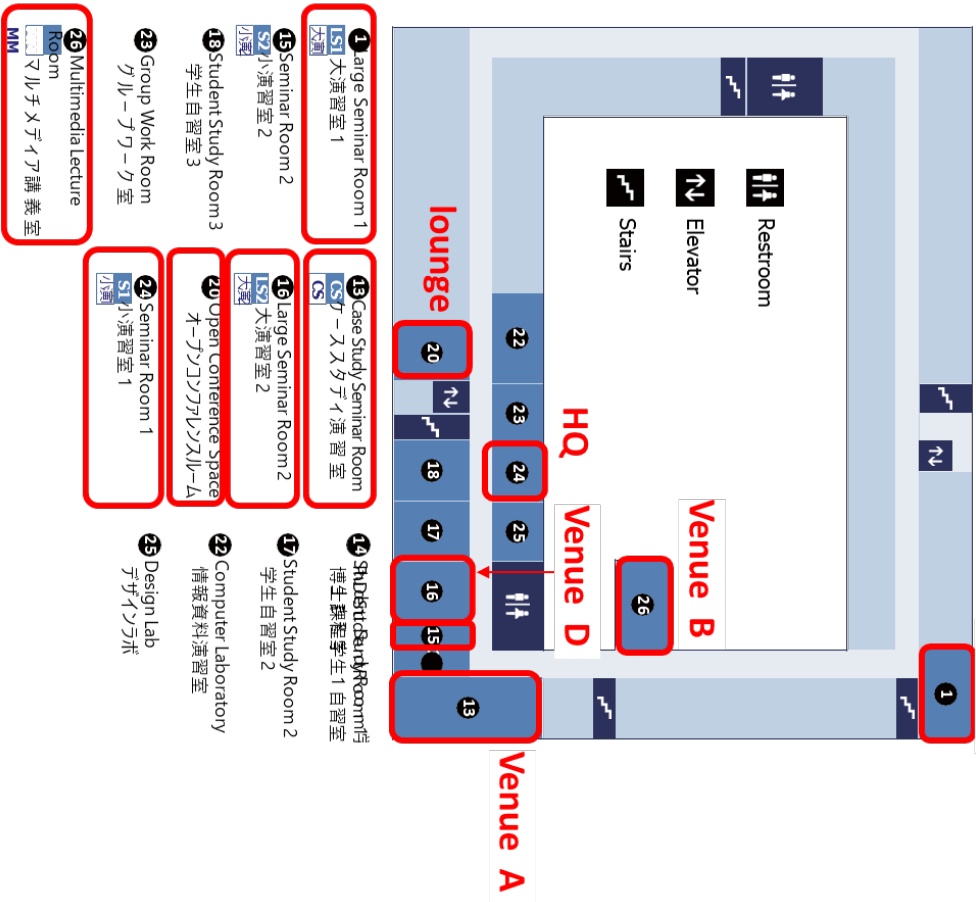
Floor Map

1F Research Bldg No.2 1st Boor
総合研究 2 号館 1 階



3F Research Bldg No.2 3rd Boor
総合研究 2 号館 3 階

Welcome Reception
Venue C



Friday, March 27. 13:45-17:00, Special Session

Venue: Clock Tower Centennial Hall, 2nd floor International Hall II

Inclusive Development and Growth Dynamics: Evidence based Multilateral Cooperation and Development

13:45 Opening Remarks

Inclusive Development and Growth Dynamics: Model Framework for Multilateral Cooperation and Development

Gautam Ray (Kyoto University)

~~14:30 Keynote Presentation~~

~~Development and Use of Trade and Industry databases at OECD~~

~~Colin Webb (OECD)~~

15:45 Panel Discussion

Friday, March 27. 17:30-19:30, Welcome Reception

Venue: Research Bldg No.2 (1F) Lecture Hall

Welcome Reception

Saturday, March 28, 9:20-9:50

Venue: Research Bldg No.2 (1F) Lecture Hall

Opening Ceremony

Chair: Takashi Yagi (Meiji University)

~~1. Opening Remarks (CIOA)~~

~~Tonglu Zhao (National Bureau of Statistics)~~

~~2. Opening Remarks (KESRA)~~

~~———— Jinmyon Lee (Korea Institute for Industrial Economics and Trade)~~

~~3. Opening Remarks (HIOA)~~

~~Hui Song (Hebei Input-Output Association)~~

~~4. Opening Remarks (TAIOS)~~

~~Tony Shih-Hsun Hsu (National Taiwan University)~~

~~5. Opening Remarks (PAPAIOS)~~

~~Kiyoshi Fujikawa (Nagoya University)~~

Saturday, March 28, 10:00-12:00

Venue A: Research Bldg No.2 (3F) Large Seminar Room 1

Sat-A-

1

Kyoto U 1 Organized Session (Regional Input Output Table and its application by local public agency)

Chair: Kwangmoon Kim (Kyoto University)

1. Regional Input-Output Table and its application in Kyoto city

Masashi Ogishi (Kyoto City Office)

2. Japanese provincial input output table and its application in kyoto prefecture.

Hiroya Matsui (Kyoto Prefectural Government)

3. Construction of 2011 inter-municipalities input-output table of Aichi-prefecture, Japan

Mitsuo Yamada (Chukyo University)

Venue B: Research Bldg No.2 (3F) Multimedia Lecture Room

Sat-B-1

DCCE Organized Session (Development and Challenges of Cambodia Economy)

Chair: Runsinarith Phim (National University of Management)

1. Diversification of Tourist Destination in Cambodia: Is Indigenous Tourism of the North East a Potential?

Rido Thath (Meiji Gakuin University)

2. Environmental and Economic Effects of Joint Crediting Mechanism (JCM) in Cambodia

Akihiro Miyanishi (Nagoya University)

3. ~~Liberalisation of Cambodian Foreign Trade Bank~~

~~Veara Kim (Royal University of Phnom Penh)~~

4. Assessing the Dynamic Tourism Inter-Industry Linkages and Economic Structural Changes in Cambodia's Economy

Hor Chantha (Nagoya University)

Venue C: Research Bldg No.2 (3F) Case Study Seminar Room

Sat-C-1

Regional Input-Output Analysis 1

Chair: Nobuhiro Okamoto (Daito Bunka University)

1. A Secular Change of Interdependencies in Japanese Automotive Industry between Aichi and Other Regions

Shinichiro Kimura (Chubu Region Institute for Social and Economic Research)

2. ~~MEASURING ECONOMIC IMPACTS OF INTERNATIONAL TOURISM ACTIVITIES: A GLOBAL INTER-COUNTRY INPUT-OUTPUT APPROACH~~

~~Ali Alsamawi (OECD)~~

3. ~~Study on Regional Differences in Value Added Rates and Its Decomposition of China~~

~~Duomin Wang (University of Chinese Academy of Sciences)~~

~~Jian Xu (University of Chinese Academy of Sciences)~~

4. Constructing Prefectural Multi-Regional Input-Output Tables: Developing a New Method

Yuki Ichisugi (Tokyo City University)

Yasushi Kondo (Waseda University)

Venue D: Research Bldg No.2 (3F) Large Seminar Room 2

Sat-D-1

International Economy and International Development 1

Chair: Shrestha Nagendra (Yokohama National University)

~~1. Unequal exchange in Global Value Chain. Why can some countries be competitive and maintain high wages at the same time?~~

~~Maria De Los Angeles Gomez Benitez (Open University)~~

~~2. Asia Before and After the Global Financial Crisis~~

~~Shrestha Nagendra (Yokohama National University)~~

~~3. Regional Income Disparities, Convergence Clubs and Aggregation Effects: New District-Level Evidence from Indonesia 2000-2017~~

~~Harry Aginta (Nagoya University)~~

~~Carlos Mendez (Nagoya University)~~

~~4. Income disparities across sub-Saharan African regions~~

~~Ayegbe Jean-Noel Djahoua (Nagoya University)~~

~~Carlos Mendez (Nagoya University)~~

~~Felipe Santos-Marquez (Nagoya University)~~

Saturday, March 28, 13:00-15:00

Venue A: Research Bldg No.2 (3F) Large Seminar Room 1

Sat-A-2

Kyoto U 2 Organized Session (Asian Input Output Table and its application in Indochina countries)

Chair: Colin Webb (OECD)

~~1. The Extended Applied IO Model with Heterogeneous Household Demand System in Vietnam~~

~~Kim Kwangmoon (Kyoto University)~~

~~Norihiko Yamano (OECD)~~

~~Trinh Bui (AREES)~~

~~2. Time series analysis of economic interdependencies based on the four nation (China-Thailand-Vietnam-Myanmar) international input-output table~~

~~Hidefumi Kaneko (NPO Association of Regional Econometrics and Environmental Study)~~

~~Kwangmoon Kim (Kyoto University)~~

Venue B: Research Bldg No.2 (3F) Multimedia Lecture Room Sat-B-2

IEECEA Organized Session (Interdependence of environment and economy in China and East Asia)

Chair: Kiyoshi Fujikawa (Nagoya University)

1. ~~Net impacts of inbound tourism on Japanese Regional Economy: the case study of Aichi prefecture~~

~~Mariko Makita (Nagoya University)~~

2. Examination of Green Leontief Paradox by bilateral trade of Vietnam with China, Japan and the USA

Vo Tuyet Le (Nagoya University)

Yiyi Ju (University of Tokyo)

3. Power consumption and energy saving possibilities in Chinese household sector

Yuzhu Wang (Nagoya University)

4. Economic, Energetic and Carbon Impact of China's Outward FDI

Hikari Ban (Kobe Gakuin University)

Kiyoshi Fujikawa (Nagoya University)

Venue C: Research Bldg No.2 (3F) Case Study Seminar Room Sat-C-2

Environment, Resource and Energy 1

Chair: Ayu Washizu (Waseda University)

1. Construction and application of an input-output table for the analysis of a next generation energy system (IONGES)

Ayu Washizu (Waseda University)

Satoshi Nakano (The Japan Institute for Labour Policy and Training)

2. Energy efficiency and Structural Change Developments across Newly Industrialized Economies: A Sectoral Decomposition Analysis

Zaheer Abbas (Quaid-i-Azam University)

3. Measurement of the information asymmetric in energy market of China

Li-Chen Chou (Wenzhou Business College)

Hsing-Chun Lin (input-output analysis)

~~4. The consequence of declining savings rates in China ? Energy perspective~~

~~Yihan Liao (Renmin University of China)~~

~~Chen Lin (Renmin University of China)~~

Venue D: Research Bldg No.2 (3F) Large Seminar Room 2

Sat-D-2

Regional Input-Output Analysis 2

Chair: Nobuhiro Okamoto (Daito Bunka University)

1. Spatial Structure, Spillover and Feedback Effect in Indonesia: Inter-regional Input Output Approach

Anang Budi Gunawan (Nagoya University)

2. Cross sectoral employment effects in Russian economy: input-output approach

~~Ekaterina Edinak (Russian Academy of Sciences)~~

3. Analysis of interregional economic interactions based on railroad statistics

~~Alexander Shirev (Russian Academy of Sciences)~~

4. The contribution of each industry to the increase of employment

Hideo Kinoshita (Osaka University of Economics)

Saturday, March 28, 15:30-17:30

Venue A: Research Bldg No.2 (3F) Large Seminar Room 1

Sat-A-3

~~**KESRA — Organized Session (Analyses on Structural Change and Main Issues in Korean Economy)**~~

~~Chair: Jinmyon Lee (Korea Institute for Industrial Economics and Trade)~~

~~1. The compilation results of Korean 2016 and 2017 input-output tables~~

~~Sangdon Boo (Bank of Korea)~~

~~Ingyu Lee (Bank of Korea)~~

~~2. A Study on the Development of the Input-Output Model with Endogenous Households—Sector by Income level~~

~~Youngho Lee (Korea Institute for Industrial Economics and Trade)~~

~~Jaejin Kim (Korea Institute for Industrial Economics and Trade)~~

~~3. The Impact of the China-U.S. Trade War on the Korean Economy~~

~~Bawoo Kim (Korea Institute for Industrial Economics and Trade)~~

~~Jeonghyun Kim (Korea Institute for Industrial Economics and Trade)~~

~~4. Analysing the structure of Gyeonggi province in GVCs and estimating Gyeonggi IGIO~~

~~Taehyun Kwon (Bank of Korea)~~

Venue B: Research Bldg No.2 (3F) Multimedia Lecture Room Sat-B-3

LMDC Organized Session (Labor Market in Developing Countries)

Chair: Christian Otchia (Nagoya University)

1. Women`s Maternal health and its effects on Female Labor Force Participation

Aiza Sarwar (Nagoya University)

2. How migrant workers affect the labor market in Thailand? An application of the simultaneous equations model of immigration

Katikan Tipayalai (Nagoya University)

3. Human capital and economic growth: A macroeconomic model for Indonesia

Yubilianto (Nagoya University)

~~4. Combining on-the-job training with mentoring leads to success in the labor market: Evidence from Ethiopia~~

~~Christian Otchia (Nagoya University)~~

Venue C: Research Bldg No.2 (3F) Case Study Seminar Room Sat-C-3

International Economy and International Development 2

Chair: Kazuhiko Nishimura (Nihon Fukushi University)

1. Analysis of Potential Impact Magnitude of the Mining Sector on Economic Growth of Tajikistan

Oliya Maxudova (Ritsumeikan Asia Pacific University)

Fakhriddin Mirzoakhmedov (The State Financial and Economic University of Tajikistan)

Saroj Kafle (Sansin Sangyo Co., Ltd.)

2. International Sourcing and Firm Performance

Haoliang Zhu (Doshisha University)

3. The Role of Cotton-Textile Industry on Economic Growth Tajikistan

Shukuhiddin Abrori (Ritsumeikan Asia Pacific University)

Oliya Maxudova (Ritsumeikan Asia Pacific University)

4. ~~Decentralization and industrial upgrading in developing countries~~

~~Bangkit Aditya Wiryawan (Nagoya University)~~

Venue D: Research Bldg No.2 (3F) Large Seminar Room 2

Sat-D-3

Regional Input-Output Analysis 3

Chair: Mitsuo Yamada (Chukyo University)

1. Impact of automobile electrification on regional economy using an inter-municipalities input-output table of Aichi prefecture, Japan

Mitsuo Yamada (Chukyo University)

2. ~~An Application of DPG Analysis to Mongolia, Kazakhstan and Kyrgyzstan Two Decades after their Transition to Market Economies~~

~~Uyanga Ganbaatar (Meiji University)~~

3. Networks in the Japanese Regional Agro-food Economies

Kiyotaka Ishikawa (University of Tokyo)

4. Structural change in the Vietnam economy: A decomposition analysis for 2000-2016

Nguyen Thi Bich Ngoc (Hiroshima University)

Masaru Ichihashi (Hiroshima University)

Saturday, March 28, 18:00-20:00

Venue: North Cafeteria

Social Gathering

Sunday, March 29, 9:00-9:50

Venue: Research Bldg No.2 (3F) Large Seminar Room 1

Sun-A-0

PAPAIOS President Lecture

Kiyoshi Fujikawa (Nagoya University)

Sunday, March 29, 10:00-12:00

Venue A: Research Bldg No.2 (3F) Large Seminar Room 1

Sun-A-1

TAIOS ——— Organized Session (Food, Energy and Trade Analysis) —

Chair: Tony Shih-Hsun Hsu (National Taiwan University)

~~1. Impacts of Demographic Change on Food Demand in Taiwan: A Dynamic Computable-General Equilibrium Analysis~~

~~Yu-Chieh Chang (National Taiwan University)~~

~~Sheng-Ming Hsu (National Chung Hsing University)~~

~~Ruey Wan Liou (Ministry of Transportation and Communications, R.O.C.)~~

~~Ching-Cheng Chang (National Taiwan University)~~

~~Tony Shih-Hsun Hsu (National Taiwan University)~~

~~2. Measurement of Marginal Costs of Carbon Dioxide Abatement of OECD and non-OECD economies~~

~~Po-Chi Chen (Chung Hua University)~~

~~3. Spokes, Hubs, and Industrial Competitiveness in Asian Manufacturing~~

~~Ya-Wen Yu (Chung Yuan Christian University)~~

~~Jin-Xu Lin (Chung Yuan Christian University)~~

~~Shih-Mo Lin (Chung Yuan Christian University)~~

~~4. Regional Impact on China's Import Ban on Used Plastics~~

~~Katsufumi Fukuda (University of Toyama)~~

~~Kazuyuki Nakamura (University of Toyama)~~

~~Masashi Yamamoto (University of Toyama)~~

Regional Input-Output Analysis 3

Chair: Chen Lin (Renmin University of China)

1. Structure of agricultural, forestry, and fishery sectors in Vietnam economy

Thao Phuong Nguyen (Hitotsubashi University)

Trinh Bui (Vietnam Development Research Institute)

Thai Quang Nguyen (Vietnam Development Research Institute)

~~2. North-South Differences, Domestic Value Added in Exports and Industrial Chain Integration~~

~~Chen Lin (Renmin University of China)~~

3. The Estimation and Analysis of The Head Office Sector in Each Japanese Intraregional Input-Output Tables in 2011

Natsumi Suhara (Yokohama National University)

4. Development banking, capital accumulation and economic growth: The evidence from 10 countries since the 1950s until 2017

Reynaldo Senra (Centro de Investigaciones de la Economia Mundial)

Venue C: Research Bldg No.2 (3F) Case Study Seminar Room Sun-C-1

Theory of Input-Output Techniques

Chair: Takashi Yagi (Meiji University)

1. A Framework to Incorporate Uncertainty into Input-Output Analysis

Jian Jin (Waseda University)

Yasushi Kondo (Waseda University)

2. Global Cost Structure Analysis: Three-Country Case

Takashi Yagi (Meiji University)

3. Product Technology vs. Industry Technology: A New Look

Vladimir Motorin (National Research University Higher School of Economics)

Marina Motorina (Plekhanov Russian University of Economics)

4. ~~Development of OECD's Inter-Country Input-Output (ICIO) Database 2020 edition and recent analytical applications~~

~~Norihiko Yamano (OECD)~~

~~Colin Webb (OECD)~~

Venue D: Research Bldg No.2 (3F) Large Seminar Room 2 Sun-D-1

Environment, Resource and Energy 2

Chair: Makiko Tsukui (Tokyo International University)

1. ~~Energy and Environmental Economics~~

~~Aqib Mujtaba (Shri Mata Vaishno Devi University)~~

2. A case study of the industry level international competitiveness and emission accounting in Germany Subtitle

Shuning Chen (Research Institute of Innovative Technology for the Earth)

Keito Akimoto (Research Institute of Innovative Technology for the Earth)

Takashi Honnma (Research Institute of Innovative Technology for the Earth)

Masaru Kagatsume (Kyoto University)

3. ~~The impact of climate policy on structural changes in the Russian economy~~

~~Andrey Kolpakov (Russian Academy of Sciences)~~

Sunday, March 29, 13:00-15:00

Venue A: Research Bldg No.2 (3F) Large Seminar Room 1

Sun-A-2

NTITT Organized Session (New Trend in International Trade Theory)

Chair: Zuoyi Ye(Shanghai University of International Business and Economics)

~~1. Industrial Internet, International Competition and Innovation of Chinese Enterprises~~

~~Jianxin Wang (Shanghai University of International Business and Economics)~~

~~Chen Yang (Shanghai University of International Business and Economics)~~

~~2. The Effect of Servitization on Manufacturing Firm Performance—Based on the Evidence of China~~

~~Siyu Wang (Shanghai University of International Business and Economics)~~

~~Jinyong Zhang (Shanghai University of International Business and Economics)~~

~~Guijun Lin (Shanghai University of International Business and Economics)~~

Venue B: Research Bldg No.2 (3F) Multimedia Lecture Room

Sun-B-2

International Economy and International Development 3

Chair: Masaaki Kuboniwa (Hitotsubashi University)

1. The Role of Digital Economic in Asean-Korea Free Trade Area (AKFTA)

Ghina Fitri Ariesta Susilo (Universitas Tidar)

Utpala Rani (Universitas Tidar)

2. Human Development Dynamics across Districts of Indonesia: A Study of Regional Convergence and Spatial Approach 2010-2018

Ragdad Cani Miranti (Nagoya University)

3. Promoting Exports by the ASEAN SMEs: Impediments, Drivers, and Conducive Policies

Utumporn Jitsutthiphakorn (Nagoya university)

4. Development of Theoretical Foundation for Global Value Chains

Masaaki Kuboniwa (Hitotsubashi University)

Venue C: Research Bldg No.2 (3F) Case Study Seminar Room

Sun-C-2

Productivity

Chair: Taiji Hagiwara (Kobe University)

1. AN ALTERNATIVE APPROACH TO PRODUCTIVITY MEASUREMENT IN INDIA

D P Priyadarshi Joshi (Shri Mata Vaishno Devi University)

Farah Farooq Shah (Shri Mata Vaishno Devi University)

2. Convergence of Financial and Social Performance of Microfinance Institutions in Sri Lanka

Waruni Nilukshi Kaushalya Perera Weerakkodi Arachchige (Nagoya University)

3. Structural shifts in the Russian economy in 1990-2015

Dmitry Polzikov (Institute of economic forecasting (RAS))

PECC Organized Session (Policies for Energy and Climate Change)

Chair: Jiayang Wang (Renewable Energy Institute)

~~1. Time Preference and the Dynamics of Evacuation Behavior: Evidence from Hurricane-Ike and Hurricane Sandy~~

~~Jiang Fan (Shanghai University of International Business and Economics)~~

~~Pallab Mozumder (Florida International University)~~

2. Regional caps of the national emission trading scheme in China: two approaches revealing the emission relocation

Yiyi Ju (University of Tokyo)

Kiyoshi Fujikawa (Nagoya University)

3. Economic, Environmental and Social Impact by the Choice of Power Sources: An Application of Scenario Input-Output Analysis

Jiayang Wang (Renewable Energy Institute)

Kiyoshi Fujikawa (Nagoya University)

~~4. Construction Method and Case Research on Non-competitive Type Energy-environment Governance Input-output Model~~

~~Hui Song (Hebei Input-Output Association)~~

Abstract

Saturday, March 28, 10:00-12:00

Venue A: Research Bldg No.2 (3F) Large Seminar Room 1

Sat-A-

1

Chair: Kwangmoon Kim

Masashi Ogishi (Kyoto City Office)

Regional Input-Output Table and its application in Kyoto city

Recently, there has been an increase in the number of city governments that compile municipality regional input-output tables for evidence base policy evaluation on regional economy. KYOTO is the one of most famous international tourism city in JAPAN, in which there are a lot of world historical and cultural heritages to inbound huge number of foreign visitor. It would have big economic potential to be induced by inbound tourist demand. On the other hand, due to the increasing number of inbound tourist, it is also observed increasing social cost for urban policy. And it was not been clear for local residents to recognize how much to receive get economic impact by final demand for inbounds visitor without evidence base data. Kyoto city government has compiled city IO table for accountability for policy evaluation of tourism sector on 2019. This presentation will introduce the current status and critical issue of regional IOT compilation and its application in Kyoto city. Kyoto city IO applications include urban economic impact on production, employment, and value added by inbound tourist demand, the role of tourism sector in Kyoto. This presentation outlines the development and use of Kyoto IO tables and related application of Kyoto IO at Kyoto City. A brief introduction will describe the role of the Kyoto City in general.

Hiroya Matsui (Kyoto Prefectural Government)

Japanese provincial Input Output Table and its application in Kyoto Prefecture.

Kyoto Prefecture Government is one of representative local government in Japan, it has some of experience to compile regional IO tables in cooperation with the central government. Estimation of regional wide trade data and intermediate transaction data (Intra and inter provincial inflow and out flow data by industry sector) is one of the most critical issue for local government statistics office in cooperation with the central government. Recently, local government has started to face on data limitation to get inflow and outflow due to the changing survey implementation by Central government. They need to develop any practical idea to avoid data inconsistency with actual regional economy. This presentation will

introduce the current status and critical issue of regional IOT compilation and its application in Kyoto prefecture. Kyoto prefecture applications include regional economic impact on production, employment, and value added by potential final demand, the role of expected key industry sector in Kyoto prefecture. This presentation outlines the development and use of Kyoto prefecture IO tables and related IO application at Kyoto prefecture. A brief introduction will describe the role of the Kyoto prefectural government in general.

Mitsuo Yamada (Chukyo University)

Construction of 2011 inter-municipalities input-output table of Aichi-prefecture, Japan

It is an important issue how to revitalize the local economy as the population declines more and more in the future. Various measures for regional revitalization have been proposed in each prefecture or municipality. However, evidence-based policy making (EBPM) is important to achieve efficient and effective results with a limited budget. Regional input-output analysis is expected as one of the effective tools to achieve such goals. For this reason, not only prefectures but also many municipalities have created their own input-output tables and tried to use them to evaluate their measures. However, it is often difficult for municipalities to create their own input-output tables.

This paper introduces one method of constructing 2011 inter-municipalities input-output table (54 municipalities by 106 sectors) by creating each input-output table for Aichi prefecture's 54 municipalities and estimating inter-municipalities' transaction tables for each sector with gravity-RAS method. Based on the constructed inter-regional input-output table, we discuss the interdependence between municipalities in the prefecture. Through this example, we propose one method for constructing municipality-based input-output tables from their prefecture input-output table. At the same time, we will discuss the problems and issues in this method.

Saturday, March 28, 10:00-12:00

Venue B: Research Bldg No.2 (3F) Multimedia Lecture Room

Sat-B-1

Chair: Runsinarith Phim (National University of Management)

Rido Thath (Meiji Gakuin University)

Diversification of Tourist Destination in Cambodia: Is Indigenous Tourism of the North East a Potential?

Since the early 1990s when Cambodia ended the decade-long conflict and opened for

tourism, the number of foreign visitors has increased significantly. This growth is attributable mainly to the attractiveness of Angkor Wat, one of the largest world religious structures and UNESCO World Heritage sites. In addition to visiting Angkor Wat and other temples within the vicinity, visitors are concentrated in the capital Phnom Penh and the surrounding areas. The limited number of tourist destinations leads to shorter stay, thus sub-optimal tourism revenue. In fact, there are destinations that are attractive to foreign visitors if properly developed and managed. The development of alternative destinations will contribute to increased tourism revenue, creating jobs and reducing regional disparity. This paper, using SWOT analysis and field survey data (collected from stakeholder interviews, focus group discussion and resource mapping), analyzes the potential and feasibility of Indigenous Tourism in the provinces of Mondolkiri and Ratanakiri as alternative tourist destinations. It was found that visitors are attracted to the indigenous culture and way of life such as food, clothing, housing and cemeteries, which are different from the mainstream Khmer society, and they are also attracted the rich natural environment in the two provinces. However, underdeveloped infrastructure, sub-standard hospitality and underdevelopment of the sites are potential hindrances.

Akihiro Miyanishi (Nagoya University)

Environmental and Economic Effects of Joint Crediting Mechanism (JCM) in Cambodia

JCM (Joint Crediting Mechanism) is a system established by the Japanese government to contribute to global GHG (greenhouse gas) reduction. Japan disseminate and implement measures for low carbon technologies, products, systems, services and infrastructure in developing countries. Then, Japan quantitatively evaluates its contribution to the GHG emission reduction or removals and use it to achieve Japan's reduction targets. At present, Japan has signed bilateral documents for JCM with 17 countries. In my study, I focused on one project in Cambodia called "Introduction of High Efficiency LED Lighting Utilizing Wireless Network" by Minebea Co., Ltd. This project aims to reduce energy consumption and GHG emissions by introducing total of 5,672 units of high efficiency LED Lighting utilizing wireless network technology in Phnom Penh and Siem Reap. This project might be the key not only to reduce GHG, but also to lead Phnom Penh and Siem Reap to Smart Cities because there are plans to apply this project to expand the wireless network throughout the town and connect it with various devices. Then, I wonder how much the application of Smart Cities will be realized throughout the towns by proceeding with this project. To solve this question, I visited Cambodia, and interviewed with the project representative participant, Minebea Co., Ltd. and other sectors related to this project. In conclusion, it is revealed that JCM make a significant contribution to the sustainable development in developing countries. Moreover, as for private companies, JCM is a means for new entry into unexplored developing countries. By utilizing the infrastructure and network which were built in JCM

project, Minebea also started their own business of LED Lighting. In other words, Minebea is planning further development in Cambodia based on JCM experience.

Veara Kim (Royal University of Phnom Penh)

Liberalisation of Cambodian Foreign Trade Bank

Privatisation has been a major force in world politics and economics since it was popularized by Margeret Thatcher's conservative British government in early 1980s. Privatisation has become very popular because the vast bulk of money it raised has flowed directly to governments, rather than to the state-owned enterprises (SOEs) themselves. This article explores the privatisation of state-owned enterprises (SOEs) in Cambodia with a specific case study on Foreign Trade Bank of Cambodia (FTB). The study focuses on the process of privatisation of SOEs and key actors involved in the reform, and then evaluates the outcome of the privatisation of SOEs. The findings suggested that the privatisation of the FTB is rather policy-driven, with the support of donors, with strong resolve from the implementing agencies, as part of the banking sector reform agenda, where the privatisation of FTB is under restructuring of the banking sector in the Cambodia's Financial Sector Blueprint for 2001-2010. Donors played a very important role in the elimination of the two-tier banking system. However, the privatisation would not be realized without commitment from the leadership of the governor of the National Bank of Cambodia. The study also found that the privatisation of FTB could be successful due to its performance in the provision of services and employment, which in turn contributes to economic development and poverty reduction.

Hor Chantha (Nagoya University)

Assessing the Dynamic Tourism Inter-Industry Linkages and Economic Structural Changes in Cambodia's Economy

This study employs the SAM-based model combining with Multiplier Production Matrix and Field of Influence Approach to assess the dynamic tourism inter-industry linkages and structural economic changes in Cambodia. The analyses utilize to measure the three Input-Output Transaction Table Matrices of the year 2005, 2010, and 2015. We find that the overall inter-industry linkage is relatively low during the studied periods. Only the textiles, other manufacturing, and transportation and communication are key sectors and have the largest coefficient fields of influence of changes in the economy. Most-sub service sectors, except tourism, transportation, and communication, wholesale, and retail sectors, present as weak-oriented sectors during the three years. Tourism has shifted to be a key sector in 2010 and 2015. However, tourism is likely to be a promising sector for having the fields of influence of changes, while the other sectors are relatively loose its importance of fields of change in the economy. This study may suggest that there would be a need for promoting, encouraging,

and investing in the productive economic sectors, as well as strengthening domestic production capacity. We also suggest that the policy's intervention should focus on creating the development of linkages, which help to reduce imports of tourism goods and services.

Saturday, March 28, 10:00-12:00

Venue C: Research Bldg No.2 (3F) Case Study Seminar Room Sat-C-1

Chair: Nobuhiro Okamoto (Daito Bunka University)

Shinichiro Kimura (Chubu Region Institute for Social and Economic Research)
A Secular Change of Interdependencies in Japanese Automotive Industry between Aichi and Other Regions

The motor vehicle industry (MVI) in Japan has grown as one the biggest basic industry, which accounts for about 20% of domestic value of manufactured goods shipments (VMGS). Thanks to Aichi in Chubu-region, the birthplace of Toyota motor corporation, Chubu-region has MVI clusters and the share beyond the 50% of the VMGS in MVI. Since the 1990s, however, from the viewpoint of labor shortage, some automotive assembly factories have been built outside Chubu-region. As a result, MVI clusters have been changing. As MVI has huge pyramidal supply-chain structure including many subcontract factories, the changes in the environment surrounding Japanese MVI has affected many suppliers. To understand the secular change of interdependencies in MVI between Aichi and other region, the hypothetical extraction method (HEM) applies into Aichi and other regions with Chubu-region multi-regional I-O table. In the case of the Aichi MVI by HEM, the rate of decline for the production outside Chubu-region shows an increasing trend; 1995/0.89%, 2000/1.14%, 2005/1.45%, 2010/1.69%. Even though the extraction of the Aichi MVI in 2010 reduces by about 13.8% compared to 2005, the rate of decline for the production in other areas are increasing. This means that transaction of the Aichi MVI has been expanded to business partners in other regions. In the case of the outside Aichi MVI by HEM, the rate of decline for the production in Aichi shows an increasing trend. Also, the rate of decline for the production in Aichi in the case of applying HEM to the outside Aichi MVI is higher than the one in the case of HEM to the Aichi MVI. From the two results by HEM, it is clear that the Aichi MVI has strong relationship with not only Chubu-region industries but also the outside Aichi MVI, which is much stronger than before.

Ali Alsamawi (OECD)

MEASURING ECONOMIC IMPACTS OF INTERNATIONAL TOURISM ACTIVITIES: A GLOBAL INTER-COUNTRY INPUT-OUTPUT APPROACH

Many products consumed by households (residents and non-residents) may be the result of production and distribution processes in many countries and industries. The growing international fragmentation of production networks linked to national economic systems, and the complexity of interconnections across industries and countries, make it difficult to measure of the impact of non-resident expenditure. In this contribution, we estimate the domestic economic impacts, in each country, generated by household final expenditures by non-residents. Such measures are not available in conventional statistics produced by national agencies. The estimates are based on information contained in OECD's global Inter-Country Input-Output (ICIO) tables which can be used to measure domestic and foreign value added generated by final commodity demand within a country for more than 64 economies and for the period 2005 to 2015. In addition to the economic impact generated from the direct purchases of tourists, our model can also identify the indirect impact of those purchases on other, upstream, industries (i.e. not directly related to tourism). Our findings show that approximately 50% (of total value added generated due to tourism in a country) were generated indirectly. Moreover, while domestic value added increased in absolute terms in most target countries, foreign content of products consumed by non-residents also increased. The findings will help us to increase our understanding of the total value added generated from non-resident expenditure. In order to better measure the actual benefits of tourism, countries need to improve their statistics on non-resident expenditure and to link them to other statistics (i.e. Input-Output tables) to have a robust and complete picture of tourism revenues and hence, design better policies.

Duomin Wang (University of Chinese Academy of Sciences), Jian Xu (University of Chinese Academy of Sciences)

Study on Regional Differences in Value Added Rates and Its Decomposition of China

There are big gaps in economic development and production technology among different regions of China, which to a great extent can be reflected by regional value added rates. On the basis of a series of regional input-output tables for a 30-region division of the Chinese economy (2002-2007), this paper firstly analyzes the regional difference in value added rates and its change, for which then new application of the RAS structural decomposition approach is applied in finding the driving factors. It turns out that there exists a widening gulf in the difference. What's more, negative correlation between regional value added rate and regional economic development (which is denoted by GDP per person). The results show that in 2002, the value-added rate of unit output in eastern China was lower than that in central and Western China, and the difference expanded in 2002-2007. This shows that the more developed the economy, the lower the content of added value per unit output. Furthermore, effects of industrial output structure don't play a dominant role in explaining the regional difference in value added rates. In addition, technical difference within the industry is the main reason in 2002, while inter-industry structural difference comes into play in 2007.

Yuki Ichisugi (Tokyo City University), Yasushi Kondo (Waseda University)

Constructing Prefectural Multi-Regional Input-Output Tables: Developing a New Method

There has been an accelerated interest in regional economic and environmental input-output analysis in Japan owing to the growing need for a regional circular economy. Japanese prefectures regularly publish their input-output tables (IOTs), with an interval of five years. In those IOTs, (1) a demand is made to not separate sectors dedicated to domestically produced goods and those for imported goods, and (2) the production of byproduct is represented as a negative element by using the byproduct-technology method, or the Stone method. Because of these characteristics of the IOTs, the simplistic application of the Chenery-Moses approach to prefectural IOTs leads to erroneous results. Namely, the existence of negative elements leads to an under-estimation of the total domestic demand for goods. The self-sufficiency rate, in which the denominator is the total domestic demand, must be between zero and one, but its estimate can be inaccurate. Of the 47 prefectures, negative elements appear in all 47 IOTs and the estimated self-sufficiency rates are found to be inaccurate for 30 IOTs for 2011. Taking this into consideration, we have developed a new method to construct a multi-regional IOT (MRIOT) in which the production of byproducts is properly dealt with. The method is based on a balancing technique, and the initial estimate for it is obtained with the assumption that a sector in a prefectural IOT shares the same composition of every input, with its counterpart in the national IOT. Domestically produced product use, imported product use, byproduct production, and byproduct use are considered in studying the composition of each input. We will present an overview of prefectural MRIOTs and the results of the application of this new method at the conference.

Saturday, March 28, 10:00-12:00

Venue D: Research Bldg No.2 (3F) Large Seminar Room 2

Sat-D-1

Chair: Shrestha Nagendra (Yokohama National University)

Maria De Los Angeles Gomez Benitez (Open University)

Unequal exchange in Global Value Chain. Why can some countries be competitive and maintain high wages at the same time?

The international fragmentation of production can be divided into blocks of countries. These blocks are composed of a core-country (or small group of core-countries) and its peripheral-satellites. The former is characterised by two points: a strong productive and political

influence over its satellites; and a strong relationship with the rest of the blocks, especially, with the other core countries. On the other hand, peripheral countries mainly have productive relationships with their core-country. This paper aims to contribute to the global value chain and international trade literature from a Political Economy perspective. The research question is the following: Why can some countries be competitive in the international market and maintain high wages at the same time? The challenge of this research is to identify the sources of competition in international trade and measure the impact of each one in the country's international position, particularly the case of Germany. In order to make possible the empirical analysis, the global economy will be defined as a quantity system represented by a vertically integrated macro-sector (VIS) composed by all the produced final goods measured in terms of labour. The test will be carried out using the available regional input-output data and the Social-Economic Account published by WIOD database during the period 2000-2014.

Shrestha Nagendra (Yokohama National University)

Asia Before and After the Global Financial Crisis

In this paper, we attempt to reveal the extent of change in gross output and value-added in Asian manufacturing industries, and we also try to figure out the factors affecting these changes before and after the Global Financial Crisis. There are two major salient features of this paper. First, this paper addresses price factor and exchange rate factor simultaneously, which is rarely done in IIO framework. We all know that the price factor plays very important role in economic analyses and exchange rates also affects international trade significantly, it is an important contribution of the paper to the literature. And second, the paper reveals how the economic structure in Asia changed with respect to changes in price, exchange rate and other factors in IIO framework just before and after GFC. We use Global Input-Output (GIO) tables published by Yokohama National University, manufacturing industry-specific Producers Price Index (PPI) or Wholesale Price Index (WPI) in local currency collected from different sources and annual exchange rate data from the World Development Indicators (WDI) and CEIC database. Our preliminary results show that the pattern of changes in gross output and value-added are generally opposite for most of the Asian countries with an exception during pre- and post-GFC period.

Harry Aginta (Nagoya University), Carlos Mendez (Nagoya University)

Regional Income Disparities, Convergence Clubs and Aggregation Effects: New District-Level Evidence from Indonesia 2000-2017

Reducing regional income disparities is a central challenge for promoting sustainable

development in Indonesia. In particular, the prospect for these disparities to be reduced in the post-decentralization period has become a major concern for policymakers in Indonesia. Motivated by this context, this paper re-examines the regional convergence hypothesis at the district level in Indonesia over the 2000-2017 period. Using a novel data set, this paper evaluates the formation of multiple convergence clubs through the lens of non-linear dynamic factor model. The results indicate the initial formation of twelve convergence clubs. After evaluating potential mergers between clubs, however, the number of statistically significant convergence clubs is reduced to five. Interestingly, most of the clubs in the middle range of initial twelve groups can be merged, while one lowest club remained unmerged. This lack of club convergence suggests a severe income gap at the bottom of the income distribution. From a policy standpoint, the identification of multiple convergence clubs at significantly different levels of income allows regional policy makers to identify districts facing similar challenges. Potential policy interventions should consider this club classification to promote development initiatives both among the members of the clubs and between the most proximate clubs. Finally, at national level, the central government should put more affirmative agenda based on the evolution of the multiple convergence clubs of Indonesia.

Ayegbe Jean-Noel Djahoua (Nagoya University), Carlos Mendez (Nagoya University), Felipe Santos-Marquez (Nagoya University)

Income disparities across sub-Saharan African regions

Although sub-Saharan African countries have experienced relatively high levels of economic growth in recent years, the question of inequality is still very concerning, especially in the context of increasing income disparities across the region. A large body of literature has explored the determinants of income inequality across sub-Saharan Africa and its linkages to issues such as conflicts, poverty and economic development. However, this has been very challenging as reliable data on income across Africa has been either limited or unavailable. Nightlight satellite data has been shown to be a good proxy of GDP. Using a novel dataset across all sub-Saharan regions nighttime light, this paper studies the convergence patterns of light and gross domestic product per capita from 1992 until 2012. First, we analyze the data using the classical convergence framework; which refers to the catch-up effect (beta convergence) and the dispersion of the cross-section (sigma convergence). Moreover, given that the data is balanced, we also perform a recently developed time series convergence analysis. Using this methodology, we expect to find different convergence clubs in sub-Saharan African regions. From a policy perspective, club membership and its dynamics has been an important factor for further analysis of the determinants of inequality.

Saturday, March 28, 13:00-15:00

Chair: Colin Webb (OECD)

Kim Kwangmoon (Kyoto University), Trinh Bui (AREES)

The Extended Applied IO Model with Heterogeneous Household Demand System in Vietnam

In Asia emerging countries, economic growth by globalization causes rapid market structure changes and demographic aging, and new disparities among social classes are expanding. In emerging developing economies, some dynamic structural changes in demographic and income disparities across different household groups observed for last decades. The decreases infant and elderly mortality, number of children and emergence of the middle-income group result the changes in consumption behaviours. Especially many emerging socio-economies in some Indochina countries are not only ageing much faster than Japan's case, but also rising inequality by ageing will hit younger generations hard. This study extends a conventional Input-Output system by introducing the heterogeneity behaviour in the final expenditure items by the integrating the surveys on household demographic and income discrepancy information for a relative statistics scarce economy. Merging the data sources of Input-Output, population census, and household expenditure surveys, our extended IO system enables to identify the structural changed observed in Viet Nam for the period between the mid-2000 to the mid-2010s by developing bridging models for the data gaps in the official statistics. This research will also implement empirical analysis from the extended model to take into account structural changes in expenditure type resulting from changing demographic composition. We will analyse whether maturation of consumption structure occurs in Vietnam. The extended model further broadens the scope of impact analysis under various scenarios associated with age and income changes.

Hidefumi Kaneko (NPO Association of Regional Econometrics and Environmental Study)

Time series analysis of economic interdependencies based on the four-nation (China-Thailand-Vietnam-Myanmar) international input-output table

Greater Mekong Sub-region (GMS)'s economy has consistently experienced high economic growth and notable development in recent years. Some of researchers and/or International organization have focused to study on the economic structure under global economy by challenging data collection and compilation (Ex.IED-AIO,OECD-WIOD,ADB-MRIOD). This study aims to observe the source of structural change of economic interdependencies among four GMS countries (China, Thailand,Vietnam,Myanmar),which are main within GMS,

based on time series(year of 2005 and 2011) inter-country input-output table. Its table was based on compiling the Asian Development Bank Multi-Region Input-Output Database(ADB-MRIOD) added by ADB to argument the World Input-Output Database(WIOD).But there was no national table for Myanmar. So, compiling a national table for Myanmar and combining its table and the international table based on ADB-MRIOD, we can constructed the international input-output table for the four countries of GMS. From the results of analysis, we can find the strength of economic interdependencies through the influence of spillover effects from domestic country to foreign countries and the absorption of spillover effects from foreign countries to domestic country. However we afraid to notice if the free trade will be blindly promoted among the four countries, the rich mineral or human resources of the latest underdeveloped countries can be apprehensive of the one-sided plunder.

Saturday, March 28, 13:00-15:00

Venue B: Research Bldg No.2 (3F) Multimedia Lecture Room Sat-B-2

Chair: Kiyoshi Fujikawa (Nagoya University)

Mariko Makita (Nagoya University)

Net impacts of inbound tourism on Japanese Regional Economy: the case study of Aichi prefecture

Inbound tourism is expected to have the same effect on goods exports. Recently in Japan, tourism is once again at the top of policy agenda. Under the government's global tourism strategy, more and more overseas tourists have been coming to Japan in 2000s and in 2018, more than 30 million tourists arrived. While this rapid increase in inbound tourism can be expected to have a certain economic benefit, there is a growing concern about negative aspects such as increase in garbage, congestion and noise in residential area. In Chubu area, there have been widely reported environmental issues such as the final disposal site construction problem in the Fujimae Tidal Flat in Nagoya and the illegal dumping of industrial waste in the northern district of Gifu City. Regional society and citizens in this area has been highly interested in waste and now pay attention to garbage discharged by increasing overseas visitors. This study thus sets focus on garbage in Aichi prefecture and develop a waste input-output table that can handle waste for Aichi Prefecture. By estimating the waste discharged by inbound tourists and apply it to the waste input-output table to analyze the impacts. This study aims to contribute as an important reference to a future tourism policy in Aichi prefecture by providing empirical evidence on the potential cost associated with increasing inbound tourists, as well as help more accurately assess the benefits of inbound

tourism.

Vo Tuyet Le (Nagoya University)

Examination of Green Leontief Paradox by bilateral trade of Vietnam with China, Japan and the USA

Basing on the three theoretical frameworks: The Heckscher-Ohlin (HO) model, Leontief Paradox and the green Leontief Paradox by Dietzenbacher and Mukhopadhyay's paper (2007), this study is trying to examine whether the pollution is transferring through the international trade of Vietnam with China, Japan and the USA in 2015. This research tries to calculate the direct and indirect CO₂ emissions embodied in bilateral export and import using the International Input-Output Table and CO₂ emissions data in 2015 provided in EORA database. The methodology of this research is basically same as that used in the Dietzenbacher and Mukhopadhyay's research. In their research, however, the domestic CO₂ intensity is adopted for imports. Concretely speaking, what they have calculated is not CO₂ embodied in imports but the CO₂ avoided in the importing country through imports. If the CO₂ intensity of the exporting countries is used for imported goods, the corresponding results will indicate the real CO₂ emissions embodied in the imports. Therefore, in this work both of the CO₂ intensity (the Vietnam domestic intensity and the exporting country's intensity) are utilized. The result shows that the Green Leontief Paradox can be observed in case of Vietnam when the emission intensity of Vietnam is employed for Vietnam's imports. The Green Leontief Paradox, however, may not observed in case the emission intensity of exporting country is employed for Vietnam's imports, in other words, Vietnam exports embodied CO₂ emissions especially to Japan and the USA.

Yuzhu Wang (Nagoya University)

Power consumption and energy saving possibilities in Chinese household sector

This study estimates the demand function of power consumption of the household sector in China based on the individual survey data provided by the CGSS (China General Social Survey) 2015. This survey includes the number of household appliances (air conditioners, refrigerators, washing machines, televisions, etc.) owned by each household in addition to the power consumption of each household. Then it is possible to measure how usage of each household appliance affects power consumption. Currently in China, the power consumption in the household sector is increasing quicker than that in such other sectors as industrial sector or transportation sector. Therefore, it is important to reduce energy consumption in the household sector in order for China to achieve the voluntary goal of the UNFCCC Paris Agreement. In the power demand function of this research, the number of home appliances is an explanatory variable, so it is possible to estimate the amount of reduction in power consumption by improving the efficiency of each home appliance and the

reduction in CO₂ by this. In addition, if the average price of each high efficient home appliance is available, the marginal abatement cost (MAC) of CO₂ reduction in the household sector can be estimated by each appliance. Furthermore, China is currently considering the introduction of a carbon tax, then it can be estimated how much the tax rate is required if the revenue is used as a subsidy for replacement to high efficient home appliances.

Hikari Ban (Kobe Gakuin University), Kiyoshi Fujikawa (Nagoya University)
Economic, Energetic and Carbon Impact of China's Outward FDI

China's outward direct investment flow was \$ 73 billion in 2013 when the Belt and Road Initiative was announced while it has increased rapidly since then. In 2016 it was \$ 216.4 billion ranking second after the USA. Though it decreased a little after that, China is still one of the major foreign direct investment countries. In terms of stock, China's external FDI stock is about 2 trillion yen in 2018 ranking third after the USA and the Netherlands. The background of the expansion of China's FDI is the current slowdown of Chinese economy and aggravation of environmental problems. The decline in economic growth is accompanied by a decrease in demand for such sectors as electricity, steel, and coal while it may create excess production capacity in China to be transferred overseas. In addition, the overseas transfer of energy-intensive industries from China may also play a certain role in achieving China's NDC under the resolution of serious air pollution and the Paris Agreement. The research question of this study is what kind of economic, energy, and carbon impact China's FDI will give on investment recipient countries. The analysis is performed using a CGE model that takes into account energy alternatives including renewable energy. The simulation scenario deals with the case where the capital of an energy intensive sector such as the power sector is transferred from China to other countries. In order to execute such scenarios, we construct a capital-specific- factor model based on the GTAP-E-Power Model.

Saturday, March 28, 13:00-15:00

Venue C: Research Bldg No.2 (3F) Case Study Seminar Room Sat-C-2

Chair: Ayu Washizu (Waseda University)

Ayu Washizu (Waseda University), Satoshi Nakano (The Japan Institute for Labour Policy and Training)

Construction and application of an input-output table for the analysis of a next-generation energy system (IONGES)

We created a input-output table for the analysis of a next-generation energy system (IONGES). This IONGES effort incorporates renewable energy sectors into the 2011 input-output table published by the Ministry of Internal Affairs and Communications (MIC), Japan. The sectors incorporated in the IONGES data include power generation facility construction sectors and power generation sectors for 15 types of renewable energy. The IONGES data consists of the following two types of tables: a table incorporating renewable energy sectors as they existed in 2011 (2011 IONGES) and a table incorporating renewable energy sectors up to the composition ratio assumed in 2030 (2030 IONGES). The assumption of the power supply composition ratio for 2030 IONGES was based on the long-term energy supply-demand outlook prepared by the Ministry of Economy, Trade and Industry (METI), Japan. For the IONGES effort, special attention was paid to the following points: first, we created equipment sectors for solar and wind power generation, and second, we divided the biomass power sectors in detail (eight divisions) according to their roles and described the relationship between the biomass power generation sectors and sectors supplying fuel to them. Using 2030 IONGES, we compared the unit structural construction cost per 1 kWh of lifetime electricity generated by each power generation facility of each type of renewable energy and the unit structural operation cost (power generation cost) per 1 kwh of generated power. IONGES will make it possible to verify new input-output structures by constructing Circulating and Ecological Economy.

Zaheer Abbas (Quaid-i-Azam University)

Energy efficiency and Structural Change Developments across Newly Industrialized Economies: A Sectoral Decomposition Analysis

Variation in energy consumption pattern is prominently coupled with efficiency change in newly industrialized countries Current study estimates the shift taken place in energy consumption in Newly Industrialized countries considering three main economic sectors through Logarithmic Mean Divisia Index during the period 1990 2015 so as to analyzing the changing patterns of energy consumption The study considers the change in activity efficiency and structural components as vital factors that cause changes in energy consumption across the countries Of these components activity component is the major cause in escalating the energy consumption in all the countries where as Energy efficiency component contributes to reduce the energy consumption except Brazil but its contribution is far less than the opposite effect of activity component However structural component increases energy consumption in China while a more or less persistent behavior in other countries The next finding of the study is that, in most of the countries energy intensity is following the pattern of energy efficiency The main contributing factor in reducing the energy consumption is the improvement in energy efficiency There is considerable scope to reduce

the energy consumption through the structural transformation in these economies.
Keywords Energy Consumption Log Mean Divisia Index Structural Change Energy Efficiency
Jel Classification C43, C13, Q43,

**Li-Chen Chou (Wenzhou Business College), Hsing-Chun Lin (input-output analysis)
Measurement of the information asymmetric in energy market of China**

In recent years, affected by economic growth, China's energy production and energy consumption have been dominated by coal and have grown substantially. Greenhouse gas emissions have grown rapidly, and the climate and ecological environment have continued to deteriorate. At present, China's emitting has become the world's first emitter of carbon dioxide and sulfur dioxide. Energy-economy-environment-climate has a coordinated development relationship of mutual influence and mutual restraint. The relationship between energy financing and climate and environmental protection is the gap between actual financing and optimal boundary measured in the space of sustainable development. With the development of China's economy, the mainland academic community has paid more and more attention to the development of the energy industry and the information uncertainty faced by energy commodity investment or trade in the market. This study applies two-tier frontier analysis to estimate the problem of information asymmetric in the Chinese energy market. Different from previous research, this paper introduces the measurement method of production investment efficiency in the microscopic field into the energy commodity market. Controlling product volume, currency exchange rate and other macroeconomic factors, we measure the degree of information asymmetry in the market, and analyze this impact of asymmetric information on market prices.

**Yihan Liao (Renmin University of China), Chen Lin (Renmin University of China)
The consequence of declining savings rates in China ? Energy perspective**

China's economic growth model relied on high saving & investment rates in the last 30 years. However, in the recent past, saving & investment rates are downward sloping. This does not only affect the economic growth model of China, but also have a fundamental impact on the energy consumption of China. This paper proposes a new SDA method to estimate the impact of savings rate changes on energy consumption. The results show a positive relationship between savings rate and energy consumption. During 2012 to 2017, the fall in savings rate reduced final energy consumption by 1.47%. With regards to energy types, the reduction of savings rates led to a decrease in coal and electricity consumption, hence an increase in oil and natural gas. The sectors mostly affected by the savings rates are the steel and construction sectors. Since the savings rate in China is expected to decrease further in the future, considering this factor would help us to understand the future trends of China and the world energy consumption. Meanwhile, the results of this study provide new evidences

for forecasting the potential path of carbon emission from China in the future, especially the path before achieving the goal for its CO₂ emissions to peak around 2030.

Saturday, March 28, 13:00-15:00

Venue D: Research Bldg No.2 (3F) Large Seminar Room 2

Sat-D-2

Chair: Nobuhiro Okamoto (Daito Bunka University)

Anang Budi Gunawan (Nagoya University)

Spatial Structure, Spillover and Feedback Effect in Indonesia: Inter-regional Input Output Approach

The declining of manufacturing share to GDP and commodity boom period that happened in Indonesia during early of 2000 until end of 2010 have changed the pattern of national and regional economic structure. The aggregate manufacture sector has declined gradually and was replaced by services sector. In addition, the commodity boom period during 2005 to 2012 was also contributing in the process of rapid deindustrialization through the shifting of capital to booming mining sector. This study focuses on the heterogeneity of structural change at regional level in Indonesia during deindustrialization period. Although the national manufacturing sector share to Gross Domestic Product has declined, but in regional level, the development of manufacturing sector varied depends on the type of industries in each region. Using three consecutive year of Inter-regional Input Output (IRIO) table of Indonesia in 2005, 2010 and 2015, we analyze the spatial structure, spillover and feedback effects among regions in Indonesia. The IRIO tables of Indonesia that are used in this study consist of more than 30 Provinces and 35 sectors. This study conduct general approaches in analyzing the spatial structure. In addition, we conduct a spillover and feedback effects analysis to assess the progress of interregional linkages among regions over time. This research tries to make some contributions. We use large, sequential and most recent IRIO table datasets for our analysis. Moreover, there is no prior work focused on the analysis of deindustrialization and structural change in Indonesia using several periods of IRIO tables for Indonesia case.

Ekaterina Edinak (Russian Academy of Sciences)

Cross sectoral employment effects in Russian economy: input-output approach

The world of work is significantly linked to the production structure of national economies. The transformations of production technologies, changes in resources distribution between sectors, shifts in sectors structure of production and others changes of national economies

are the major source of job growth and destruction. The article analyses the impact of the changing of the sectors structure of production in Russia on the number of jobs, taking into account the economic linkages across industries. It assesses the employment multipliers for Russian economy as a whole and between sectors using the input-output approach. Such approach allows capture both the direct effects (changes in employment in an industry) and the indirect effects (changes in employment in other industries) of changes in one specific industry. The analyses presented in article help to describe the main future shifts in employment structure, identify the key labor restrictions using one of the development scenarios of the Russian economy. The right policy is needed to protect workers who may lose out due to lower activity in some industries and to help them change sectors of work. On the base of national input-output tables the comparison of the employment multipliers for the Russian and Japanese economies is made.

Alexander Shirov (Russian Academy of Sciences)

Analysis of interregional economic interactions based on railroad statistics

Russia has a huge territory. In this regard, the sustainable development of the economy depends on the interaction between the regions and the efficiency of production placement. Accordingly, we need to assess the impact of spatial factors on the formation of economic dynamics both at the level of macroeconomic indicators and at the level of inter-sectoral interactions. The Russian statistical office does not publish input-output tables for either regions or Federal districts. This creates insurmountable obstacles to the creation of MARIO-type models based on official statistics. The problem can be solved using data reflecting the exchange of products between regions of the country. The best quality information of this kind in Russia have Russian Railways. Information on freight traffic reflects the movement of certain types of goods in four modes of transport: domestic transport, export, import and transit. One of the representations of Russian Railways statistics are the cargo correspondence matrices of the region-by-region type. Obtaining a single matrix of internal transport of goods on the railway network dimension region by region allows you to move to the formation of a specific tool for assessing the importance of interregional economic relations - symmetrical interregional input-output table. The static model, built on its basis, in principle corresponds to the logic of the well-known Leontief model.

Hideo Kinoshita (Osaka University of Economics)

The contribution of each industry to the increase of employment

According to the formula of Nobuo Okishio, labor demand is basically determined by real wages, capital demand, and labor per unit of product. In this study, we measure and analyze the degree of contribution of each factor to labor demand changes in Japan, the US and Germany in recent years using the international input-output table released by OECD based

on the Okishio's formula. In fact, this research has started in the fall of 2018. There is no fixed capital depreciation item in the WIOD international input-output tables published by OECD. Therefore, in this study, so far, only intermediate goods were treated as goods in which indirect labor is inputted among the items constituting costs. We have not dealt with fixed capital including in the goods in which indirect labor is inputted. In this study, fixed capital is included in the goods in which indirect labor inputted. In fact, WIOD publishes industry-specific depreciation rates that take into account only the characteristics of the industry, such as what kind of and how much fixed capital it is composed of. This depreciation rate is common between periods and between countries. In addition, the socio-economic account database publishes every industry's fixed capital stock for each period and for each country. By multiplying each industry's fixed capital stock for each period by country and the industry-specific depreciation rate which is common between periods and between countries, we estimated the fixed capital depreciation by industry for each period. Thus, this time, we use the full form of inputted labor, including labor inputted in fixed capital. WIOD2013 also publishes fixed capital investment data by each industry's investment entity in the socio-economic account. If this data is used, it will be possible to see the contribution of investment entity by industry to the increase of employment.

Saturday, March 28, 15:30-17:30

Venue A: Research Bldg No.2 (3F) Large Seminar Room 1

Sat-A-3

Chair: Jinmyon Lee (Korea Institute for Industrial Economics and Trade)

Sangdon Boo (Bank of Korea), Ingyu Lee (Bank of Korea)

The compilation results of Korean 2016 and 2017 input-output tables

The system of national accounts(SNA) by UN recommends to compile industry-based supply and use tables and then measure input-output table with mathematical methods because of limitations in acquiring and compiling basic dataset. The Bank of Korea, an organization that prepares the Korean I-O table, first adopted supply and use table in the input-output table of the year 2010 while at the same time compiling input-output table incorporating previous approaches. Also, the Bank of Korea prepared the bench-mark year table every five year, and the extension table every year. Recently, the timing of the announcement of the I-O table in Korea has become very fast. The 2015 base year I-O table to enhance the reflection on the real economic structure and to set the reference for compiling national accounts (SNA) statistics was announced in March 2019. And six months later in September, estimates for 2016 and 2017 extension tables were released to enhance the continuity and timeliness of the statistics. This report introduces the methods and results

of the 2016 and 2017 tables. The main contents are the composition of total supply and demand, the proportion of gross output and value added by industry, the coefficients of the intermediated input, value added, and labor, which are indicators of the input structure by industry, and the inducement coefficients for output, value added, and labor, which measure the input-output relationships among industries.

Youngho Lee (Korea Institute for Industrial Economics and Trade), Jaejin Kim (Korea Institute for Industrial Economics and Trade)

A Study on the Development of the Input-Output Model with Endogenous Households Sector by Income level

In the case of demand model using the most widely used Leontief inverse matrix, only the product ripple effects of the intermediate input are measured in the measurement of economic ripple effects. Thus, there is a limit to measuring the ripple effect of households as an economic player which includes household income growth and consumption activities. In the past, Miyazawa (1976) has proposed a method to overcome these limitations, and now the Miyazawa model is being used in a variety of areas. However, it is difficult to see studies on the development of a more detailed Input-Output Model with endogenous household sector by disaggregating income into classes, especially in Korea, due to the limitations of basic statistics. Against this backdrop, for a more comprehensive and detailed analysis, this study seeks to develop a Input-Output Model for endogenous household sector presented by Miyazawa (1976) and analyze social issues such as trickle-down and trickle-up effect, as well as policies related to household consumption and income. In particular, by actively utilizing official statistics provided by Statistics Korea and the Bank of Korea, the study aims to provide fresh perspectives on the analysis of related policies and social issues by developing a new Miyazawa model that divides households by income group.

Bawoo Kim (Korea Institute for Industrial Economics and Trade), Jeonghyun Kim (Korea Institute for Industrial Economics and Trade)

The Impact of the China-U.S. Trade War on the Korean Economy

The United States, the world's largest consumer market, has recently argued that trade environment under WTO has led to a chronic trade deficit and has weakened the quality of employment in the United States. Indeed, under the Trump administration, the United States revised and even dropped out of trade agreements that were signed or being negotiated. The recent additional tariffs under Section 301 and China's retaliatory tariffs reflect protectionist attitudes contrary to the spirit of the WTO. Historically, the U.S. had negotiated with large economies such as EU and Japan and significant influenced to the global trade environment. It is necessary to monitor the results of trade negotiations in the months and years to come. Additional tariffs of two countries are considered to have caused a significant

decrease in bilateral trade. It is also worth noting that the impact of the trade war is not limited to the two countries, given the international scale and scope of modern supply chains. Additional American tariffs on Chinese imports can be expected to affect Korean exports to China. According to the results analyzed by using WIOT, the impact of the trade war on the Korean economy was most felt in the ICT and chemical products sectors. These industries are sensitive to external shocks, being actively engaged in the international division of labor ? especially with China. Protectionist trade policies are likely to have mid- to long-term impacts in addition to the short-term effects described above. In terms of investment, the expansion of protectionism can promote the relocation of corporate production bases. One option firms have when faced with high tariffs is to consider transferring production to countries with fewer restrictions.

Taehyun Kwon (Bank of Korea)

Analysing the structure of Gyeonggi province in GVCs and estimating Gyeonggi-ICIO

Gyeonggi-do, one of 17 metropolitan self-governing provinces in Korea, has a high proportion of the Korean economy. The portion of Gyeonggi-do in GDP rose from 18.8 percent in 2000 to 23.9 percent in 2017, but that of Seoul fell from 25.0 percent to 21.5 percent during the same period. As a result, the proportion of Gyeonggi-do has exceeded that of Seoul since 2014. In particular, Gyeonggi-do is rapidly developing around the manufacturing industry, with the electronics industry, which plays an important role in South Korea's manufacturing sector, taking up a high share of production and exports. This study aims to analyze the global value chain for manufacturing in Gyeonggi-do. For this purpose, the G-ICO (Gyeonggi-ICO), which separates Gyeonggi-do from Korea's input-output table included in the OECD's Inter-Country Input-Output Tables (ICIO) for 2015. Based on the G-ICO, the input coefficients, production inducement and value-added inducement coefficients for identifying the input-output structure by industry in Gyeonggi-do are calculated and compared with other countries. In particular, value-added inducements are estimated to be dependent on domestic and overseas per unit of final demand, as well as on the scale by G-ICO, and the results of the value-added basis are calculated and compared with other countries. Finally, we suggest the political implications to be focused on in the future Gyeonggi-do based on the results.

Saturday, March 28, 15:30-17:30

Venue B: Research Bldg No.2 (3F) Multimedia Lecture Room

Sat-B-3

Chair: Christian Otchia (Nagoya University)

Aiza Sarwar (Nagoya University)

Women's Maternal health and its effects on Female Labor Force Participation

Men and women are considered as two essential pillars of society. Their participation in the workforce helps to increase economic diversification, narrows the gap of income inequality, and gives positive development outcomes overall. Despite being half of the population of world, women's economic activity is below than its capacity, comprising only 39% of the total global labor force (World Bank, 2018). Surprisingly share of Female Labor Force Participation (FLFP) is decreasing worldwide. Therefore, the objective of this study is to investigate the determinants of Female Labor Force Participation (FLFP). Macro level factors including Maternal Mortality, which is used as proxy variable of maternal health in each country, Maternity leave benefits, Adolescent fertility, Secondary enrollment rate and GDP per capita are used to study the effects on FLFP. The data has been taken from multiple sources mainly World Bank, WHO, UN Statistics reports and UNICEF databases for 122 countries over the period between 2007-2015. Data was compiled on excel and analyzed through fixed effect panel data technique using Stata 16. The findings indicate that maternal mortality and adolescent fertility have negative and statistically significant impact, while secondary enrollment of girl and GDP per capita has a positive impact on FLFP. Keywords: Female Labor Force Participation, Maternal Mortality, Adolescent Fertility, GDP per capita and fixed effect panel data regression.

Katikan Tipayalai (Nagoya University)

How migrant workers affect the labor market in Thailand? An application of the simultaneous equations model of immigration

The study of the interdependency between immigration and changes in a receiving country's labor market is hardly new. However, the empirical analysis of immigration and labor market changes, which indicates migrant workers both affect and are affected by the labor market of the host country, has not yet been fully recognized. As one would expect, immigration-related models in previous studies have been mostly specified in the form of single-equation models, whereby a number of explanatory or independent variables are employed to predict a dependent variable, immigration in this case. These models, in general, disregard the possibility of reverse effects, or reciprocal relationship between immigration and the independent variables. In addition, they might omit some possible causal relationships between the independent variables, and thus neglecting the indirect effects of these variables on immigration. This study develops a path model and a simultaneous equations model to comprehensively examine the causal system related to immigration with a twofold purpose. First, a path analysis or a structural equation model is constructed to address the first primary concern regarding single-equation models as it allows for the presence of any causal relations between the independent variables. Also, a simultaneous equations model is then formulated so that reciprocal relationship or reverse effects can be included in the

causal structures. By using annual Thai data, both path analysis and simultaneous equations model are estimated in the present study to explicitly identify both indirect and reverse effects involved in the immigration patterns in Thailand. Based on the path analysis, it shows that the direct effects of variables associated with changes in the labor market on immigration are partly offset by their indirect effects, while the simultaneous equations model suggests that there is the reciprocal causation between labor market changes and immigration in Thailand.

Yubilianto (Nagoya University)

Human capital and economic growth: A macroeconomic model for Indonesia

As one of the developing countries, Indonesia still has some potential aspects of competing with other developing countries in terms of economic growth considerably. One of the most significant assets is its substantially high number of population which approximately reach around 266,9 millions of people in the year 2019. With almost 70% of the total population is classified under the productive age, Indonesia has a promising asset that should be appropriately managed to become a productive labor force. One of the efforts is by elevating the human capital accumulation level, as one of the main determinants of economic growth, through education. Currently, the Indonesian Government has increased the allocation of education expenditures to at least 20% of the total budget starting from 2009. This number is expected to increase the level of human capital, thus accelerating the output of production in Indonesia. This research is trying to analyze the impact of human capital on economic growth through developing a small yet robust macro model of the Indonesian economy. The model is expected to be adequate to observe some essential elements from the supply side. All necessary variables are employed, and some scenarios are proceeded to simulate the interaction of education expenditures, human capital, and other essential elements in the Indonesia economy.

Christian Otchia (Nagoya University)

Combining on-the-job training with mentoring leads to success in the labor market: Evidence from Ethiopia

Many societies, in developing and developed countries alike, face the difficult public policy challenge of dealing with youth employment. One policy response has been to promote access to universal primary and secondary education. The hope is to level the playing field for women in the short-run and to affect a longer-term transformation whereby women eventually work in management positions. While there have been significant improvements in secondary education completion rates among girls over time, recent evidence suggests that unemployment persists even for trained youth. This paper uses a tracer study of vocational students randomly assigned the factories to analyze the labor market effects of

on-the-job training, mentoring, and both. The data was collected in September 2016 with the participation of 162 students of garment-related programs in seven TVET Colleges in Addis Ababa. The selected Colleges are those with the highest number of enrolment in garment-related programs. After two years, we find a small positive impact of on-the-job training of employment and wages, some evidence of positive effects from mentoring students, and significant positive effects from providing both. Most important, we find strong evidence of complementarities between mentoring and training, especially for women. Our results suggest that combining on-the-job training and mentoring has the potential to increase wages and employment in productive activities.

Saturday, March 28, 15:30-17:30

Venue C: Research Bldg No.2 (3F) Case Study Seminar Room Sat-C-3

Chair: Kazuhiko Nishimura (Nihon Fukushi University)

Oliya Maxudova (Ritsumeikan Asia Pacific University), Fakhriddin Mirzoakhmedov (The State Financial and Economic University of Tajikistan), Saroj Kafle (Sansin Sangyo Co., Ltd.)

Analysis of Potential Impact Magnitude of the Mining Sector on Economic Growth of Tajikistan

Tajikistan - the land of sky-high mountains, rivers, fertile valleys and eternal ices, are closing the greatest mountain regions of the Earth - the Pamir and Tien Shan. About 93% of the territory of Tajikistan (total area is 142,600 thousand km²) is occupied by mountains. Tajikistan mountains are diverse minerals and forest resources, river energy, vast rich pastures, immense opportunities for different industries. Tajikistan is rich in many deposits of natural resources: coal, uranium, lead, zinc, mercury, antimony, gold, silver, coal, etc. Natural resources of Tajikistan have been explored, and partially excavated for industrial purposes. It is estimated that more than 600 deposits and 800 potential sites for excavation are found in Tajikistan. Thus, the mining sector has enormous potential for Tajikistan, but its impact is still limited. Contribution of the mining industry in the economy is 18.5% (2018), however it represents only 5.5% of the GDP, 4.2% of the national budget, 12% of employments (2016) and 40.7% of exports (2017). To understand the potential impact of the mining sector is one of the significant features in the industrialization and development the economy of Tajikistan. If, Tajikistan wishes to use mining sector as a main source of revenue, it is strongly recommended to establish strong governance underpinned by a transparent and accountable management system to avoid resource curse, Dutch disease and environmental catastrophes. The purpose of this paper is to conduct an analysis on the

potential impact magnitude and economic opportunities of the mining sector in terms of its main export commodity groups: lead ores, zinc ores, antimony ores and copper ores for the development of the country's economy and ensure its sustainable growth. Methodological framework is based on quantitative analysis with use of Input-Output Analyses.

Haoliang Zhu (Doshisha University)

International Sourcing and Firm Performance

Many studies documented that the international sourcing tends to affect the performance of firms as global value chains become increasingly prevalent. This paper examines the effect of international sourcing on the performance of China's manufacturing firms in terms of firm-level total factor productivity (TFP). The international sourcing is measured by the foreign value-added in exports (FVAR). This paper also takes into consideration firm heterogeneity in the way that the firms are divided into three categories by trade regimes: firms only engaging in ordinary trade, firms only engaging in processing trade and firms engaging in both ordinary and processing trade. The merged database of Chinese firm-level data and customs trade statistics during the period of 2000-2006 are used to measure the effect of imported contents in China's exports on the productivity of Chinese firms. I found that the decline in FVAR in exports is associated with the TFP growth of Chinese firms, especially the magnitude of the rising TFP of firms involving in ordinary trade is larger. Second, firms only engaging in ordinary trade and firms engaging in mixed trade are more likely to absorb foreign technology and knowledge spillovers to improve their productivity, whereas firms only engaging in processing trade fail to increase productivity through foreign technology. Third, firms relying on both international sourcing and domestic sourcing are more productive than those only use domestically produced intermediate inputs. Fourth, this paper also finds different features within mixed exporters. In particular, the mixed exporters engaging in more ordinary exports than processing exports have higher productivity. On the other hand, the mixed firm depending more on processing imports tends to have a lower level of productivity.

Shukuhiddin Abrori (Ritsumeikan Asia Pacific University), Oliya Maxudova (Ritsumeikan Asia Pacific University)

The Role of Cotton-Textile Industry on Economic Growth Tajikistan

Cotton is one of the main export's articles of all Central Asian countries and Tajikistan ranks third in the region in terms of production, behind Uzbekistan and Turkmenistan. Cotton and cotton products count for up to 19.1 % of Tajikistan's total exports. In the last three decades of the existence of the Soviet Union (1970-1990), Tajikistan had a very high productivity of cotton and made million-ton cotton almost every year. As a result, in a quite short period, Tajikistan upgraded from a straightforward producer of raw materials to textile manufacture

with the best apparel and clothing products. However due to collapse of Soviet Union and following negative effects of the Civil War (1991-1997) Tajikistan experienced huge damage and fall in all sectors of economy, including the cotton production and textile industries. Fortunately, during the last two decades Tajikistan made few steps to upgrade and recover cotton processing sector's potential, introducing more than 10 new enterprises which are able to create whole value chain activity from ginning stage to ready products in cotton and apparel industry and now spending a lot of efforts on development its apparel and textile industries. This paper aims on investigating the issue of how the recovering period has affected to the cotton and apparel value chain activity in Tajikistan and in what extent the cotton-textile industry of Tajikistan can contribute sustainable economic development and growth. The objectives of the study have been analyzed through Global Value Chain and Input Output Analyses of cotton-textile industry.

Bangkit Aditya Wiryawan (Nagoya University)

Decentralization and industrial upgrading in developing countries

In the past four decades countries had been going towards massive decentralization reform. Championed by developed countries in 1980s, around a decade later many developing countries followed suit by trying to provide larger responsibility to the local government. The main objective is to improve government efficiency and thus promoting economic growth, as suggested by classical literature on fiscal federalism (Tiebout 1959 and Oates 1972). However later generation theories had been insusceptible towards the relationship, citing on more instrumental role of institutions instead of focusing on its impact to growth (Besley and Coate, 1999 and Ponce-Rodriguez 2016). The interest in this research is to test both side of the theories by estimating decentralization impact on industrial development across 87 countries between 1995 and 2017. In that time period developing countries has been industrializing. Using two-way clustered fix effect estimation, we found that decentralization has been positively correlated with industrial output for developing countries and the relationship is negative for developed countries, suggesting deindustrialization effect in the latter albeit not statistically significant. The negative relationship is also found in relative industrial upgrading and is significant for developed and developing countries, but the relationship turned positive for developing countries with higher institutional quality. And finally, we also found that decentralization is positively correlated with absolute industrial upgrading in developing countries and the coefficient is larger with higher institutional score. This finding suggests that industrializing developing countries benefit more from decentralization reform that accompanied with institutional improvement.

Saturday, March 28, 15:30-17:30

Venue D: Research Bldg No.2 (3F) Large Seminar Room 2

Sat-D-3

Chair: Mitsuo Yamada (Chukyo University)

Mitsuo Yamada (Chukyo University)

Impact of automobile electrification on regional economy using an inter-municipalities input-output table of Aichi prefecture, Japan

The automobile industry is driving the Japanese economy so long time. Though globalization of the automobile production is expanding, about a half of domestic production is still exported from Japan. However, the automotive industry is expected to change its production structure in near future. There are four ways of so-called “CASE”-technologies; Connected, Autonomous, Shared, and Electrified. Here we focus on the electrification in automobiles. There are several preceding researches on this filed, national and regional, Shibusawa and Sugawara (2011), CRISER (2015), Kimura (2019), Mase (2019), Ohsawa and Nakano (2019) etc. However, there are no studies that discuss the effect of the automobile electrification on the municipal-economies. In our paper, we take up on Aichi Prefecture, where automobile-related industries are concentrated, and consider what impact the automobile electrification has on the local economy. The headquarter office and main factories of Toyota Motor Corporation are located in Toyota city and the surrounding municipalities in this prefecture. Therefore, we have constructed a 2011-Aichi Prefecture’s inter-municipalities input-output table with 106 sectors by 54 municipalities. We analyze what changes could occur in the municipalities’ induced production effects of the automobile industry by the electrification toward 2030. We show that the municipal economies, that supply more automotive parts, receive greater negative impact on production, even though the electrical machinery industry obtains some positive effect.

Uyanga Ganbaatar (Meiji University)

An Application of DPG Analysis to Mongolia, Kazakhstan and Kyrgyzstan Two Decades after their Transition to Market Economies

This presentation provides with the preliminary results from a DPG (Deviation from Proportional Growth) analysis, applied to the national input-output tables of three landlocked economies in Central Asia, including Mongolia, Kazakhstan and Kyrgyzstan. We examine the pattern of structural changes in these economies, which were former members of the socialist system, two decades after their transition to the market economies. Our analysis covers the period 2010-2017 for Mongolia, 2005-2015 for Kazakhstan and 2008-2016 for Kyrgyzstan. The underlying reason for differences in the period has to do with the public

availability of the I-O data of the respective economies. The period of 2010-2015 offers an important insight for these economies, as it coincides with the discussions and enactment of major bilateral and regional trade agreements and investment deals. This DPG analysis, originally introduced by Chenery (1960), applies the method, reformulated by Chen and Fujikawa (1989, 1992) on their assessment of the Japanese, Korean and Taiwanese economies. Chen and Fujikawa extended the original model by incorporating the import as an endogenous factor and providing a framework to explain the structural changes in a given economy via four factors, including the domestic demand, exports, import substitution, and change in technology. The results of the comparison of growth patterns can be applied to discussing how these countries are taking a different approach to resolving challenges, partially induced by weak domestic demand and their limited access to wider seaborne markets.

Kiyotaka Ishikawa (University of Tokyo)

Networks in the Japanese Regional Agro-food Economies

Network linkage is important even in evaluating aggregated (macroeconomic) indicators such as income, employment, value-added since input-output networks across industries are asymmetric and respond differently to demand shocks (e.g. government intervention) or supply shocks (e.g. TFP change). However, most studies implicitly assume elastic substitution between intermediates and labor, following Cobb Douglas function systems in the original concept (Acemoglu et al. 2012), which is improbable especially in studying supply side issues. Also in its empirical applications, studies applying network linkage model into Japanese economy are limited. Provided asymmetric input-output network linkages in agricultural and food industries, in different structures over Japan's domestic 9 regions, this study empirically verifies how Japanese regional economies have responded differently to the major economic changes; (1) increasing import of agricultural and food products and (2) sluggish labor productivity growth and decreasing workforce in rural economies. Based on network linkage framework by Acemoglu et al. (2012), this study will incorporate some methodological modifications such as nested-CES function system (referring to Baqaee and Farhi 2018's theoretical extension), identify propagation paths in the agro-food sectors and empirically evaluate their roles in the observed regional macroeconomic indicators. Given multipliers from results corresponding to (2), furthermore, this study will conduct a simple simulation with employing estimated regional demographic changes in the next couples of decades. Acemoglu, D., Carvalho, V. M., Ozdaglar, A., & Tahbaz-Salehi, A. (2012). The network origins of aggregate fluctuations. *Econometrica*, 80(5), 1977-2016. Baqaee, D. R., & Farhi, E. (2018). Macroeconomics with heterogeneous agents and input-output networks (No. w24684). National Bureau of Economic Research.

Nguyen Thi Bich Ngoc (Hiroshima University), Masaru Ichihashi (Hiroshima University)

Structural change in the Vietnam economy: A decomposition analysis for 2000-2016

The national economic structure is determined by the composition of various components including production, consumption, value added, export and import. In the last twenty years, Vietnam has been experienced a rapid growth and substantial structural change which influenced by the change of the global economy. The economic structure analysis was first proposed by W. Leontief in the 1930s which was investigated the structural change of the US economy. Since then, numerous researchers have developed several approaches to measure the economic structural change such as structural decomposition analysis, sector composition and economic growth, and spatial structural convergence. Input-output (IO) table is one of the representative statistic frameworks in which record all transaction of both intermediate goods and services according to industry outputs. The input-output tables of Vietnam were compiled with the intermediate input matrix, final consumption, gross capital, export and import. This study analyzes the Vietnam economy structural change over the period 2000 to 2016 using decomposition IO analysis method which suggested by Dietzenbacher and Los (1998). We decomposed the total output change, technological change and final demand change into three periods: 2000-2005, 2005-2010 and 2010-2015. The results show that Agriculture-hunting-forestry-fishing, Food-beverage and tobacco product sectors experienced the largest output gains as a result of final demand change and technological change in all three periods. We also found that there was substantially increased in technological change in Machinery and equipment sector which resulted in the large change of its total output from 2000 to 2015. Wholesale and retail trade and repair sector experienced the dramatically declined in its final demand change and total output in the last periods (2010-2015).

Sunday, March 29, 10:00-12:00

Venue A: Research Bldg No.2 (3F) Large Seminar Room 1

Sun-A-1

Chair: Tony Shih-Hsun Hsu (National Taiwan University)

Yu-Chieh Chang (National Taiwan University), Sheng-Ming Hsu (National Chung-Hsing University), Ruey-Wan Liou (Ministry of Transportation and Communications, R.O.C.), Ching-Cheng Chang (National Taiwan University), Tony Shih-Hsun Hsu

(National Taiwan University)

Impacts of Demographic Change on Food Demand in Taiwan: A Dynamic Computable General Equilibrium Analysis

Food demand forecasting is an important basis of making food security policies. Due to the impact of global climate change and food production turbulence, countries across the world pay high attention to the formulation of security policies covering the food loss and waste, etc. Traditional food demand analysis attaches greater importance to economic factors like price and income, but ignores the influence of such physiological conditions as the age and gender on food demand. It has already been proposed in empirical analysis that demographic has a significant impact on the per capita food demand, due to the basic difference in physiological conditions. Upon adequate understanding of the differences in food demand caused by different genders and age groups, forecasting results gained according to traditional food estimation methods may have errors caused by the lack of demographic adjustment. In recent years, sub-replacement fertility and aging problem occur, population pyramid presents a reduced demographic in Taiwan. This paper adopts the dynamic CGE model and database, which is one of the few single-country CGE models that the demographic variable is endogenous across the world. In this model, interactions among the population and macro-economy are taken into account.

Therefore, based on the more comprehensive empirical simulation and analysis of the impact on population forecast and future economic development, and considering the interactive feedback impact of demographic module and macroeconomic module, population baseline forecast from 2015 to 2050 is carried out with fertility rate and death rate as endogenous determinants. Meanwhile, AME concept is introduced and 2018 Taiwan's 「Recommended Dietary Allowance」 of HPA is employed to eliminate possible interference caused by economic factors, personal consumption and dietary structure adjustment. Moreover, the impact of demographic on food demand is introduced in the empirical analysis, on the premise that per capita daily activity intensity meeting recommended standards is of moderate energy need.

Considering the demographic and its change forecast in Taiwan, it is estimated the total food demand in 2050 would reduce by 23.16% when compared with that in 2015. Besides, the future demand presents a declining trend, lower than the forecasting result that does not take the changes in demographic structure into account. Till 2050, the demand only reaches 7,711.16 thousand metric tons, and the difference is about 1,695.76 thousand metric tons. According to the research result, the physiological need for food is converted, and it interprets the slow reduction of food demand for Taiwan. Demographic is also a crucial factor that impacts the food demand. Therefore, the inclusion of demographic into the influence factor of food demand will provide more accurate demand forecasting, attach greater importance to policy trend, and cope with the situation by taking related measures as early as possible.

Po-Chi Chen (Chung-Hua University)

Measurement of Marginal Costs of Carbon Dioxide Abatement of OECD and non-OECD economies

Climate change is already a vital component of long-term national and international policies and environmental issues are treated as international matters. An historic agreement to combat climate change and unleash actions and investment towards a low carbon, resilient and sustainable future was agreed by 195 nations in Paris in 2015 recently. The Paris Agreement for the first time brings all nations into a common cause based on their historic, current and future responsibilities. However, how to harmonize the trade-off between economic growth and environment protection and use the lowest cost to abate the emission of the greenhouse gas is still an issue concerned. This requires countries to measure, document and publish information about their environmental performance. Hence as an initial step, accurate assessment of environmental conditions is essential.

The purpose of this study is to evaluate the opportunity cost of pollutants abatement costs of OECD and non-OECD countries by using the Data Envelopment Analysis (DEA) approach. Following Färe et al. (2016), the changes of the pollution abatement costs are measured and decomposed into its associated factors of (1) technical change, (2) input changes, and (3) changes in bad output production, to show the trend of costs associated with pollution abatement activities and tell how these factors affect the changes in pollutants abatement costs. The obtained results are then can be used to provide guidelines to support environmental regulatory policies for the emission of the greenhouse gas.

Ya-Wen Yu (Chung Yuan Christian University), Jin-Xu Lin (Chung Yuan Christian University), Shih-Mo Lin (Chung Yuan Christian University)

Spokes, Hubs, and Industrial Competitiveness in Asian Manufacturing

This paper attempts to examine whether the evolution of Asian countries' manufacturing from production hubs to supply spokes over the past decades is consistent with the proposition of the famous Flying Geese Model. Furthermore, this paper tries to establish the relationship between indicators of hubs and spokes and the competitiveness of the Asian manufacturing. We pursue these issues from the perspective of value added trade and make use of the OECD's Inter-Country Input-Output tables. Our results indicate that the manufacturing industries of the developing countries in Asia have moved gradually from a production hub to a supply spoke during the course of economic development, and this catching-up is usually accompanied by a significant increase in industrial competitiveness.

Katsufumi Fukuda (University of Toyama), Kazuyuki Nakamura (University of Toyama), Masashi Yamamoto (University of Toyama)

Regional Impact on China's Import Ban on Used-Plastics

Sunday, March 29, 10:00-12:00

Venue B: Research Bldg No.2 (3F) Multimedia Lecture Room

Sun-B-1

Chair: Chen Lin (Renmin University of China)

Thao Phuong Nguyen (Hitotsubashi University), Trinh Bui (Vietnam Development Research Institute), Thai Quang Nguyen (Vietnam Development Research Institute)
Structure of agricultural, forestry, and fishery sectors in Vietnam economy

As coming to Vietnamese culture, it refers to the culture of agriculture. Every country has agriculture, but the culture of agriculture is only in some Asian countries, including Vietnam. Currently, in Vietnam, more than 70 % of the population is still working in the rural area. In addition, agricultural exports have increased continuously. Vietnam is now one of the top world exporters in rice, rubber, coffee, pepper, cashew nuts, wood products, and fisheries. However, in recent decades, due to the industrialization and modernization movement, Vietnam's government is trying to change of economic structure by focusing on manufacturing, and services sectors. Instead of using the advantages of cultivation, breeding, Vietnamese is becoming workers. When Vietnamese people's strengths are not used and promoted, they have to try or be forced to use their weakness. Thus, the failure is almost inevitable. This study examines the change in the interactions between agriculture, forestry, and fisheries with other sectors as well as intra-interactions among agriculture sub-sectors by basing on the structure of the 2012 and 2016 Input-Output (I/O) tables of Vietnam. The main results show that the current policy of prioritizing manufacturing industries is a paradox. It is because that these industries are basically outsourcing, the spillover effect of their final demand on value-added is trivial, whereas the final demand of agriculture, forestry, and fisheries spreads to value-added much better. In addition, with the current economic structure, the demand for annual crop products is quite large. Therefore, instead of changing this structure, Vietnam needs to improve productivity and quality as well as linking agricultural production with manufacturing to improve the value-added content of these products. The study also shows that two sub-sectors including livestock and aquaculture stimulate other sectors considerably.

Chen Lin (Renmin University of China)

North-South Differences, Domestic Value Added in Exports and Industrial Chain Integration

This paper explores the determinants for the economic disparity between southern China and northern China from the perspective of domestic value added in exports. For the first time, this paper proposes a new method of decomposing the change of domestic value added in exports into the change of export volume, industrial high-end degree and industrial chain integrity, and then adopts the international input-output table embedded with China's provincial input-output table to carry out factor decomposition. The study finds that from the perspective of domestic value added in exports, China's North-South differences are expanding further, and the extent and rate of expansion exceeds the difference between the East and West regions. The difference in local value-added strength is a major factor in North-South differences. This paper also finds out that the integrity of the industrial chain in the north has improved, but the high-end degree of the industry has not changed much. Contrary to this, the high level of the southern industry and the integrity of the southern industrial chain have risen sharply. This shows that the South began industrial upgrading and improved the high-end industrial chain, while the low-end industrial chain shifted from south to north. This paper believes that policy measures should be adopted to guide the industrial upgrading in the North, and to avoid regional imbalances caused by excessive differences between the North and the South.

Natsumi Suhara (Yokohama National University)

The Estimation and Analysis of The Head Office Sector in Each Japanese Intraregional Input-Output Tables in 2011

Headquarters and central management functions are concentrated in Tokyo for the centralized system established after the war. As a result, office services and other services have been concentrated in Tokyo. Such a phenomenon, extreme concentration in Tokyo, is a serious problem in Japan. Production activities such as branch offices and factories, usually locate in regions except Tokyo. Indirect management activities, which supervise production activities, are called headquarters functional activities. There is a structure in which profits from other parts of the country are concentrated in Tokyo through the corporate division of labor. To analyze quantitatively this mechanism, we need to use input-output tables, which is appropriate to examine headquarters services as intermediate goods of direct production site activities. Unfortunately, the head office sector is not estimated in input-output tables other than the Tokyo table all over the world, so headquarters functional activities in neither regions nor nations are obvious. The Tokyo tables after 2008 have only one head office sector, the reason why we cannot analyze each headquarters functional activities. In this research, we estimated the head office sector in each intraregional input-output tables in major areas of Japan, and separated 37 head office sectors departments from one head office sector in the Tokyo table. In this presentation, we will examine the results such as the inducement effect of regional headquarters by export to other regions, because headquarters activities mainly transact with direct production site activities located

in other regions.

Reynaldo Senra (Centro de Investigaciones de la Economía Mundial)

Development banking, capital accumulation and economic growth: The evidence from 10 countries since the 1950s until 2017

25% of the public development banks (hereafter development banks) that participated in the 2017 World Bank Survey were created from 2000. This recent popularity persists despite the scarcity of empirical evidence supporting the contribution to investment and economic growth of these institutions. Indeed, most of the existing empirical studies analyze short-run implications, while these institutions mostly finance long-term projects. Considering this, I investigate both, the short and the long-run implication of development banks on capital accumulation and economic growth. To achieve this, I employ time series analysis and also panel data analysis. The time series analysis is done through the Johansen (1988, 1991) framework or Johansen (2000), which is appropriate when structural breaks in the cointegration vector are suspected. I found long-run direct causality running from assets of development banks to economic growth in most of the countries. In none of them were the development banks harming economic growth. The employment of the Fully Modified and Dynamic OLS estimators supported the validity of the estimated vectors. Interestingly, the Toda-Yamamoto (1995) tests indicate weak evidence of short-run causality. I also applied cointegrated panel data methodology. In this case, I also included as control variables other indicators associated with economic growth, like trade openness. The analysis confirmed the long-run positive impact of development banks on growth. Interestingly, although I didn't include any variable for the institutional quality of the countries, I found the developing nations with better institutions evidenced larger contribution of development banking. Finally, the contribution of development banks to growth was smaller in developed nations. This points at the validity of a common idea which hasn't been corroborated with empirical evidence: Countries with developed financial market don't need these kind of interventions in the banking system.

Sunday, March 29, 10:00-12:00

Venue C: Research Bldg No.2 (3F) Case Study Seminar Room Sun-C-1

Chair: Takashi Yagi (Meiji University)

Jian Jin (Waseda University), Yasushi Kondo (Waseda University)

A Framework to Incorporate Uncertainty into Input-Output Analysis

In the current input-output analysis (IOA) literature, it is not common to report the results after

accounting for uncertainty, despite its importance. When considering uncertainty in IOA, researchers do not know the true input coefficients. Therefore, in applications, it is common to treat the input coefficients as random variables and assume that they follow certain specific distributions. Based on these distributions, a Monte Carlo simulation can be conducted (West, 1986; Bullard and Sebald, 1988; ten Raa, 1994; Dietzenbacher, 2006; Lenzen et al., 2010; Nagashima, 2018; Rodrigues et al., 2018). Instead of the independent normal distributions applied in most advanced studies, this study proposes a framework of uncertainty analysis using Dirichlet distribution. The biggest difference between the two approaches is that for every column sector in an input-output table (IOT), the sum of domestic input coefficients and value-added coefficient must be equal to one: The independent distribution approach ignores this aspect, while the Dirichlet distribution approach takes it into consideration. In practical applications, it is reasonable to assume that the expected values of input coefficients are equal to the input coefficients calculated based on the traditional IOA framework (which do not account for uncertainty). For each column sector in the Dirichlet distribution approach, there is a parameter for adjusting the variance. We propose a method to determine the parameter for each column sector in the Dirichlet distribution approach, given the variance of the elements of the IOT.

Takashi Yagi (Meiji University)

Global Cost Structure Analysis: Three-Country Case

The aim of this paper is to extend a model of global cost structure analysis to three country case. The cost structure analysis of Yagi (2017) applied Sraffa's Standard system, which is defined by the eigenvector and eigenvalue of the input coefficient matrix, to a non-competitive import type input-output table. The price vector of Input-Output table is measured in terms of money. The cost structure analysis explains the price measured in terms of labour, the prices measured under the condition that the value of labour is equal to unity, and decomposes the price vector into the vectors which explains direct and indirect cost. Our model Global cost structure analysis focus on the direct and indirect costs of imports and decompose the price vector corresponding to imports into domestic cost and cost of foreign countries. Global cost structure analysis explains international division of labour. This paper explains a model of global cost structure analysis among three countries. And then we apply it to Input-output table of three countries (UK, France, Germany) by using WIOD. It becomes complex to calculate the data by three-country model. We can check the accuracy of our model and calculation by comparing the calculation results of global cost structure analysis with those of cost structure analysis.

Vladimir Motorin (National Research University Higher School of Economics), Marina Motorina (Plekhanov Russian University of Economics)

Product Technology vs. Industry Technology: A New Look

One of the main aims of constructing input-output balance models is to assess an impact of exogenous changes in net final demand (at constant prices) on simultaneous behavior of the economy. Nowadays, two approaches to constructing input-output coefficients are widely used in practice, namely, ones based on so-called product technology assumption and industry technology assumption. Material balance equation, classical Leontief equation and commodity technology model form the system of equations with production and intermediate consumption matrices as unknowns. It is shown that this system can be solved in the manner that guaranties the exogenous changes in net final demand at constant prices. In turn, material balance equation, classical Leontief equation and industry technology model form another system of equations (with the same unknowns) that can be also resolved with respect to production matrix and intermediate consumption matrix. However, exogenous varying net final demand in obtained solution leads to quantity changes in the intermediate consumption matrix and to price changes in the production matrix. This type of economy's response to exogenous changes in final demand seem to be implausible artifact that is out of economic sense. Thus, there are some certain doubts about plausibility of underlying background for an industry technology assumption and a fixed product sales structure assumption which are widely used for transforming supply and use tables to symmetric input-output tables.

Norihiko Yamano (OECD), Colin Webb (OECD)

Development of OECD's Inter-Country Input-Output (ICIO) Database 2020 edition and recent analytical applications

With strong endorsement by governments around the world, the OECD has continued to develop Inter- Country Input-Output (ICIO) tables, introducing innovations such as benchmarking National Accounts constraints for each economy, balancing bilateral trade flows in goods and services by top-down approaches, splitting some country tables (China, P. R. and Mexico) to account for firm heterogeneity (processing exporters versus domestic firms in manufacturing sectors) and separately identifying consumption expenditures of direct purchases abroad from cross border trade. In addition to these features, introduced in earlier editions, the latest ICIO tables follow the consequences of the implementation of the 2008 revision of the System of National Accounts (2008 SNA) and use a new Industry classification based on ISIC Rev. 4 covering over 60 individual economies and the rest of the world. The forthcoming 2020 edition of the ICIO database and its applications e.g. Trade in Value Added (TIVA), Trade in Employment and GHG emissions embodied in international trade will cover the period 1995 to 2017. In addition to the results for individual economies, the analytical indicators include the results of regional aggregate estimates e.g. ASEAN and EU to analyse the positions of economies in regional value chains (regional integration). The estimated databases could serve as a benchmark for researchers developing their global

interindustry model for various policy analyses.

Sunday, March 29, 10:00-12:00

Venue D: Research Bldg No.2 (3F) Large Seminar Room 2

Sun-D-1

Chair: Makiko Tsukui (Tokyo International University)

Aqib Mujtaba (Shri Mata Vaishno Devi University)

Energy and Environmental Economics

In the current study we re-investigate the association and causation among CO₂ emissions, economic growth, energy consumption and foreign direct investment inflows by utilizing the annual data from 1981 to 2014 for Indian economy. The autoregressive distributed lag model, granger causality technique, impulse response function and variance decomposition analysis have been used to examine the association and causation. The study has found the evidence of an inverted U-shaped EKC for India. The energy consumption and foreign direct investment have positive and significantly associated with CO₂ emissions. The granger causality technique reveals that economic growth is causing uni-directionally to CO₂ emissions. There is one way causality running from CO₂ emissions and energy consumption to FDI inflows. The results also shows that there is a uni-directional granger causality running from economic growth to energy consumption. The results of impulse response function also support the ARDL results in case of economic growth and CO₂ emissions association and FDI and CO₂ emissions. However, the results of Impulse response function are against the results of ARDL in case of energy and CO₂ emissions association. The results of Variance decomposition analysis confirmed that economic growth is the largest CO₂ emitter with 62% contribution level, energy consumption is the second largest with 33% contribution and FDI contributes around 3% approximately. By taking into consideration all the results, the study has recommended some policy suggestions to the policy makers, environmentalists and Indian administrates. Finally, the study end with some avenues for future research.

Shuning Chen (Research Institute of Innovative Technology for the Earth), Keito Akimoto (Research Institute of Innovative Technology for the Earth), Takashi Honnma (Research Institute of Innovative Technology for the Earth), Masaru Kagatsume (Kyoto University)

A case study of the industry level international competitiveness and emission accounting in Germany Subtitle

We conducted a sector level analysis to evaluate the industrial competitiveness and fuel combustion-related carbon emission reallocation in Germany in the period 2000-2014 based on WIOD. The GVC accounting method was employed in this research to identify embodied carbon emissions under the same accounting framework of the value-added creation and distribution. Especially, we focus on the specified sectors and their interlinks, which are the metal manufacturing, energy supply, and transport equipment manufacturing sector. In this research, the Revealed comparative advantage (RCA) index is employed for calculating the relative advantage or disadvantage in the targeted industry. The industrial linkages with the economy are indicated as net backward and forward linkage, and the GVC participation index. Emission embodied in the production and trade process is traced from both the backward and forward linkage. The inter-sector carbon intensity for production is measured by a comparative consumption-based carbon intensity index. This is a comparative static analysis that investigates the economic impact before and after the EU-ETS implementation. We also discuss how a structural change in the energy supply sector affects its roles in the economy. The results indicate (1) The metal manufacturing industry continuously lost its international competitiveness even with free allowances after the launching of EU-ETS; the consumption-based carbon intensity has worsened as well when compared with the previous period. (2) In the energy-supply sector, expansion of the service sector has led to carbon emission growth. The manufacturing industry still rely on carbon-intensive energy. Renewable energy is generated for export and did not participate in the domestic production process well. (3) The transport equipment manufacturing industry strengthened its international competitiveness when participation in GVC increasing in this period. Participating in GVC lead to an increase in emissions embodied in outsourced production. However, from the integrated prospect, the consumption-based carbon intensity is decreasing.

Andrey Kolpakov (Russian Academy of Sciences)

The impact of climate policy on structural changes in the Russian economy

Climate policy is becoming an increasingly important component in the formation of global economic dynamics. The set of measures to prevent excessive climate change is quite wide, but mainly consists of the spread of low-carbon energy technologies, namely the electric vehicles and renewables-based electricity generation. The spread of low-carbon solutions has a heterogeneous effect on the economies of different countries, but, in most cases, it provides some growth in GDP and employment, but leads to higher prices. A key reason of positive effects is the higher labor and capital intensity of new technologies. Estimations of the resource and material intensity of new energy technologies allows to supplement the

view of their impact on economic dynamics. Calculations based on the input-output approach can be used as an instrument, since the redistribution of product and material flows is well described through changes in the components of final consumption and the direct costs matrix. For Russia, the promotion of renewable energy and electric vehicles in order to reduce CO2 emissions is rational. But these directions lead to a deterioration in macroeconomic indicators. Indeed, the higher material intensity of low-carbon solutions provides an increase in output in the economy. However, a common negative factor is the critical need for additional imports. In addition, a shift in the structure of electricity generation towards renewables will lead to a decrease in revenue from the sale of natural gas or coal, which are produced domestically. This fundamentally distinguishes Russia from countries importing carbon-containing energy resources, since renewable energy is a way for them to save on fuel purchases from the foreign market.

Sunday, March 29, 13:00-15:00

Venue A: Research Bldg No.2 (3F) Large Seminar Room 1

Sun-A-2

Chair: Zuoyi Ye (Shanghai University of International Business and Economics)

Jianxin Wang (Shanghai University of International Business and Economics)

Industrial Internet, International Competition and Innovation of Chinese Enterprises

The new globalization, characterized by a new round of scientific and technological revolution and changes in international economic and trade rules, has promoted the evolution of the global industrial competition pattern. Industrial Internet has further promoted the competition from traditional enterprises to industrial Internet platforms. Governments have taken various measures to cultivate the advantages of domestic manufacturing industry to participate in global industrial chain competition around the Industrial Internet. What role does the Industrial Internet Platform activity play in the high-quality development of China's foreign trade in China's current process of accelerating the transformation of old and new kinetic energy, nurturing new kinetic energy for economic growth and promoting high-quality development of manufacturing? This paper uses the corporate customs database, ASIE(Chinese firm level data) and the State Intellectual Property Office's patent application public disclosure database to match, and studies the industrial Internet platform and the impact of its international competition on Chinese enterprise innovation and its mechanism: We find that the Internet platform has a two-tiered effect on enterprise innovation. On the one hand, the industrial Internet platform will cause some enterprises to quit in the innovation competition, which is called the destructive innovation effect; On the other hand, in order to survive in the competition, some enterprises will increase the

innovation of new technologies, which will have a repressive effect on competition. In addition, our research shows that domestic and foreign competition has become a transmission channel between industrial Internet platforms and Chinese enterprise innovation.

Siyu Wang (Shanghai University of International Business and Economics), Guijun Lin (Shanghai University of International Business and Economics)

The Effect of Servitization on Manufacturing Firm Performance --Based on the Evidence of China

Services play an important role in the global value chain(GVCs). For most export economies, services intermediate reflects higher value and technology which promote value chain upgrading. Servitization of the manufacturing sector refers to the evolution of manufacturers' capabilities to offer services as a complement to or a substitute for the goods that they produce. As the largest developing country in the world, China focus on servitization especially in manufacturing sectors. In this paper, we provide such evidence using exhaustive data of China Annual Survey of Industrial Firms between 1997 and 2007, and we find that the tremendous Chinses manufacturers began to act in services sectors. In the second place, there is a positive impact of servitization on firm performance in China to some extent. For example, Firms that start to invest in services sectors experience an increase in their profitability, employment, and Total Factor Productivity (TFP). In different sectors or provinces, manufactures take distinct actions in the transitions. We also find various channels of how servitization promote manufactures performance in the empirical methodology.

Sunday, March 29, 13:00-15:00

Venue B: Research Bldg No.2 (3F) Multimedia Lecture Room

Sun-B-2

Chair: Masaaki Kuboniwa (Hitotsubashi University)

Ghina Fitri Ariesta Susilo (Universitas Tidar), Utpala Rani (Universitas Tidar)

The Role of Digital Economic in Asean-Korea Free Trade Area (AKFTA)

This study is a qualitative desk research that examines the role of the digital economy in the ASEAN-Korea Free Trade Area (AKFTA) relations. ASEAN and Korea pay attention to the development of the 4.0 revolution and form the ASEAN-Korea Free Trade Area (AKFTA) in order to establish mutually beneficial relations. The development of the 4.0 industrial revolution has the potential to increase the level of global income and improve the quality of life of populations around the world. The success of the Korean industry can provide very valuable lessons for ASEAN by inspiring this group of countries to implement a digital economy. The complementary partnership between ASEAN and Korea will bring mutual benefits and achieve mutually beneficial results in the Industrial 4.0 era. This partnership reflects the potential benefits of industrial improvement through digitalization and automation, the ASEAN-Republic of Korea Cooperation Center has implemented a number of trade and investment programs in industry segments related to Industry 4.0. AKFTA will enhance the international competitiveness of ASEAN and Korea by promoting the competition and efficiency that both parties have. AKFTA will later shift the trade balance to ASEAN, so that it can encourage rapid growth of the digital economy and have a positive impact on both parties.

Ragdad Cani Miranti (Nagoya University), Carlos Mendez Guerra (Nagoya University)
Human Development Dynamics across Districts of Indonesia : A Study of Regional Convergence and Spatial Approach 2010-2018

Indonesia is an archipelago country which consists of 2 (two) main parts, western and eastern part of regions and spreaded over more than 500 districts. Each district has their own characteristics, especially in development aspect. Some districts were growing faster in economic and social development, yet others were still falling behind. This condition was caused by the diminishing marginal returns to capital in the more developed regions, as the level of capital per labor is relatively high in these regions. This led in turn to catch up convergence. Human Development Index as one of the proxies to measure the regional growth across regions is conducted in this paper. Using Human Development Index and its components in education, health and economic variables over time 2010 to 2018, this study aims to search for absolute and conditional convergence and measure the speed of

convergence in term of human development across districts. Spatial effects are also examined for boosting the catching-up process. The result indicated that convergence for human capital growth occurred across districts in Indonesia during 2010-2018, meaning that less developed districts could catch their falling behind status up. Applying two spatial autoregressive models, which are spatial autoregressive lag model (SAR) and the spatial autoregressive error model (SEM), found the significant existence of spatial effects, even in a little share. Human development within a region was likely less much affected by their neighbourhood's effect. Therefore, it may help to identify development process facing similar challenges. As the policy implications, since regional inequality in term of human development still a major issue, it will be a call for better coordination and cooperation within and between regions. Keywords : regional growth, human development, spatial approach, convergence

Utumporn Jitsutthiphakorn (Nagoya university)

Promoting Exports by the ASEAN SMEs: Impediments, Drivers, and Conducive Policies

Taking into account exporting activities often associated with FDIs and GVCs, this study looks into impediments, drivers, and conducive policies in internationalizing SMEs in developing countries. Access to export markets often signifies productivity and competitiveness and thus tends to lead to higher firm survivability. Using the World Bank enterprise survey of eight countries in ASEAN, this chapter introduces export experiences of all eight countries in ASEAN and the East Asian economies from a comparative study of SMEs' shares in total employment, total exports, and GDP. The need for higher export performance by the ASEAN SMEs discussed. This study analytically describes a dynamic change of the impediments faced separately by country and firm size. The issue is also discussed in the context of internal factors (Firm characteristics, access to finance, ICT) and external factors (Trade facilitation, real effective exchange rate, SME policy in the dimension of internal market expansion) that influence the export of SMEs. The study then introduces some indicative regression results on the drivers of SMEs' internationalization. The model estimated separately for large firms, SMEs and also covered with SMEs in six selected industries both capital intensive industries and labor-intensive industries. The study concludes with policy implications from the study findings.

Masaaki Kuboniwa (Hitotsubashi University)

Development of Theoretical Foundation for Global Value Chains

In this paper we develop further the theoretical foundation for global value chains. First, we trace the outlines of the theoretical foundation for global value chains (GVCs), including the vertical specialization (VS) in the national input-output system by Hummel et al. (2001),

domestic and foreign value added in the international input-output system by Koopman et al. (2014), and value added exports in the international input-output system by Treffer and Zhu (2010) and Johnson-Noguera (2012). We synthesize preceding resources using fully decomposed concept of domestic and foreign value added in gross exports for bilateral and non-bilateral trade. In this attempt, we demonstrate that Johnson-Noguera's value added trade, which measures origin country's value added exports induced by each destination country's final demand for the world, can be expressed in terms of domestic and foreign value added. We attempt to solve concerns of double use of imported intermediates in an international input-output analysis posed by some noted scholars. We also provide empirical numerical examples for two-country (China and the rest of the world) and three-country (China, USA and the rest of the world), using the World Input-Output Data (2016 version) and the OECD Inter-Country Input-Output Data (2018 version) with 30 sectors, in order to enhance how we develop the theoretical foundation for GVCs. We conclude with some remaining tasks for the theory of GVCs, including how to capture some foreign companies (TOYOTA etc.)' efforts to increase local contents of production or decrease intermediate imports. JEL E01, E16, F14, F23, L14 Keywords: Value-added exports, factor content of trade, gross exports, domestic value added, foreign value added

Sunday, March 29, 13:00-15:00

Venue C: Research Bldg No.2 (3F) Case Study Seminar Room Sun-C-2

Chair: Taiji Hagiwara (Kobe University)

D P Priyadarshi Joshi (Shri Mata Vaishno Devi University), Farah Farooq Shah (Shri Mata Vaishno Devi University)

AN ALTERNATIVE APPROACH TO PRODUCTIVITY MEASUREMENT IN INDIA

Conventional studies on productivity are in essence applications of neoclassical theory of distribution. In terms of economic methodology, the studies set up two key problems. First, a given quantum of product must be imputed unambiguously to individual 'factors' of production. Secondly, in a dynamic context, a shift in the economy's technological frontier must be identified independently of factors accumulation. In contrast to this dominant mode of productivity analysis, we can locate in the classical economics of Adam Smith a distinct approach. Unhindered by aforesaid theoretical and methodological difficulties, this approach places the problem of productivity of labour at the center of economic growth and accumulation. The simple labour productivity measure does not capture the inter-sectoral dependency. When the whole economy is considered as an interlinked system, the industry labour productivity could not represent inter-sectoral transactions and may overstate the

labour productivity. This is captured by system labour productivity. The present paper therefore takes up 'system labour productivity' as an alternative concept and measure of productivity in line with classical development economics. The industry productivity for each sector has increased so also the system labour productivity. The value of industry productivity is higher than the two specific indices of system labour productivity. Further the system labour productivity with import coefficient is higher than the system labour productivity without import coefficient. The measurement and analysis is drawn on the National Input-Output Table (published by WIOD) and KLEMS database for India for the period 1995 to 2014. The system measure has important policy implications on employment generation in India, especially in wake of jobless growth since the macroeconomic reforms in 1990's.

Waruni Nilukshi Kaushalya Perera Weerakkodi Arachchige (Nagoya University)
Convergence of Financial and Social Performance of Microfinance Institutions in Sri Lanka

Microfinance came into practice promising the better off of the poor who does not have access to traditional financial institutions. At first, many developing countries embrace the concept of microfinance and promoted as a tool of poverty alleviation. However, the tradeoff between the financial and social performance of the microfinance institutions (MFIs), has been identified as a significant issue and in many studies, this has been called as "mission drift". There are some empirical studies focus on finding the answer for the question, what are the choices MFIs make deciding on their operations, should MFIs focus on generating profits on available financial resources or focus on the depth of outreach? This study aims to answer the question using a different technique than previous researches, which is using classical convergence (beta and sigma convergence) and distributional dynamics. Data of 40 MFIs in Sri Lanka from 2010 to 2017 collected from secondary data sources. First, the study uses Malmquist Data Envelopment Approach to measure the efficiency. The inputs are total assets and number of employees and as outputs, to measure the financial performance, return on assets and number of women borrowers to measure the social performance. The findings of this study are important to understand how MFIs with different characteristics (legal status, maturity, funding sources, lending methodology) organize performances in both aspects and useful to identify what types of MFIs are focusing on lending poor while being financially stable. Further, to what extent the MFIs are achieving their financial and social targets.

Dmitry Polzikov (Institute of economic forecasting (RAS))
Structural shifts in the Russian economy in 1990-2015

The development of the Russian economy in 1990-2015 is a case of impressive structural

changes. The transition from the Soviet planned economy to a market economy caused a deep transformation crisis in the 1990s, which in its scale and intensity probably has no analogues in the world. At present, Russian GDP is close to the level of the late Soviet period. However the current structure of the Russian economy is completely different. We can highlight the following significant changes: - shifts in the relative price system; - shifts in the structure of income distribution between the government, business and employees; - changes in the proportions between domestic consumption of primary resources and its exports; - changes in technologies and production efficiency; - increasing share of imports in final and intermediate consumption; - shifts in the functional structure of final demand; - changes in the sectoral structure of output and value added production. We take an attempt to give a comprehensive description of the retrospective development of the Russian economy with a focus on these structural shifts. The methodological basis of this study is the Input-Output approach. We use national Input-Output tables (developed at the Institute of economic forecasting of the Russian academy of sciences) to assess the impact of structural shifts on total output in 1990-2015. There is ambiguity in understanding the outcome of retrospective development. On the one hand, it requires a smaller output to produce the same GDP. But on the other hand, we can talk about "simplifying" of the Russian economy, since the share of manufacturing sectors in the output (in particular, machinery) fell sharply. The Russian economy has become export-oriented and dependent on world commodity markets prices. This creates additional risks and limitations for its long-term development.

Sunday, March 29, 13:00-15:00

Venue D: Research Bldg No.2 (3F) Large Seminar Room 2

Sun-D-2

Chair: Jiayang Wang (Renewable Energy Institute)

Jiang Fan (Shanghai University of International Business and Economics), Pallab Mozumder (Florida International University)

Time Preference and the Dynamics of Evacuation Behavior: Evidence from Hurricane Ike and Hurricane Sandy

Time Preference and the Dynamics of Evacuation Behavior: Evidence from Hurricane Ike and Hurricane Sandy Pallab Mozumder Department of Earth and Environment and Department of Economics Florida International University Fan Jiang Department of Economics Shanghai University of International Business and Economics Hurricane evacuations are becoming an increasingly complicated activity as it involves moving a large number of people who live along the Atlantic and Gulf coasts and often to destinations that are not predetermined. A good deal of research has been conducted on hurricane

evacuation, but only a limited number of studies have looked into the precise timing aspect of evacuation. This paper intends to make a contribution to the literature on households evacuation timing decision by investigating what factors influence peoples time preference for evacuation behavior. Unlike other studies, this study looks into the residents evacuation behavior across the Gulf coast as well as Northeast and Mid Atlantic coast in a comparative perspective. We use datasets from a survey of Texas residents who experienced Hurricane Ike and another survey of residents in the Northeastern and Mid-Atlantic US states who were affected by hurricane Sandy. These results provide implications for future hurricane evacuation planning and emergency management. Keywords: Emergency Management, Evacuation, Experience, Heckman Selection Model, Hurricane, Natural Hazards, Reference Dependent, Time Preference.

Yiyi Ju (University of Tokyo), Kiyoshi Fujikawa (Nagoya University)

Reginal caps of the national emission trading scheme in China: two approaches revealing the emission relocation

In industrialized countries, especially countries with a large territory and relatively reliable grids such as China, the region where electricity is generated to some extent differs from the region where electricity is consumed. China launched its national emissions trading system covering the electricity supply sector in 2017 where caps are planned for each region. However, the market design calls for an approach that can adjust the initial allowance allocation considering such electricity transmission and emission relocation into account. In this paper, based on the 31-region input-output table in 2012 and emission data in 2015, two principles are utilized to estimate the initial emission allowances for each region in China: the emissions generated from final energy use, as well as the emissions induced by the consumption of final goods and services. The two sets of initial emission allowance allocation share the same total amount but differ in the structure of regions. Such difference provides important references to a further adjustment of the initial allowance allocation, which aims to shift the preference to electricity-saving technologies and lifestyles in regions consuming a large amount of electricity, as well as to support the improvement of energy efficiency in regions consuming a large amount of electricity.

Jiayang Wang (Renewable Energy Institute), Kiyoshi Fujikawa (Nagoya University)
Economic, Environmental and Social Impact by the Choice of Power Sources: An Application of Scenario Input-Output Analysis

With the rapid development of the economy, China has become the largest energy consumer and emission of CO₂ in the world. China has declared that CO₂ emissions per GDP will be reduced by 60-65% (compared with 2005) and total CO₂ emissions will be peaking out by 2030 in the Paris Agreement in 2015. In order to achieve these targets, China

must change the coal-based energy structure. As a sector heavily dependent on coal consumption, the pathway of shifting from thermal power generation to low-carbon energy generation is crucial to the achievement of China's CO₂ reduction targets in the future. However, the impact of the adjustment of power generation structure on the traditional energy industry sector cannot be ignored. Therefore, it is necessary to analyze the impact on CO₂ reduction, related industries, and the social economy of various power generation structure adjustment scenarios. This paper used the technical data from the Input-output table from analysis of next-generation energy system (Japan). Based on such data, the renewable energy power generation sector of China is compiled. Following the basic principle that different power generation activities produce the same product: electricity, we conducted scenario input-output analysis to reveal how economic, environmental and social effects are different under various renewable energy power generation scenarios. The results show that the replacement of thermal power generation by wind power or PV will greatly reduce the CO₂ emissions, but it will also have a large negative economic and social impact, on the traditional energy industry and related industries such as mining and transportation. Therefore, along with the promotion of the power structure adjustment, it is also necessary to consider the impact on the traditional energy industry and support its transformation.

Hui Song (Hebei Input-Output Association)

Construction Method and Case Research on Non-competitive Type Energy-environment Governance Input-output Model

Research Objectives: The paper puts forward non-competitive type energy- environment governance input-output model and have empirical research as the example of Hebei Province. **Research Methods:** Firstly, with input-output model extension technology, the paper divides energy and environment governance department classification scientifically and on the basis of general input-output model the paper increases pollutant governance department in middle input and usage in the first quadrant to realize individual accounting of expenses and consumption and according to it four consumption structures are divided. Secondly, in the main column the paper increases some indexes, such as discharge, production and governance quantity of pollutant and production and discharge quantity in the final consumption to make economic, energy and environment governance activities get complete and systematic reflection in the same model. Thirdly, the paper makes clear to construct model statistics measurement index concept to solve computing problem of direct and complete producing pollution, pollution control, pollution discharging coefficient and final consumption pollution governance coefficient and establishes model economic balance relationship. Fourthly, on the basis of 42 and 139 departments input-output model in 2012 in Hebei Province and by collecting and investigating data of relative department and final consumption pollutant production and governance the paper completes empirical research

of model. Research Findings: This model can reflect entirely and exactly input-output relationship between regional energy contact features and environment governance expenses and has stronger function of calculating goals of pollutant production, governance and discharge in 2015 and 2017. Research Innovations: The paper constructs non-competitive type energy-environment governance input-output model technology. Research Value: To provide quantitative analysis tool of relevancy features, operation effect and objective measurement of Chinese and regional economics- energy-environment governance system.

To Graduate School of Management Main Campus, Kyoto University

34 is Research Bldg No 2 for Main Events

3 is Clock Tower Centennial Hall for Special Session





**International Conference on Economic Structures 2020
Kyoto University, Japan, March 27-29, 2020**

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