

# ICES 2019

**3rd International Conference on Economic Structures**

**PAPAIOS**



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



## **18-19 March, 2019**

## **Ritsumeikan University, Japan**

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- ◆ Organized by the Pan Pacific Association of Input-Output Studies (PAPAIOS)
- ◆ Co-organized by Faculty of Economics, Ritsumeikan University and the Economic Association, Ritsumeikan University

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## The 3rd International Conference on Economic Structures at Ritsumeikan University

### March 18, 2019

		Venue A Building C(2F) C274	Venue B Building C(4F) C472	Venue C Building C(4F) C473
1st Session	09:30-11:30	Theory of IOT	Int'l Economy 1	Regional I-O 1
2nd Session	12:30-14:30	Compilation of IOT, SNA, SAM	Productivity 1	Environment 1
3rd Session	14:45-16:45	CGE model	Productivity 2	Regional I-O 2

**Klein Prize Awardee Speech** 17:00-18:00 Venue A Building C(2F) C274

**Social Gathering** 18:30-20:30 OIC Cafeteria (Co-op Cafeteria)

### March 19, 2019

		Venue A Building C(2F) C274	Venue B Building C(4F) C472	Venue C Building C(4F) C473
4th Session	09:30-11:00	Korea KESRA-KIET	Productivity 3	Environment 2
5th Session	13:15-14:45	REEPS	Int'l Economy 2	Environment 3
6th Session	15:00-16:30	TAIOS	Productivity 4	Regional I-O 3

## **Monday, March 18, 9:30-11:30, 1<sup>st</sup> Session**

**Venue A:** Building C(2F) C274

### **Theory of Input-Output Techniques**

Chair: Takashi Yagi (Meiji University)

1. An Interregional Input-Output Analysis Based on the Eaton-Kortum Model  
Kiyoshi Yonemoto (Takasaki City University of Economics)
2. Uncertainty Analysis with Consideration of Correlation between the Elements of Input-Output Table  
Yasushi Kondo (Waseda University)
3. Sectoral Rates of Profits and Cost Structure Analysis  
Takashi Yagi (Meiji University)
4. Dual Nature of Input-Output Modeling: the Matrix-Valued Cost and Production Functions  
Motorin Vladimir (Nat.Res.University Higher School of Economics)

**Venue B:** Building C(4F) C472

### **International Economy and International Development 1**

Chair: Nobuki Sugita (Ritsumeikan University)

1. Impact of International Labor Migration on regional economic growth in Thailand  
Tipayalai Katikar (Nagoya University)
2. What are the drivers of deindustrialization in Indonesia?: Autoregressive Distributed Lag-Bounds Model Approach  
Gunawan Anang Budi (Nagoya University)
3. Global Value Chains and the Skill Structure of Labor Demand  
Haoliang Zhu (Doshisha University)
4. Corporate Tax Productivity and Firms GVC Participation  
Juan Wen (Shanghai University of International Business and Economics)

**Venue C:** Building C(4F) C473

### **Regional Input-Output Analysis 1**

Chair: Ryoji Hasegawa (Fukuyama City University)

1. The Place of Extractive Industry in the Tajikistan Economy  
Maxudova Oliya (Ritsumeikan Asia Pacific University)
2. Theoretical and Empirical Analysis of The Influences in Household Consumption and Regional Economy Brought about by the Long Term Care Insurance  
Ryoji Hasegawa (Fukuyama City University)

## **Monday, March 18, 12:30-14:30, 2nd Session**

**Venue A:** Building C(2F) C274

### **Compilation of Input-Output Table, SNA, or SAM**

Chair: Akira Furukawa (Ritsumeikan University)

1. A Compilation Method of the Japanese Supply Table (V Table) with the Economic Census and Its Estimation  
Kaya Akagi (Cabinet Office, Government of Japan)
2. The Compilation Results of Korean 2015 Benchmark Input-Output Tables  
Jung Youngho (Bank of Korea)
3. On the Past, the Present and the Future of Korea Input-Output Tables  
Jung Kyu Chae (Bank of Korea)

**Venue B:** Building C(4F) C472

### **Productivity 1**

Chair: Kazuo Inaba (Ritsumeikan University)

1. Motherhood Wage Penalty in Japan  
Dumauli Magdalena Triasih (Ritsumeikan University)
2. Industrial Productivity Divergence and Input-Output Network Structures: Evidence from Japan 1973-2012  
Dominguez Alvaro (Nagoya University)
3. The Impacts of Education on Monetary and Nonmonetary Aspects of Poverty: Bangladesh Perspective  
Mohammad Ileas Mia (Ritsumeikan University)

**Venue C:** Building C(4F) C473

### **Environment, Resource and Energy 1**

Chair Makiko Tsukui (Tokyo International University)

1. Necessity of tracking international asbestos flow using input-output analysis  
Makiko Tsukui (Tokyo International University)
2. Research on interaction of energy-water nexus considering spatial heterogeneity: based on input output model  
Yan Xia (Chinese Academy of Science)
3. Environmental Efficiency and Regional Convergence Clusters in Japan  
Mendez Carlos (Nagoya University)
4. Examining Cost-effectiveness on R&D Expenditure of Blue Economy Policy  
Huang Michael (Ocean Policy Research Institute)

## **Monday, March 18, 14:45-16:45, 3rd Session**

**Venue A:** Building C(2F) C274

### **Computable General Equilibrium Model**

Chair: Xuemei Shen (Ritsumeikan University)

1. Analysis of Power Generation Sector Using Trans-Log CGE Model  
Kwang Il Kim (Graduate school of Economics Nagoya University)
2. Analysis of the African Free Trade Area: A Trade Facilitation and Non-Tariff Measures Perspective  
Shiferaw Habtamu (Kobe university)
3. The Economic Impacts of Phased Tariff Reduction on Farm Investment  
Kiyotaka Ishikawa (The University of Tokyo)
4. Technological Innovation, Human Capital Formation, and Growth: Empirical Analysis Based on a Computable General Equilibrium Model Focusing on the Korean Economy  
Yeongjun Yeo (Seoul National University)

**Venue B:** Building C(4F) C472

### **Productivity 2**

Chair: Takahiko Hashimoto (Ritsumeikan University)

1. Spatial Distribution of Local Public Service Efficiency in Indonesia for 2010-2012  
Mitsuhiko Kataoka (Rikkyo University)
2. Investigating the Influence of Domestic Remittances on Mutual Transaction Among Households in an Isolated Village  
Soulixay Hongsakhone (Hiroshima University)
3. Work-Life Earning and the Return of Investment in Tertiary Education in Indonesia  
Yubilianto (Nagoya University)

**Venue C:** Building C(4F) C473

### **Regional Input-Output Analysis 2**

Chair: Taku Ishiro (Yokohama National University)

1. Economic Structure of Uzbekistan and Other Central Asian Countries: Input-Output Approach  
Madgazieva Sevara (Ritsumeikan University)
2. Exploring Industrial Policy in the Kyrgyz Republic  
Rajaonarison Nargiza (Ritsumeikan University)
3. Sectoral and Spatial Linkages in Northeast Asia  
Ganbaatar Uyanga (Meiji University)
4. Identification Fundamental Economic Structure in Developed Economy: The Case of Japan  
Imansyah Muhammad (Lambung Mangkurat University)

**Venue A:** Building C(2F) C274  
**Klein Prize Awardee Speech**

Chair: Kiyoshi Fujikawa (Nagoya University)

Economic implications of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) on Pakistan: a CGE approach

<https://journaleconomicstructures.springeropen.com/articles/10.1186/s40008-017-0103-x>

Muhammad Aamir Khan (CIIT)



**Tuesday, March 19, 09:30-11:00, 4th Session**

**Venue A:** Building C(2F) C274

**KESRA Organized Session (Economic structure and exports of Korea)**

Chair: Jinmyon Lee (KIET)

1. Analysis on Direct and Indirect Contributions to and Determinants of Exports by Firm Size

Youngho Lee (KIET)

2. The Relationship between Team Performance and Off-field Management : An Analysis of Major League Baseball

Hojun Sung (Seoul National University)

3. Evolution of Export Product Space: East Asian Country cases

Bawoo Kim (KIET)

**Venue B:** Building C(4F) C472

**Productivity 3**

Chair: Norikazu Ida (St. Andrew's University)

1. Determinant factor of change in labor demand

Hideo Kinoshita (Osaka University of Economics)

2. The Solution of Structural Equation Modeling Using Partial Least Squares Estimator on Second Order Latent Variable

Syah Donny Oktavian (Nagoya University)

3. Impact of Maternal Mortality on Female Labor Force Participation (A Cross-Country Analysis)

Sarwar Aiza (Nagoya University)

**Venue C:** Building C(4F) C473

**Environment, Resource and Energy 2**

Chair: Katsuhiro Saito (The University of Tokyo)

1. Climate change and the regional disparity of income in Japan

Katsuhiro Saito (The University of Tokyo)

2. An Framework Based on Input-output Model for Warning of Overcapacity Industry

Kangxian Ji (University of Chinese Academy of Sciences)



**Tuesday, March 19, 13:15-14:45, 5th Session**

**Venue A:** Building C(2F) C274

**REEPS Organized Session**

**(Environment, Resource and Energy in East Asian Region)**

Chair: Soocheol Lee (Meijo University)

1. Policies and Predictions for a Low-Carbon Transition by 2050 in Passenger Vehicles in East Asia: Based on an Analysis Using the E3Me-Ftt Model  
Aileen Lam (University of Macao)
2. Virtual Water Trade and Virtual Land Trade in the World  
Kiyoshi Fujikawa (Nagoya University)
3. Economic and Environmental Impacts of Carbon Taxes and Policy Mixes of Other Instruments in East Asia To Meet The 2050 2 Degree Targets  
Soocheol Lee (Meijo University)

**Venue B:** Building C(4F) C472

**International Economy and International Development 2**

Chair: Nobuhiro Okamoto (Daito Bunka University)

1. A Study of Economic Inequality between Northern and Southern Europe  
Tsutomu Yoshioka (Meiji University)
2. How Global or Regional Are Value Chains in East Asia? Evidence Based on an Input-Output Analysis in Textile, Automobile and Electronics Sectors  
Lai Ge (Victoria University of Wellington)

**Venue C:** Building C(4F) C473

**Environment, Resource and Energy 3**

Chair: Ayu Washizu (Waseda University)

1. Analysis of Inter-regional Effects Caused by the Wide-area Operation of the Power Grid in Japan  
Ayu Washizu (Waseda University)
2. Technology-adjusted National Carbon Accounting for Effective Climate Policy: from the Perspective of Vertical Specialization  
Hongxia Zhang (Renmin University of China)

**Tuesday, March 19, 15:00-16:30, 6th Session**

**Venue A:** Building C(2F) C274

**TAIOS Organized Session (Global Value Chains Analysis)**

Chair: Shih-Mo Lin (Chung Yuan Christian University)

1. Border Effects of Art, Entertainment and Leisure Industry in Value Added Exports:Evidence from World Input-Output Data  
Kuo-I Chang (National Chung-Hsing University)
2. The Global Value Chains Analysis of Trade on Across-Strait: NRCA and Production Length  
Li-Chen Chou (Wenzhou Business College)
3. Not in My Backyard: Development and Factors of Change in Cross-Country Carbon Leakages  
Shih-Mo Lin (Chung Yuan Christian University)

**Venue B:** Building C(4F) C472

**Productivity 4**

Chair: Akira Furukawa (Ritsumeikan University)

1. Japanese 100-Yen Retail Chain in Development of Retail Industry  
Arifur Rahman (Ritsumeikan University)
2. Financial Integration and Total Factor Productivity  
Arif Ur Rahman (Ritsumeikan University Graduate School of Economics)

**Venue C:** Building C(4F) C473

**Regional Input-Output Analysis 3**

Chair: Yasushi Kondo (Waseda University)

1. Changes in Input-Output Structure Caused by Big Earthquake Disaster: Stability of Input Coefficients and Distribution Coefficients  
Youji Kunimitsu (NARO)

# **Abstract**

**18 March (Monday) [Venue A: Building C(2F) C274] 09:30-11:30**

Chair: Takashi Yagi (Meiji University)

**Kiyoshi Yonemoto (Takasaki City University of Economics)**

## **An Interregional Input-Output Analysis Based on the Eaton-Kortum Model**

This study derives an inter-regional input-output model by implanting linear approximation of the general equilibrium trade model of Eaton and Kortum (2002, *Econometrica*). Despite the same reduced form as the Leontief-inverse for the shocks in final demand, our approach is originally based on a supply-driven general equilibrium model and hence the effect of supply side shocks such as decrease in iceberg transport cost are also tractable. We also consider how to modify inter-regional I-O tables themselves when some exogenous shocks occur based on the general equilibrium model.

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

## **Uncertainty Analysis with Consideration of Correlation between the Elements of Input-Output Table**

Uncertainty in input-output analysis has been studied, typically by Monte Carlo simulations. While the elements of an input-output table are mutually correlated by construction, it has been a common practice to employ the independence assumption, i.e., to assume that the elements of an input coefficient matrix are independently distributed. With this background, this study proposes a method to evaluate the uncertainty in input-output analysis under a reasonable assumption of the joint distribution of the elements of an input coefficient matrix. We will present, at the conference, the difference in uncertainty between the cases with and without the independence assumption.

**Takashi Yagi (Meiji University)**

## **Sectoral Rates of Profits and Cost Structure Analysis**

The aim of this paper is to extend the theory of cost structure analysis explained in Yagi (2017) to a model in which sectoral rates of profits are different. The model of Yagi (2017) assumes that an equal rate of profits and an equal wage rate prevails throughout industries.

On the contrary, in a real-world Input-Output table, the sectoral rates of profits have different values by sector. In this paper, we will explain a model which can be applied to a real world Input-Output table.

**Motorin Vladimir (Nat.Res.University Higher School of Economics)**

### **Dual Nature of Input-Output Modeling: the Matrix-Valued Cost and Production Functions**

A general linear problem of input-output analysis is considered in the paper as a system of equations written in terms of free variables for any rectangular input-output table given. This system spans the regular linear equations for material and financial balances, a batch of predetermined values for exogenous variables (in turn, net final demand and gross value added) and an additional set of linkage equations that provides the exact identifiability for all unknown variables. Variations in exogenous elements of input-output model lead to the changes of price and quantity proportions in the resulting production and intermediate consumption matrices that are formally described by two nonlinear multiplicative patterns. It is shown how these patterns can be linearized and adjusted for evaluating the input-output model at constant prices and at constant level of production. The strict identifiability of input-output model at constant prices is achieved by introducing to the system of its equations either (1) the linear matrix-valued cost function with industry outputs as its arguments based on (Leontief) technical coefficients or (2) the linear matrix-valued production function with industry inputs as its arguments based on industry productive (quasi-reciprocal technical) coefficients. In contrast, the model at constant level of production is exactly identifiable provided that one involves in it either (3) the linear matrix-valued cost function with product outputs as its arguments based on (Ghosh) allocation coefficients or (4) the linear matrix-valued production function with product inputs as its arguments based on product multiplication (quasi-reciprocal allocation) coefficients. Identification of the production and intermediate consumption matrices at constant prices and at constant production level for rectangular input-output tables leads to the pair of trivial model solutions with exogenous value added and exogenous final demand, respectively. Nevertheless, for square input-output tables there are also the pair of nontrivial supplementary solutions with exogenous final demand at constant prices and exogenous value added at constant level of production. It is important to emphasize here that using matrix-valued production functions (2) and (4) with quasi-reciprocal technical and allocation coefficients gives the same solutions as introducing matrix-valued cost functions (1) and (3) with conventional coefficients, respectively. Thus, technical and allocation coefficients

should be regarded as helpful ways of economic interpretation rather than as basic framework or operational tools for modeling. Moreover, equivalence of the models with the matrix-valued production functions and the models with the matrix-valued cost functions can be appreciated as a clear demonstration of general equilibrium in the theory of input-output analysis and an ostensive evidence of dual nature of input-output modeling. Obtained supplementary solutions are used for formulating the advanced versions of Leontief demand-driven model and Ghosh supply-driven model with generalized technical and allocation coefficients. For a symmetric input-output table with diagonal production matrix, the generalized demand-driven and supply-driven models can be easily transformed to the classical forms of Leontief and Ghosh input-output models. The equivalence of Leontief price model and Ghosh supply-driven model as well as the equivalence of Leontief demand-driven model and Ghosh quantity model is proven.

**18 March (Monday) [Venue B: Building C(4F) C472] 09:30-11:30**

Chair: Nobuki Sugita (Ritsumeikan University)

**Tipayalai Katikar (Nagoya University)**

### **Impact of International Labor Migration on regional economic growth in Thailand**

The movement of labor in Southeast Asia region, particularly Thailand which is home to more than half of all ASEAN migrant workers, is an issue of growing interest and increasing importance. As Thailand is now confronting with the new challenge of the so-called “middle-income trap” - an economic development situation in which the country is trapped in between the competitive edge of low wages among developing countries and the high value-added markets of more developed economies, the Thai government has recently implemented the long-run economic development plan called “Thailand 4.0” under 20-year national strategic plan focusing on high productivity and innovative creation from skilled workers through the investment in technologies, R&D, and infrastructure and improvement of human capital. To put Thailand 4.0 in action, Eastern Economic Corridor (EEC), which is an example of region-based development, serves as a pilot project. However, it is important to investigate the economic consequences of immigration on regional economic growth in Thailand because while demand for high-skilled workers increases, the majority of immigrants in Thailand is considered to be low-skilled workers from neighboring countries, i.e., Myanmar, Lao PDR, and Cambodia. This study, therefore, aims to explore the impact of immigration on regional economic growth in Thailand. The objective was analyzed

through the econometric estimation of Cobb-Douglas production function by considering its impact separately for all migrant workers and skill-classified migrant workers. The findings empirically indicate that immigrants particularly high-skilled immigrants have a statistically positive and significant effect on the growth of the regional economy in Thailand, thereby suggesting more attention towards a role of immigration policies as well as an ability of the host country to absorb high-skilled migrant workers.

**Gunawan Anang Budi (Nagoya University)**

### **What are the drivers of deindustrialization in Indonesia? :Autoregressive Distributed Lag-Bounds Model Approach**

The Indonesian economy has been performing well since the last two decades, but the manufacturing sector has continuously underperformed. The manufacturing share of the total economy has declined after the Asian Financial Crisis in 1998. This research analyses the cause of manufacturing share decline in Indonesia from 1967 to 2017 by estimating several deindustrialization hypotheses. The study applies Autoregressive Distributed Lag (ARDL)-Bounds Model developed by Pesaran, Shin & Smith (2001) in order to define long-run relationships between deindustrialization proxy variables and their explanatory variables based on several hypotheses. In addition, this study also conducts several simulations using Stata programs *dynardl* developed by Jordan and Philips (2018) to interpret the long run dynamic between variables. In general, the research shows that the manufacturing sector decline in Indonesia is mainly caused by the trade performance and Real Effective Exchange Rate appreciation. In addition, the study finding also supports the argument that the deindustrialization in Indonesia is similar to many developing countries that do not follow the path of deindustrialization in advance countries.

**Haoliang Zhu (Doshisha University)**

### **Global Value Chains and the Skill Structure of Labor Demand**

How does participating in global value chains (GVCs) affect the skill structure of labor demand? A previous study has found a worldwide shift towards value being added by capital and high-skilled labor, and away from low-skilled labor. Little attention, however, has been devoted to the determinants of this change. To fill this gap, this paper intends to examine the relationship between the skill structure of labor demand and its determinants including offshoring, technology improvements, and the location in the GVCs based on

World Input-Output Database. This study highlights five findings. First, the income of domestic high-skilled labor in upstream of the GVCs tends to be higher than that in downstream. The same result for low-skilled labor, however, is absent. Second, offshoring exerts negative effects on the income of domestic labor of all skill levels. Particularly, offshoring is more likely to decrease the wage of low-skilled labor. Third, at the sectoral level, offshoring has different impacts on service and manufacturing sectors. Specifically, offshoring decreases the income of low-skilled labor in manufacturing sector, while it raises the income of high-skilled labor in service sector. The result implies that domestic high-skilled labor benefits more from the participation of GVCs. Fourth, labor productivities of high-skilled and low-skilled labor have positive effects on the income of domestic workers. Fifth, capital intensity has positive effects on the income of both high-skilled and low-skilled labor, which implies that technological improvement benefits workers with all skill levels.

**Juan Wen (Shanghai University of International Business and Economics)**

### **Corporate Tax Productivity and Firms GVC Participation**

This paper constructs a theoretical model which directly links domestic corporate tax productivity with firms GVC participation. According to this model, the domestic corporate tax reduces firms GVC participation while a higher productivity moderates the negative effects of corporate tax on GVC participation. And, the markup rate is the mediator between domestic tax and GVC participation. By using both China Customs Data Bank and China Industry Business Performance Data. A series of empirical studies significantly and robustly support our theoretical arguments. Other important finds are drawn from two kinds of heterogeneity tests. Firstly, the negative effect of corporate tax on GVC participation is much smaller for the firms registered in preferential tax areas than firms registered in non-preferential tax areas, and the same is true for the moderating effect of efficiency on tax. Secondly both state-owned and foreign property rights tend to enhance the negative effect of corporate tax while the private property right tends to decrease the bad effect of tax. The Policy implications of this study are quite obvious. Tax-cut helps firms deepen their GVC participation and structural tax-cut policy is appropriate considering the differentiation of tax policies across China.

**18 March (Monday) [Venue C: Building C(4F) C473] 09:30-11:30**

Chair: Ryoji Hasegawa (Fukuyama City University)

**Maxudova Oliya (Ritsumeikan Asia Pacific University)**

**The Place of Extractive Industry in the Tajikistan Economy**

The economy of Tajikistan, after independence in 1991, faced various challenges that came along with the transformational decline and exacerbations of political life in the society which further led the country toward the civil war. Rigorous efforts from the new government helped the country to overcome huddles however, the consequences of this chaos are still felt in the economic development of the country. These changes also aim to backbone economic system in regard to the market relations which further will support in the positive trend of economic growth. However, the current level of economic development cannot act as the pillars for the cardinal solution of the numerous economic and social problems for the long run. Therefore, it is very important to account the characteristics to find out the effective areas for development of economy for a nation. Tajikistan is extremely rich in natural resources, but there are major of challenges in converting these resources into wealth. Development of the extractive industry sector is one of the key aspects in the modernization and development the economy of Tajikistan. The objective of this paper is aimed to ensure the development of extractive sector in transparent and accountable manner. Moreover, for all segments of the society to benefit from prospective expansion of the extractive industry. This would require grasping the potential magnitude of the impact that the extractive industry of Tajikistan can bring through conducting Input Output Analysis.

**Ryoji Hasegawa (Fukuyama City University), Masaya Yasuoka (Kwansei Gakuin University)**

**Theoretical and Empirical Analysis of The Influences in Household Consumption and Regional Economy Brought about by the Long Term Care Insurance**

Long-term care insurance in Japan affects the macroeconomy through many mechanisms. An increase in taxes and insurance premiums from long-term care decreases aggregate consumption because of decreased household disposable income. However, long-term care has positive effects on aggregate consumption because of a decrease in precautionary saving caused by a decrease in the risk of long-term care. This study



presents an examination of these effects, develops a theoretical model for household consumption, and assesses numerical examples of macroeconomic effects with parameters that are consistent with data of Japan. Furthermore, economic ripple effects brought about by household consumption are calculated using a multi-prefectural input-output table to examine how long-term care insurance affects household consumption and economic ripple effects at the regional level and at the national level. Results reveal how long-term care insurance influences household consumption by generations and by prefectures, and we discuss the alleviation of regional economic disparities through the insurance's improvement.

## **18 March (Monday) [Venue A: Building C(2F) C274] 12:30-14:30**

Chair: Chair: Akira Furukawa (Ritsumeikan University)

**Kaya Akagi (Cabinet Office, Government of Japan)**

### **A Compilation Method of the Japanese Supply Table (V Table) with the Economic Census and Its Estimation.**

On March 6 2018, the Japanese Cabinet decided the Master Plan Concerning the Development of Official Statistics. In accordance with that plan, the government of Japan will change its current SNA scheme to that based on Supply and Use Tables (SUT) in 2025. In preparation for that revision, the government is correcting evidences to design a new method to compile SUT. In this paper, as a part of these works, we estimate a Japanese supply table called V table with past data of economic census of Japan and describe its method.

**Youngho Jung (Bank of Korea)**

### **The Compilation Results of Korean 2015 Benchmark Input-Output Tables**

**- main changes of 2015 Korean benchmark Input-output regarding to compilation -  
analysis of industrial structure changes**

**Jung Kyu Chae (Bank of Korea)**

### **On the Past, the Present and the Future of Korea Input-Output Tables**

The Korean IO tables have been firstly published from FY 1960 IO in 1963 and they are

largely changed by the industry structure and SNA manual which was updated a couple of times. We think that we should arrange each contents having their own meanings. This paper is the result of the arrangements. So we want to present the result on the arrangement of Korean IO tables history in this coming conference.

## **18 March (Monday) [Venue B: Building C(4F) C472] 12:30-14:30**

Chair: Kazuo Inaba (Ritsumeikan University)

**Dumauli Magdalena Triasih (Ritsumeikan University)**

### **Motherhood Wage Penalty in Japan**

The purpose of this study is to examine the impact of the having children on the wages of women who work in the regular job in Japan. The previous studies show that one main reason for a lower wage for mothers compared to childless women is their preference to the mother-friendly job which is indicated by a higher percentage of mothers that work in the part-time job than non-mothers. Nevertheless, there are limited studies which explain the existence of the motherhood wage penalty in the regular employment. This study focuses on the characteristics of Japanese labor market practices in terms of recruiting female employees. Based on the model specification of the previous studies in EU and North America, this study estimates the determinants of the labor wages of working women by using a longitudinal data set provided by the Japan Household Panel Survey (the JHPS/KHPS) from 2004 to 2015. The results of the fixed effect method indicate that the presence of children has a significant negative impact on the wages of mothers in comparison to that of non-mothers. The estimated results might explain the existence motherhood wage penalty in full-time jobs is the preference of mothers to work in mommy track career paths than childless women. Keywords: Labor Income, Wage Gap \*  
Magdalena Triasih Dumauli Doctoral Student at Ritsumeikan University, Japan Lecturer at Faculty of Economics and Business, Airlangga University, Indonesia

**Dominguez Alvaro (Nagoya University)**

### **Industrial Productivity Divergence and Input-Output Network Structures: Evidence from Japan 1973-2012**

Since the early 1990s, there have been larger and increasing productivity differences across industries in Japan. Indeed, clear patterns of sigma and beta divergence across

industries are observed since these times. To shed light on these facts, we first evaluate the input-output structure of Japan through the lens of a community-detection algorithm from network theory. Results of this analysis suggest the existence of two industrial network structures: a densely-connected group of industries whose members remain in it throughout the period, a stable community, and a group of industries whose members do not belong to the first group, an unstable community. Next, we re-evaluate the industrial divergence pattern of Japan in the context of each network structure. Results suggest that the overall divergence is mostly driven by the unstable community. Interestingly, since 2007, a pattern of sigma convergence started to re-appear only in the stable community of industries.

**Mohammad Ileas Mia (Ritsumeikan University)**

### **The Impacts of Education on Monetary and Nonmonetary Aspects of Poverty: Bangladesh Perspective**

The impacts of Education on monetary and nonmonetary aspects of Poverty: Bangladesh perspective Ileas Mia Mohammad Kazuo Inaba Abstract In Millennium Development Goals (MDGs) and post MDG sustainable development Goals (SDGs) era, Bangladesh emphasized to a great extent for the development of its education sector. Bangladesh has become successful to raise enrollment rate in the primary school to 98 percent, here more girls than the boys attend secondary school and over all literacy rate is increasing. It is believed that the benefit of education is multidimensional. Education helps accumulating skill and human capital, creates employment opportunities, contributes to poverty alleviation. The Household Income and Expenditure Survey (HIES) 2016 reported that the head count poverty ratio in Bangladesh has reduced to 12.9 percent from 17.6 percent in 2010. But other aspects of poverty like access to safe drinking water, safe child birth and health and hygiene status of the people are yet not satisfactorily improved. Besides, in recent years job creation slowed and more than four million educated people are unemployed. Though in 2003-2016 about 1.15 million jobs a year were created Since illiteracy rate is decreasing, there should be increased return on education and people with more education should have more access to better health and hygiene. The objective of this paper is to examine the impact of level of educational attainment on household income and human empowerment such as health, hygiene and sanitation with the HIES data set from 2005, 2010 and 2016. This paper examines whether education has favorable association to poverty alleviation and positive association to human empowerment. We have not found any previous empirical study which focus on the short run and long run impact of education

on multidimensional poverty in Bangladesh. This study should be important in designing policies relating to human resources and achieving sustainable development goals in Bangladesh. Keywords: Education, Human capital, Multidimensional poverty, monetary and nonmonetary benefit.

## **18 March (Monday) [Venue C: Building C(4F) C473] 12:30-14:30**

Chair: Makiko Tsukui (Tokyo International University)

**Makiko Tsukui (Tokyo International University)**

### **Necessity of Tracking International Asbestos Flow Using Input-output Analysis**

Asbestos is a fine fibrous mineral that has been widely used in various industries as an ideal material for insulation, e.g. as building material, brake lining and fibre cement. However, since the risk of health damage from long-term exposure at high concentrations came to be recognized, asbestos mining and the production of asbestos-containing products have been restricted in most advanced countries. This is in contrast to developing and semi-developed countries and areas, including China and Russia, where asbestos has continued to be mined and used for products and buildings, including trade products exported to other countries. As the health damage from asbestos only emerges a long time after initial exposure, without keeping track of asbestos-related risk it would be difficult to specify the cause and the responsibility to help victims. In this study, we argue the necessity of tracking international asbestos flow and the repercussion effects by using input-output analysis and present an outline of our ongoing research project.

**Xia Yan (Chinese Academy of Science)**

### **Research on Interaction of Energy-water Nexus Considering Spatial Heterogeneity: Based on Input Output Model**

In the face of economic globalization and environmental pressures, nowadays human being is increasingly aware of the urgency and importance of world population growth in the sustainable demand for energy and water resources. The degradation of water resources and the depletion of non-renewable energy have made it increasingly challenging to meet those demand, in the meantime, climate change has further exacerbated the shortage of regional water resources. It is extremely uneven for the distribution of energy and water

resources in China. The acquisition and production capacity of water, energy and land resources varies from region to region and its production system. Therefore, regional differences of water resources have become serious problem, especially for water shortage areas. On the other hand, with the growth of global freshwater use and consumption, limited freshwater resources are dwindling, the situation of energy supply and demand is increasingly tense, which unable to meet the strongly increasing basic needs of human sustainable development. Therefore, based on the regional collaborative optimization for energy and water resources in in China, building the regional energy/water interaction impact assessment model is significant for our government to guide the regional comprehensive management and promote the sustainable development for resources. The direction of virtual water trade was closely related to regional economic conditions and industrial characteristics and had no distinctive relationship with regional water endowments. Greater awareness among policy makers at both the provincial and national levels of these linkages could lead to improved coordination between provinces, especially those that are closely linked. This study could help encourage improved cooperation between provinces in the pursuit of national energy policy priorities and also assist with broader policy objectives to improve infrastructure and transport linkages in the less developed regions of China.

**Mendez Carlos (Nagoya University)**

### **Environmental Efficiency and Regional Convergence Clusters in Japan**

This paper studies environmental efficiency convergence across the prefectures of Japan over the 1992-2008 period. Using a novel nonparametric density estimation clustering framework, two alternative indicators of environmental efficiency are contrasted: A conventional indicator, based on the ratio of gross regional product to CO<sub>2</sub> emissions, and a more comprehensive indicator, based on the data envelopment analysis (DEA) model. Results show, on the one hand, relatively little mobility and a unique convergence cluster when using the more conventional environmental efficiency indicator. On the other hand, higher mobility and two convergence clusters are identified when using the DEA-based indicator of environmental efficiency. The paper concludes arguing the importance of accounting for input factors, as they appear to be driving the formation of regional convergence clusters in Japan.

**Huang Michael (Ocean Policy Research Institute)**

### **Examining Cost-effectiveness on R&D Expenditure of Blue Economy Policy**

Blue economy refers to a practical ocean-based economic system using green infrastructure and technologies, innovative financing mechanisms and proactive institutional arrangements for human being's life with ocean related sectors such as fishery, shipping, sightseeing and recreation. The harmonious relationship between production activities and ecosystem is vital issue for sustainable development. The evidence-based research is essential for policy making process. The research will apply dynamic CGE model to examine the spillover effect of R&D on sectors related with blue economy. Contributed by the improvement of production technology in the selected categories, a more efficient allocation of resource is highly expected. Among various scenarios, by identifying the changes of output, price, external trades, GDP and welfare, visualized potential fiscal burden and consequences could help deliver policy recommendations cost-effectiveness government R&D Expenditure package.

**18 March (Monday) [Venue A: Building C(2F) C274] 14:45-16:45**

Chair: Xuemei Shen (Ritsumeikan University)

**Kwang Il Kim (Graduate school of Economics Nagoya University)**

### **Analysis of Power Generation Sector Using Trans-Log CGE Model**

CGE models are usually used for policy analysis. The conventional CGE models uses CES function to simplify the modelling. Especially, the some CGE models use multi-CES function for making the production process be multi-layered. These multi-layered CES functions are briskly used in the energy and environmental policy analysis. However, CES function is rigid for considering various substitution-complement relationships. In this regard, this study suggests another type of CGE model that uses trans-log function for modelling of power generation. The carbon tax effects on power generation with various substitution-complement relationships among the power sources are investigated by the suggested model. The results of this model show that relationship between thermal power, and nuclear and hydro is more important than relationship between thermal and renewable energy.

**Shiferaw Habtamu (Kobe university)**

### **Analysis of the African Free Trade Area: A Trade Facilitation and Non-Tariff Measures Perspective**

On March 2018, 44 African countries signed a framework to establish a Continental Free Trade Area (CFTA). Currently, 49 out of 55 countries signed the agreement, and ten countries ratified the CFTA. The main objective of this paper is to evaluate the impact of continental free trade area and customs union on the economies of African countries by focusing on trade facilitation policies and non-tariff measures. For trade facilitation experiment, we use an econometric estimate of trade facilitation policies by Habtamu et.al (2018) while for non-tariff measures and an econometric estimate of non-tariff measures by Kee.et.al (2009) is employed. The welfare and macro-economic impact of both policies is estimated using GTAP model version 9 databases for 39 aggregated regions and 20 sectors. The result indicates that reduction of customs delay has large welfare and GDP gain for most African countries. Similarly, reduction of NTMs by 50% results in large welfare and trade gain, but significant GDP loss across African countries. Most African countries gain regarding welfare and GDP with continental free trade area while Benin, Guinea, Mauritius, and Zimbabwe lose in both welfare and GDP. Benin, Tunisia, Zambia, Botswana, and Namibia are the winning African countries in terms of GDP and welfare when CFTA is combined with trade facilitation and 50% reduction of NTMs. Whereas, Senegal, Ethiopia, and Kenya are losing countries in terms of both welfare and GDP. Further, comparing continental customs union with CFTA, for some countries, both are welfare improving (e.g., Senegal, Togo, Nigeria, Mozambique, Ruanda, Tanzania, Zambia, Egypt, Morocco, and Tunisia) while for others only CFTA result in welfare gain (e.g., Cote d Ivoire, Ghana, Burkina Faso, Guinea, Ethiopia, Kenya, Madagascar, Malawi, Uganda, Botswana, Namibia, and South Africa). This study recommends that reduction of customs delay through harmonization of formality related documents and harmonization of non-tariff measures across African countries as an important policy tool to boost intra-Africa trade and gain more from international trade.

**Kiyotaka Ishikawa (The University of Tokyo), Katsuhiko Saito (The University of Tokyo)**

### **The Economic Impacts of Phased Tariff Reduction on Farm Investment**

Japanese farmers are facing more competitive markets in multiple products under the recently concluded bilateral and regional trade agreements. This requires the farming

productivities to be increased through investments in land improvement and more efficient machines and facilities. However, considering the different tariff reduction levels and periods over products and the heterogeneity of outputs over the domestic producing areas, the demand for investments is likely to concentrate on specific products or regions. This paper aims at building a non-competitive interregional Input-Output table for 9 domestic regions and utilizing it as a Social Account Matrix (SAM) to simulate the economic impacts of the phased tariff reduction on farm investments with a recursive dynamic CGE model. As a feature of this study, the SAM allows heterogeneous factors (including capital and labor) and products (including 8 agricultural sectors, 10 food processing sectors and 3 miscellaneous sectors) to be traded between the regions. Another feature is that the CGE model, based on Monash MRF model, incorporates the intertemporal capital stock adjustment responding changes in capital service prices at every phase of the tariff reduction. By these structures, the intertemporal process of changes in regional demand for investments will be observed.

**Yeongjun Yeo (Seoul National University)**

**Technological Innovation, Human Capital Formation, and Growth: Empirical Analysis Based on a Computable General Equilibrium Model Focusing on the Korean Economy**

For the continuous growth of the national economy, there should be productivity improvements triggered by innovation activities and human capital accumulation. Especially, it is highly emphasized that the growth potentials for those countries are to be expanded through increasing productivity improvements as the limitations of the contribution of factor accumulation to long-run economic growth are remarkable for those countries. In this respect, recent economic growth theories emphasize the importance of technological innovation and human capital to improve productivity. With this background, this study aims to quantitatively analyze the macroeconomic impacts of human capital investments and technological innovation (i.e., R&D investments) using a knowledge-based CGE model. Furthermore, we have analyzed the complementary relationship between technological innovation and human capital formation by establishing endogenous interaction between knowledge accumulation (via innovation) and human capital accumulation (via education, learning) within the CGE model. For the empirical analysis, we have reflect key features for constructing a CGE model as follows: 1) endogenizing the R&D investments and knowledge accumulation process, 2) describing knowledge spillover effects (productivity improvements) from knowledge accumulation, 3) endogenizing the dynamic interaction



between technological innovation and human capital formation, and 4) establishing datasets(i.e., social accounting matrix, SAM) and model with considerations of heterogeneous labor and households to capture growth(efficiency) effects as well as the distribution(equality) effects from the empirical analysis. Based on the CGE model by incorporating these features, we have conducted policy simulations focusing on the Korean economy.

## **18 March (Monday) [Venue B: Building C(4F) C472] 14:45-16:45**

Chair: Takahiko Hashimoto (Ritsumeikan University)

**Mitsuhiko Kataoka (Rikkyo University)**

### **Spatial Distribution of Local Public Service Efficiency in Indonesia for 2010-2012**

This study examines the spatial distribution in public service deliveries through the household access to safe drinking water and sanitation at the district level in Indonesia for 2010-2012. Using data envelopment analysis, we then measure the relative input-output efficiency in the public service for each district. Finally, we identify the determinant factor to inter-district gaps in input-output efficiency, by using inequality decomposition technique. Our spatial distribution analysis revealed the more equal spatial distribution of the local public service provision than per capita income. In our efficiency analysis, majority of the district governments in Indonesia face resource allocation inefficiency more seriously than resource utilization inefficiency. This resource allocation inefficiency is mostly caused by the excessive fiscal allocation, especially in the off-Java districts. The inter-district gaps in resource allocation inefficiency are much larger than those in resource utilization inefficiency. Thus, the governments spent the fiscal expenditure more on the off-Java districts with the lower fiscal capacity. This contributed to balance the inter-district gaps in the public service delivery. Consequently, the capacity building in the fiscal allocation is essential for the lagged district governments in the local public services to improve the input-output efficiency and to reduce its inter-district gaps. The trainings opportunities in the budget allocation control for the central and local government officers, enhancement in public accountability through the improvement in government auditing system could be major solutions.

**Soulxay Hongsakhone (Hiroshima University )**

### **Understanding Agriculture-Industry Inter-Linkages for Agrarian Development:**

## **Empirical Evidence from India**

In this paper, we investigate the influence of domestic remittances on mutual transactions through the trade of major products among households in an isolated village in northern Lao PDR. By using trade data of individual household obtaining from our own household survey 2015 and 2016, and applying the propensity score matching method, we estimate the average treatment effects on the treated and we find that remittances have an increasingly positive impact on mutual transactions mainly through increasing in rice, non-timber forest products and livestock trading among households with remittances. Moreover, we also find that remittances had a more significant contribution to increased stock of products rather than consumption in households with remittances.

**Yubilianto (Nagoya University)**

## **Work-Life Earning and the Return of Investment in Tertiary Education in Indonesia**

While there are extensive kinds of literature discuss the impact of education investment from an individual perspective through using remarkable semi-log mincer equation, very few of them utilize a simple full-discounting method to calculate the return of education investment. This chapter is dedicated to analyzing the impact of human capital investment from the individual perspective by applying that methodology. In this case, the investment of individuals to continue to higher education will be observed to meet their expectation through expected income generated through their life. Elaborating actual average cost of colleges and lifetime earning flows estimation through Synthetic Work-life Earning (SWE) estimate based on Indonesia Family Life Survey (IFLS) Wave 5, the analysis found that college median workers earn about 60% higher salary than that of secondary school leaver workers. Moreover, it exhibited that the return of investment of tertiary education in Indonesia is around 6% to 47% depends on college choices.

**18 March (Monday) [Venue C: Building C(4F) C473] 14:45-16:45**

Chair: Taku Ishiro (Yokohama National University)

**Madgazieva Sevara (Ritsumeikan University)**

## **Economic Structure of Uzbekistan and Other Central Asian Countries: Input-Output Approach**

Within the years of independence Uzbekistan's economy showed a great transformation

from central planning to market oriented relations. Changes in country's industrial structure confirms the progress in its industrial development. The close interrelations between industries can create a very significant impact to the contribution of output growth, and therefore, industrial development progress requires an analysis of these interactions. In this regard, the analysis of the industrial production and interdependency among industries enables to understand the transformation and development of the economy. The purpose of the study is to discuss Uzbekistan's experience in structural shifts and compare them with those of other Central Asian countries by implementing input-output approach. The data are taken from EORA global database of multi-regional input-output tables (MRIOT) capturing the years of 2005 and 2015 and covered 4 Central Asian countries including Uzbekistan, Kazakhstan, Kyrgyzstan and Tajikistan. The results from the index of power of dispersion and the index of sensitivity of dispersion highlight that agricultural sector plays a primary role in Uzbekistan industrial output followed by textile industry while mining industry serves as a key sector for Kazakhstan industrial output. Comparing export expansion within the observed period the highest ratio was traced in Kazakhstan (63 percent) while the highest change in total output was observed in Uzbekistan (148 percent).  
 keywords: industrial distribution, input-output analysis, backward linkages, forward linkages.

**Rajaonarison Nargiza (Ritsumeikan University)**

### **Exploring Industrial Policy in the Kyrgyz Republic**

This paper explores a normative industrial policy for the Kyrgyz Republic. Using the growth identification and facilitation framework (GIFF), it identifies the sectors on which strategies should be focused and clarifies policy components for starting industrial policy under the context of an ill-structured economy and a no-win situation. These sectors having been identified, they are situated in the industrial development strategy of Kyrgyzstan and that of the Eurasian Economic Union. The way in which the normative policy can be implemented and the role of the union is also discussed. We conclude that Kyrgyzstan is on the right track in its industrial policy, but there are reservations about the role of integrated industrial policy at the level of the trade bloc. Contrary to the dominant criticism, the paper argued that the Eurasian Economic Union can play an important role in industrial upgrading in the Kyrgyz Republic via a big push model.

## **Ganbaatar Uyanga (Meiji University)**

### **Sectoral and Spatial Linkages in Northeast Asia**

This paper aims to apply a Hypothetical Extraction Method, developed by Dietzenbacher and van der Linden (1997), for assessing the sectoral and spatial linkages of Mongolian economy in the context of Northeast Asia, including Japan, China, South Korea as well as Russian Far East. I am applying this method to the Input-Output Table provided in the EORA Data to see the interdependencies in backward and forward linkages based on Mongolian economy.

## **Imansyah Muhammad (Lambung Mangkurat University)**

### **Identification Fundamental Economic Structure in Developed Economy: The Case of Japan**

The objective this research is to identify the fundamental economic structure (FES) in Japanese economic structure. The FES consist of certain selected characteristics of an economy which will vary predictably with economic size, as reflcted by gross value added, population and total gross output. The study of FES, to some extent, is limited a number of countries especially in developing countries and a few of developed country such as Australia. Most of the studies focus on regional areas rather than national entity. This study will address the following three research issues: the existence of temporal FES for Japanese economy during 2000, 2005, 2010 and 2014; the proportions of predictable cells; stable cells of the FES in the Japnese economy. The method used in this study is tiered approach that utilized by Jensen, West and Hewings (1990). The data is based on World Input-Output Table of 2000, 2005, 2010 and 2014. The results sugessted that temporal FES consists of the high interaction among secondary and tertiary sectors as components of the fundamental economic structure. This research will enrich description of the FES in developed economy of Japan. Keywords: fundamental economic structure, input-output table, tiered approach, Japan. JEL classification: O; O21

## **18 March (Monday) [Venue A: Building C(2F) C274] 17:00-18:00 Klein Prize Awardee Speech**

Chair: Kiyoshi Fujikawa (Nagoya University)

**Muhammad Aamir Khan (CIIT), Naseeb Zada (Quaid-I-Azam University ),  
Kakali Mukhopadhyay (Gokhale Institute of Politics and Economics)**

### **Economic implications of the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) on Pakistan: a CGE approach**

The Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP) is one of the recently negotiated multilateral free trade agreements which aims to establish a free trade agreement between 11 economies (after US exit) on both sides of the Pacific. The formation and implementation of this proposed partnership is a valid threat for other economies, particularly for Pakistan. Pakistan will likely to suffer from this agreement due to trade diversion of textile and apparels in favor of the CPTPP members. The reason can be extended in terms of the likely 'yarn forward rule,' according to which, it is obligatory for the CPTPP member economies to import all the components of manufactured products from other CPTPP member economies. So, the implementation of the CPTPP will have an impact on global supply chain of textile and apparels. With this backdrop, this study evaluates the likely impacts of the CPTPP on the regional trade flows and other macroeconomic aggregates of Pakistan using a global computable general equilibrium model. The economy-wide results show the proposed CPTPP will have a negative impact on Pakistan's real GDP, sectoral exports and imports and at household level. However, if Pakistan joins CPTPP, there is an overall positive impact on Pakistan's economy. Thus, keeping in view Pakistan's ideal geographical and strategic location and its potential to be a transit economy with a junction of south Asia, west Asia and central Asia, this study suggests that Pakistan's proposed entry to CPTPP will not only yield a wide gain to the region but will reduce the gap between poor and rich in Pakistan and hence will have a positive impact on overall income inequality in Pakistan.

**19 March (Tuesday) [Venue A: Building C(2F) C274] 09:30-11:00**

**Organized Session (Economic structure and exports of Korea)**

Chair: Jinmyon Lee (KIET)

**Youngho Lee (KIET), Jeajin Kim (Korea Institute for Industrial Economics & Trade)**

**Analysis on Direct and Indirect Contributions to and Determinants of Exports by Firm Size**

Considering the industrial production structure, the role of small and medium enterprises (hereinafter, SMEs), which usually supply intermediate goods to the supply chain, can be overshadowed by that of large firms in the exports statistics based on customs clearance. Therefore, this statistics method can undermine the level of contribution to exports of not only SMEs but also large firms providing intermediates. Based on the recognition, this paper sheds new light on contribution rates of SMEs to exports by analyzing direct and indirect contribution rates of them to exports by the size of corporations. Furthermore, this paper analyzes determinants of terms of exports through export function estimates and provides tailored and distinct implications. The result showed that the difference in export rates between large firms and SMEs were more than twice, but, when considering the direct and indirect contribution, the disparity scaled down to around 10%p. In particular, SMEs showed higher indirect contribution rates. In the export function analysis, although the impact of foreign exchange rate has declined in general, SMEs are more vulnerable to the effect of the variation compared to the large firms. As such, in the process of designing relevant policies, the size of a corporation should be considered. The index of industrial product and global oil prices have increased on the indirect contribution of SMEs to exports. Having said that, maintaining the positive impact requires efforts to support fair relations between large firms and SMEs. In addition, it was found out that the global economic situation brings similar effect on both large firms and SMEs, so efforts to level up direct contribution to exports by SMEs are needed.

**Hojun Sung (Seoul National University)**

**The Relationship between Team Performance and Off-field Management : an Analysis of Major League Baseball**

This study examines the effect of off-field management on the team performance in the sport industry. Prior studies have investigated the relationship between statistics of players (infield) and team performance. This study try to extend research area into off-field

management that includes scouting foreign players, managing draft uncertainty and affiliated minor team, and minimizing unused payrolls in professional sports clubs. Using Major League Baseball draft and payroll data from 2011 to 2017, we empirically find that high portion of foreign players and high draft uncertainty deteriorates team performance. In addition, we also find that both efficient minor team management and unused payroll management significantly affect MLB team performance. Overall, our empirical results suggest that efficient off-field management in professional sports clubs can improve team performance through minimizing off-field risk and efficient internal resource allocation, regardless of infield plays of the team. This study contributes to the literature by providing concepts of off-field risk and management on determining team performance in sport industry.

**Bawoo Kim (KIET)**

### **Evolution of Export Product Space: East Asian Country Cases**

By using the concept “product space” suggested by Hidalgo et al.(2007), we examine structural evolution of East Asian countries' export growth path. Topology of product space that reflecting cross relatedness of exporting products varies over countries. Based on given relatedness structure, each country may optimize their export structure or pioneer there export structure. On the viewpoint, this paper mainly examines the path of export growth of East Asian countries.

**19 March (Tuesday) [Venue B: Building C(4F) C472] 09:30-11:00**

Chair: Norikazu Ida (St. Andrew's University)

### **Hideo Kinoshita (Determinant Factor of Change in Labor Demand)**

#### **Determinant Factor of Change in Labor Demand**

In this research, I will analyze the determinants of changes in labor demand based on the next formulation of Nobuo Okishio (1 - bt)  $N = zt$  (Total labor demand expressed in total working hours  $N$ , the capitalist's final demand  $z$ , (reciprocal number of) labor productivity  $t$ , and real wage  $b$ ). Perhaps, I will add price fluctuations as the the determinants of changes in labor demand. However, in this presentation, capitalist demand  $z$  and consumption demand based on wage increase will be not strictly divided, they are roughly divided. It may

be a task to be done later.

**Syah Donny Oktavian (Nagoya University), Muhammad Nur Aidi (Bogor Agricultural University), I Made Sumertajaya (Bogor Agricultural University )**

**The Solution of Structural Equation Modeling Using Partial Least Squares Estimator on Second Order Latent Variable**

The objective of this research is to get the solution of the structural equation model using partial least square estimator or in this study semPLS. This research is using two approaches the first is down falling second-order latent variables to first order and the second is using two-step measurement. The research finding is the second approach has goodness of fit value 0.69, and the first approach has goodness of fit value 0.63, that means the second approach is better than the first approach. Both approaches are also finding that brand equity more leverage to Indonesia bank performance than brand engagement.

**Sarwar Aiza (Nagoya University)**

**Impact of Maternal Mortality on Female Labor Force Participation (A Cross-Country Analysis)**

In almost all over the world men are more likely to participate in labor force participation instead of women. However, the trend has been changing and gender differences have been narrowing gradually compared to past half century. Women are now more empowered in some of the countries their share to economic, education and politics is getting better day-by-day. Whereas, some countries in South Asia and Sub-Saharan Africa are still facing multiple challenges to advance the women equality. Numerous researches conclude that illiteracy and poor health are the key factors, leads to poverty and maternal mortality. According to the World Bank report (2017) about 830 women died everyday due to pregnancy and childbirth related complications. In another report of World Health Organization (WHO, 2016) 99% of all maternal deaths occur in developing countries among them 84% belongs to Africa and South Asia. Despite the fact that world leaders and policy makers are committed to achieve gender equality by 2030 through Sustainable Development Goals (SDGs) but there are various issues needed to be identify to reach the most vulnerable and marginalized left behind during Millennium Development Goals Era (2000-2015). Such as maternal health is one of the factors that determine women



participation in labor work force. Reproductive, maternal, newborn & child health are considered as fundamental to development of a country. Investments on reproductive health should be seen as investment in the long run. Based on the above facts, this study has examined that whether there is relationship between maternal mortality outcomes and female labor force participation and also analyze the relationship between female labor force participation and economic growth. To examine the objective of the study this research has used international databases of 100 developed and developing countries of female labor force participation as dependent variable and maternal mortality ratio (number of deaths per 100,000 live births), female literacy rate as independent variable. All the data was compiled on excel sheet and analyzed through SPSS. An inverse and significant correlation was found between female labor force participation, female literacy and maternal mortality. Therefore, quick actions are needed to be taken to ensure that sustainable development goals should be attain by 2030.

**19 March (Tuesday) [Venue C: Building C(4F) C473] 09:30-11:00**

Chair: Katsuhiro Saito (The University of Tokyo)

**Katsuhiro Saito (The University of Tokyo) , Ken Hashimoto (University of Tokyo)**

### **Climate Change and the Regional Disparity of Income in Japan**

The average temperature of our planet had been rising 0.74 degrees in the hundred years of 20th century. According to the report published by IPCC, it is predicted that the average temperature will rise around two to four degrees in next eighty years. In addition to temperature, climate change affects precipitation and solar radiation as well. The crop yield such as rice will also change dramatically. The impact of climate change is not uniform around the world. For example, in terms of grain production, though the yield of grain in the tropical zone will decreases, that in temperate and boreal zones will increase. The situation in Japan is not exception, since her land is distributed from twenty degrees north to forty three degrees north, from subtropical zone to subarctic zone. Yield of rice, one of the main crop in Japan, is expected to decrease in southern Japan, and it is expected to rise northern area of Japan due to climate change. Not only quantity of rice production, but also the quality of rice such as the share of first grade rice is predicted to be affected by climate change. Though the rice production has been decreasing, the income from rice production accounts for relatively a large share in regional economy. The impact of the change in rice production due to climate change on regional economy through agricultural income cannot be disregarded. In this research, firstly the impact of climate change on regional rice

production is econometrically evaluated based on agricultural panel data of Japan. Secondly, the impact of the change in rice production on regional economy, especially from the viewpoint of regional income disparity, is evaluated. An inter-regional recursive dynamic computable general equilibrium model is used for this purpose. Due to the nature of climate change, time span for the analysis extends over a couple of decades. In such a long time span, it is of importance to take into account for the change in economic structure such as the change in regional population structure and the change in industrial structure due to technological progress. There are several studies which evaluate the impact of the change in Japanese rice production due to climate change by using dynamic computable general equilibrium model. These studies are not incorporate the change in economic structure explicitly. Thus, we explicitly incorporate the change in economic structures in this study.

**Kangxian Ji (University of Chinese Academy of Sciences), Jian Xu (University of Chinese Academy of Sciences)**

#### **A Framework Based on Input-output Model for Warning of Overcapacity**

Overcapacity has been plaguing China for many years. For now, however, there is no mature and universal framework for warning of overcapacity. This research constructs a comprehensive yet relatively concise framework based on IO table for warning overcapacity by including two indicators measuring the relative growth rate of the production capacity and the change of capacity utilization. As an example, China's 15 heavy industry sectors are being analyzed under the above framework. The main contribution and innovation of the research is building the applicable framework for warning overcapacity.

**19 March (Tuesday) [Venue A: Building C(2F) C274] 13:15-14:45  
Organized Session(Environment, Resource and Energy in East Asian  
Region)**

Chair: Soocheol Lee (Meijo University)

**Aileen Lam (University of Macao), Soocheol Lee (Meijo University),  
Jean-Francois Mercure (Exeter University), Yongsung Cho (Korea University),  
Chun-Hsu Lin (Chung-Hua Institution for Economic Research),  
Hector Politt (Cambridge Econometrics), Unnada Chewpreecha (Cambridge  
Econometrics)**

## **Policies and Predictions for a Low-Carbon Transition by 2050 in Passenger Vehicles in East Asia: Based on an Analysis Using the E3Me-Ftt Model**

In this paper we apply a model of technological diffusion, FTT:Transport, linked to the E3ME macroeconomic model, to study possible future technological transitions in personal passenger transport in four East Asian countries. We assess how targeted policies could impact on these transitions by defining four scenarios based on policies that aim to reduce emissions from transport. For each country we find that an integrated approach of tax incentives, subsidies, regulations (fuel economy efficiency), kick-start programs and biofuel programs yield the most significant emission reductions because, when combined, they accelerate effectively the diffusion of electric vehicles in the region.

**Kiyoshi Fujikawa (Nagoya University)**

## **Virtual Water Trade and Virtual Land Trade in the World**

The concept of virtual water trade was first developed as a way of understanding how water scarce countries could provide food and other water intensive goods to their inhabitants. The global trade in goods has allowed countries with limited water resources to rely on the water resources in other countries to meet the needs of their inhabitants. As food and other products are traded internationally, water is also traded internationally behind the trades of those products. It can be said that land is also traded from land rich countries to land scarce countries behind the trades of those products. WIOD (World Input Output Database) provides timeseries data of water and land consumption by sector. We estimate the trend of virtual water trade and virtual land trade in the world based on WIOD.

**Soocheol Lee(Meijo University) , Unnada Chewpreecha (Cambridge Econometrics)**

## **Economic and Environmental Impacts of Carbon Taxes and Policy Mixes of Other Instruments in East Asia To Meet The 2050 2 Degree Targets**

The aim of this paper is to assess, using E3ME global macro econometric model, how we might achieve carbon emission reductions and what is impact on economies for each of the East Asian countries to meet 2 degree target in 2050. The focus of this paper is on a scenario in which emissions are reduced by enough to limit temperature change to 2 degree. The conclusion is likely to be that a carbon price is a necessary, but not sufficient,

policy instrument to reach an ambitious emission reduction target. We will compare this modelling approach with the optimization modelling tools, if possible, in which the carbon price is the only policy mechanism available and make recommendations on the assessment approach as well as the policy mix with subsidies and regulations.

**19 March (Tuesday) [Venue B: Building C(4F) C472] 13:15-14:45**

Chair: Nobuhiro Okamoto (Daito Bunka University)

**Tsutomu Yoshioka (Meiji University)**

### **A Study of Economic Inequality between Northern and Southern Europe**

The aim of this study is to investigate economic inequality in the EU by applying the multiplier decomposition method to the international input output tables. This study uses the input output tables which are compiled by WIOD (World Input-Output Database). For the northern Europe, this study focuses especially on Germany. For the southern Europe, this study focuses on Italy, Spain, Greece, and Portugal. The results of this study show differences of the industrial structures among the countries.

**Lai Ge (Victoria University of Wellington)**

### **How Global or Regional Are Value Chains in East Asia? Evidence Based on an Input-Output Analysis in Textile, Automobile and Electronics Sectors**

East Asia as a region has been traditionally influenced by forces of global and regional production networking. As a result of increasing international fragmentation of production processes, has East Asia become more regionally interdependent, or globally connected? This paper uses input-output data to analyse the complexity of connectivity in East Asia, in three key sectors - textile, automobile and electronics for the period from 1995 to 2011. This paper seeks to demonstrate the structure of production activities in East Asia, and test the methods that allow us to (a) measure the regionalization level of an industrial sector in the geopolitical scope of a given East Asian regional institution; and (b) observe marked changes in the geographical scope of value chain fragmentation. I rely on the new measure proposed by Los et al. (2015) and the inter-country input-output tables from the OECD-ICIO database. The research first breaks down the final output produced by a given economy into value added contributions from domestic and foreign suppliers in terms of country of origin. The resultant domestic-foreign ratio represents the economy's level of

openness and its embeddedness in international value chains. The study then splits the foreign value added contributions into six categories because they come from the economies of the six leading economic institutions of regionalism: (1) China-Japan-South Korea-Taiwan, (2) ASEAN, (3) ASEAN+3, (4) ASEAN+6, (5) TPP 11, (6) APEC. In this exercise, the final output of a given sector in a given economy has six corresponding versions of regional and extra-regional (global) value added contributions. The research uses this transformed data to analyse and compare the regional value added components of six contending economic institutional initiatives in East Asia. The regional and extra-regional components indicate the level of regional and global dependency of an industrial sector of an East Asian economy. This research provides evidence of the complexity in the regional and global connectivity of production activities in East Asia and contributes in research methodology to analysing and determining the extent to which industrial production is organized regionally and globally in East Asia.

**19 March (Tuesday) [Venue C: Building C(4F) C473] 13:15-14:45**

Chair: Ayu Washizu (Waseda University)

**Ayu Washizu (Waseda University), Satoshi Nakano (JILPT)**

### **Analysis of Inter-regional Effects Caused by the Wide-area Operation of the Power Grid in Japan**

In this research, we examine the socioeconomic impact of carbon pricing (CP) mechanism-related energy policies under the technical constraints of Japan. Therefore, we have created the Inter Regional Input Output Table for a Next Generation Energy System (IONGES) in 2030, considering these technical constraints. Furthermore, we created three Inter Regional IONGESs with different assumptions for the wide area operation of the power grid. The results show that the technical constraints of the power grid influence the interregional distribution of renewable energy. Top eleven regional renewable energy sectors (TOP11), which has a large production scale, account for approximately 50% of renewable energy generation, which was found to be biased. Large scale regional renewable energy types, such as the TOP 11, greatly affect the economic activities of the whole country, and that trend will expand as the power grid widens. From the viewpoint of consumers in each region, we analyzed the share of the electricity cost required to support their consumption. If the CP mechanism is implemented under the technical constraints of the current power grid, consumers in each region will be impacted unequally. However, it

was found that such inequality will be solved under the wide-area operation of the power grid.

**Hongxia Zhang (Renmin University of China)**

**Technology-adjusted National Carbon Accounting for Effective Climate Policy: from the Perspective of Vertical Specialization**

A policy sensitive and effective green-house gas accounting method is very important for policy maker to allocate responsibilities for emissions. Both of the production- and consumption-based accounting (PBA and CBA) have their shortages for the purpose. Thus technology adjusted accounting methods are proposed for effective climate policy making (Kander et al, 2015; Zhang, 2018). Considering the production fragmentation and vertical specialization (shown by the continuous increasing of the intermediate trade) in combination with the various technology used in sectoral production, this paper proposes a new technology adjusted national carbon accounting method, from the perspective of vertical specialization. Interregional differences in sectoral carbon intensity, patterns of final international trade, and patterns of intermediate international trade are taken into consideration in our new accounting method. Moreover, our method satisfies the conditions of additivity, sensitivity and monotonicity, without additional conditions. The empirical study is based on World Input-Output Database (WIOD).

**19 March (Tuesday) [Venue A: Building C(2F) C274] 15:00-16:30**  
**TAIOS Organized Session (Global Value Chains Analysis)**

Chair: Shih-Mo Lin (Chung Yuan Christian University)

**An-Ting Liao (National Chung Hsing University), Kuo-I Chang (National Chung Hsing University)**

**Border Effects of Art, Entertainment and Leisure Industry in Value Added Exports:Evidence from World Input-Output Data**

This study investigates the newest release of the World Input-Output Database (WIOD) to analyze the value-added exports of Art, Entertainment and Leisure Industry between 43 countries from 2000 through 2014. We find the domestic value added (DVA) is higher than the foreign value added (FVA) in most of nations. Especially, the FVA of the Art, Entertainment and Leisure Industry in South Korea and Japan experience an upward trend to 43 other countries, which can be explained by the government policies of South Korea and Japan in recent years. Moreover, this study is aimed to investigate the use of DVA and FVA to estimate the border effects between and within 28 EU member nations and 8 Asian nations, presenting the robustness for measurement of value-added exports with the estimated results of Mika (2017) using gross exports.

**Hsing-Chun LIN (National Chiayi University), Sheng-Ming Hsu (National Chung Hsing University), Li-Chen Chou (Wenzhou Business College), Shih-Hsun Hsu (National Taiwan University)**

**The Global Value Chains Analysis of Trade on Across-Strait: NRCA and Production Length**

The Global Value Chains (GVCs) is the character which comes from the basic consequent on economic globalization, and the value-added estimation under the concept of GVCs also brings attention highly. Traditional import and export statistics indicate there has a huge trade deficit between the countries with final goods export and the importing countries, but the added value inherent in domestic (Value-Added) part of the country's exports statistics are not as much in the countries with assembly behavior on final goods. In order to evaluate the GVCs between Taiwan and China in cross-strait trade, this study applies the methodology by Wang et al. (2013, 2014) and the World Input-Output Database (WIOD) which constructed by Timmer et al. (2012) and EU. Evaluates the real possession of production and Revealed Comparative Advantage indicator in cross-strait trade and exactly measure the industrial competition in the process of trade including production length,

location and times.

**Jin-Xu Lin (Chung Yuan Christian University) ), Ya-Chu Chen (Chung Yuan Christian University), Shih-Mo Lin (Chung Yuan Christian University)**

### **Not in My Backyard: Development and Factors of Change in Cross-Country Carbon Leakages**

Global trade liberalization and climate agreement have stimulated a wide range of researches on carbon leakage in recent years. This paper applies the World Input-Output Tables (WIOTs) developed by the European Union, together with a multi-country input-output model, to calculate the CO<sub>2</sub> embodied in the final demand of the countries covered in the tables and analyze the possible carbon leakages of each of them. Furthermore, we perform a structural decomposition analysis, also under the international inter-industry framework, to examine the factors responsible for the changes in the CO<sub>2</sub> embodied in the final demand for two periods. Our results indicate that, on average, over 70% of the CO<sub>2</sub> embodied in final demand is from domestic sources, foreign sources account for less than 30%. In addition, structural decomposition results reveal that the key factors contributing to the increase of the CO<sub>2</sub> embodied in final demand are the increase of trade volume and the slow pace in technology change. While the intensities of CO<sub>2</sub> emission have generally fallen in industries of most of the countries, for countries to effectively reduce the CO<sub>2</sub> embodied in final demand from both domestic and foreign sources, improving energy efficiency, advancing production technology, and adjusting trade policies to export and import less carbon-emitting products will be the key strategies to follow.

**19 March (Tuesday) [Venue B: Building C(4F) C472] 15:00-16:30**

Chair: Akira Furukawa (Ritsumeikan University)

**Arifur Rahman (Ritsumeikan University)**

### **Japanese 100-Yen Retail Chain in Development of Retail Industry**

Retailers are all over the world, even in the early stage of the economic development. Because retailers are necessary in any economy and the business can be started without technology or huge capital. However, levels of modernization and maturation of retailers' business hugely differs from country to country, or from self-employed small retailers to



mega department stores, reflecting each technology, logistics, supply chain network, level of international trade and so on. Japanese retailers have a long and mixed history over the world with a period of expansion in the 1980s and 1990s being followed by a long period of decline and stagnation. 100-yen shops are quite a specific style of retailer shops, emerging around 1980 in Japan and still continues to survive. This paper is aimed to analyze emergence and development of Japanese 100- yen shop business in long-run modernization and maturation of retail industry. This research is also intent to explore how and why 100-yen retail chain with variety of goods and with the lowest prices can survive as business in one of the most developed country like Japan. Japanese retailers inspired to expand operation overseas after 1980s because of new dynamics in global supply chain. The movement from economic downturn to 'Bubble' and the new economic conditions for the 1990s also patronized internationalization of Japanese retailing. Change of the economic conditions and retail law in Japan after 1990s pursued emergence of new retail formats in Japan like 100-yen retail chain. And, 100-yen chain shops have been surviving and expanding overseas after economic recession in 2000s by introducing sophisticated technology in supply chain such as POS system and RFID e-paper in inventory management, and establishing manufacturing plants in low income countries, commencement of e-retailing and internet sales.

**Arif Ur Rahman (Ritsumeikan University Graduate School of Economics)**

### **Financial Integration and Total Factor Productivity**

There is a long debate among policymakers and academicians on assessments of international financial integration as to whether it has significant growth benefits and whether these benefits compensate the accompanied risks. Recent financial crisis has re-ignited this debate. The previous empirical studies have not been able to establish conclusive presumed benefits of financial integration for economic growth. To re-examine the growth effects of financial integration, this paper conducts a broad analysis of the relationship between financial integration and total factor productivity (TFP) growth, using a large dataset that includes various measures of financial integration for a large sample of countries. Dynamic panel regression models for a sample of 108 countries over 1971-2014 are used. We find evidence that financial integration is associated with higher TFP growth. A range of integration measures (both de jure and de facto) shows robust association with financial integration and TFP growth. The analysis also suggests that financial development might reduce the marginal effects of financial integration on TFP growth. This finding, however, appears to be influenced by the recent global economic turmoil as well as

excessive private finance, especially in recent years. Key words: International financial Integration; total factor productivity; financial development; economic turmoil.

### **19 March (Tuesday) [Venue C: Building C(4F) C473] 15:00-16:30**

Chair: Yasushi Kondo (Waseda University)

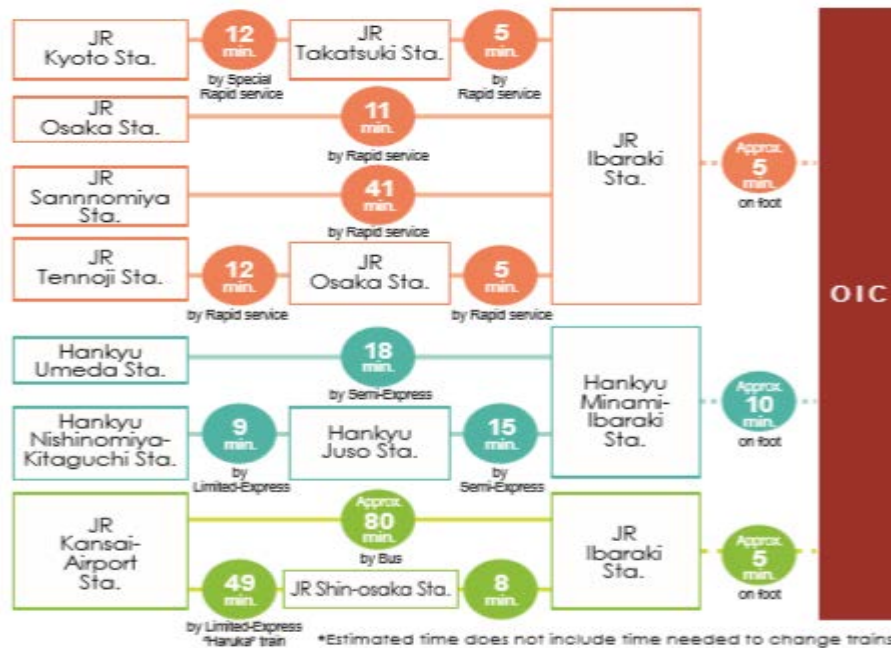
**Youji Kunimitsu (NARO), Tatsuki Ueda (National Agriculture and Food Research Organization)**

#### **Changes in Input-Output Structure Caused by Big Earthquake Disaster: Stability of Input Coefficients and Distribution Coefficients**

The big earthquake in Japan has possibly changed inter-industrial linkage structure which is shown by the input-output table. There is a possibility that the regional economic structure, shown by the input-output table, has changed due to the big earthquake occurred in Japan. This study aims to show whether such changes are big or ignorable. As for the analysis, a change in the input coefficients were quantified by using the Japanese I/O table, Regional I/O table of Iwate prefecture and small region I/O table of coastal area in Iwate prefecture before and after the earthquake disaster. The result is as follows. The change in the input structure of the I/O structure (i.e. the cost component structure) shown by the input coefficients in industries is relatively stable, but that in the output structure shown by the distribution coefficients is a bit big. Therefore, though the supposition of the Leontief model in the input-output analysis is mostly satisfied, the precondition of the Ghosh model is not robust.

## Osaka Ibaraki Campus Access

From Kansai-airport station take around 1hour (if not take Haruka express take 90min.) to get JR Ibaraki station



### ● OIC campus Location

It's a 5~10minute walk from JR Ibaraki Station.

Address 2-150 Iwakura-cho, Ibaraki-shi, Osaka Prefecture 567-8570 JAPAN

- On the train
- Route
- 1) Get off at Ibaraki Station in JR Tokaido Main Line → About 5 minutes on foot
  - 2) Get off at Uno Station in Osaka Monorail → 7 minutes on foot
  - 3) Get off at Minami-bashi Station in Hankyu Kyoto Line → about 10 minutes on foot

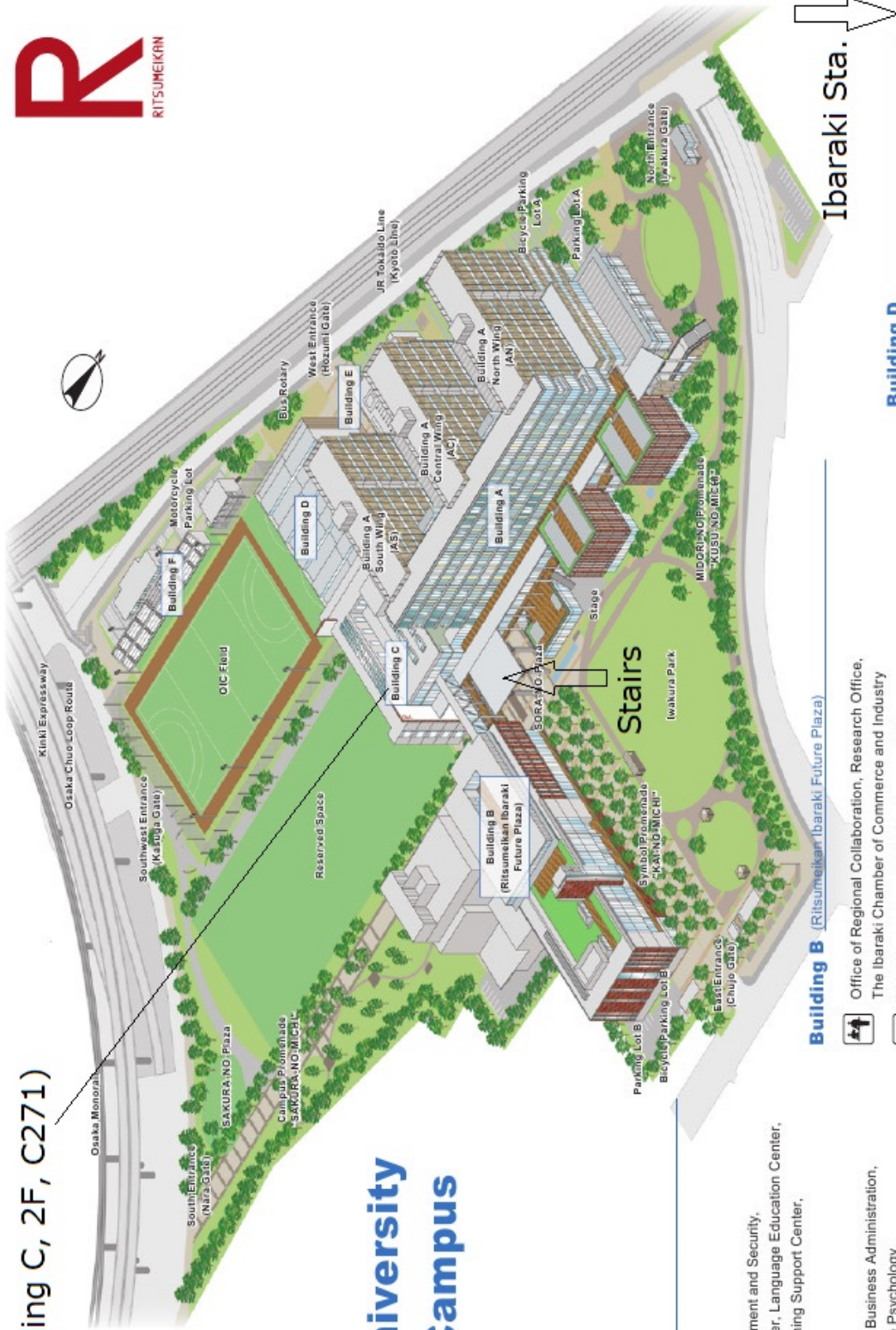
# ICES 2019 Headquarters

(Building C, 2F, C271)



## Ritsumeikan University Osaka Ibaraki Campus

### Campus Map



#### Building A



##### [ North Wing (AN) 1F ]

Campus Information Center, Office of Campus Management and Security,  
Office for Internship Program, Service Learning Center, Language Education Center,  
Center for Language Acquisition (CLA), Teacher-Training Support Center,  
Office of International Affairs

##### [ Central Wing (AC) 1F ]

MANABI Station, Administrative Offices of College of Business Administration,  
College of Policy Science, College of Comprehensive Psychology,  
Graduate School of Technology Management, Graduate School of Management

##### [ South Wing (AS) 1F ]

Career Center, Extension Center, Office of Student Affairs,  
Office of Athletics & Sports Services, Student Support Room, Disability Resource Center,  
Medical Service Center



Class Room, Graduate Study Room, Faculty Office



Camping Kitchen



Seven-Eleven

#### Building B (Ritsumeikan Ibaraki Future Plaza)



Office of Regional Collaboration, Research Office,  
The Ibaraki Chamber of Commerce and Industry



OIC Library, Grand Hall, Conference Hall,  
Event Hall, Music Practice Room, MACHI Library



GARDEN TERRACE LION, STARBUCKS COFFEE

#### Building C



RAINBOW Service Counter



OIC Cafeteria



OIC Meal Shop



Class Room, OIC Seminar House



OIC Shop

#### Building D



OIC Arena, Student Club Room, Training Room

#### Building E

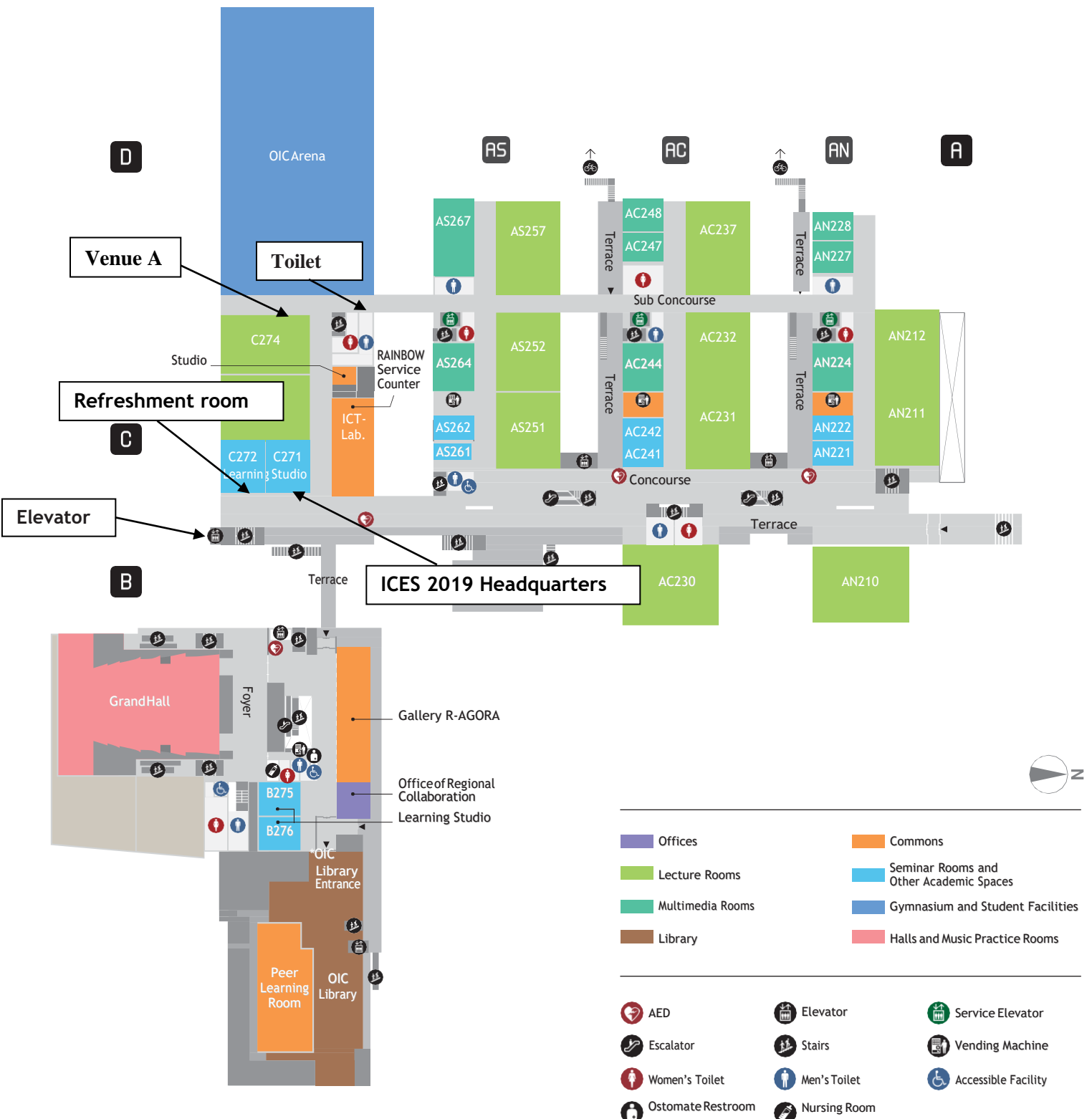
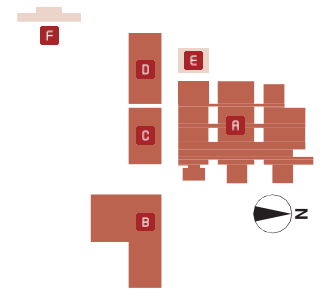
Energy Center

#### Building F



Stands

Ibaraki Sta.

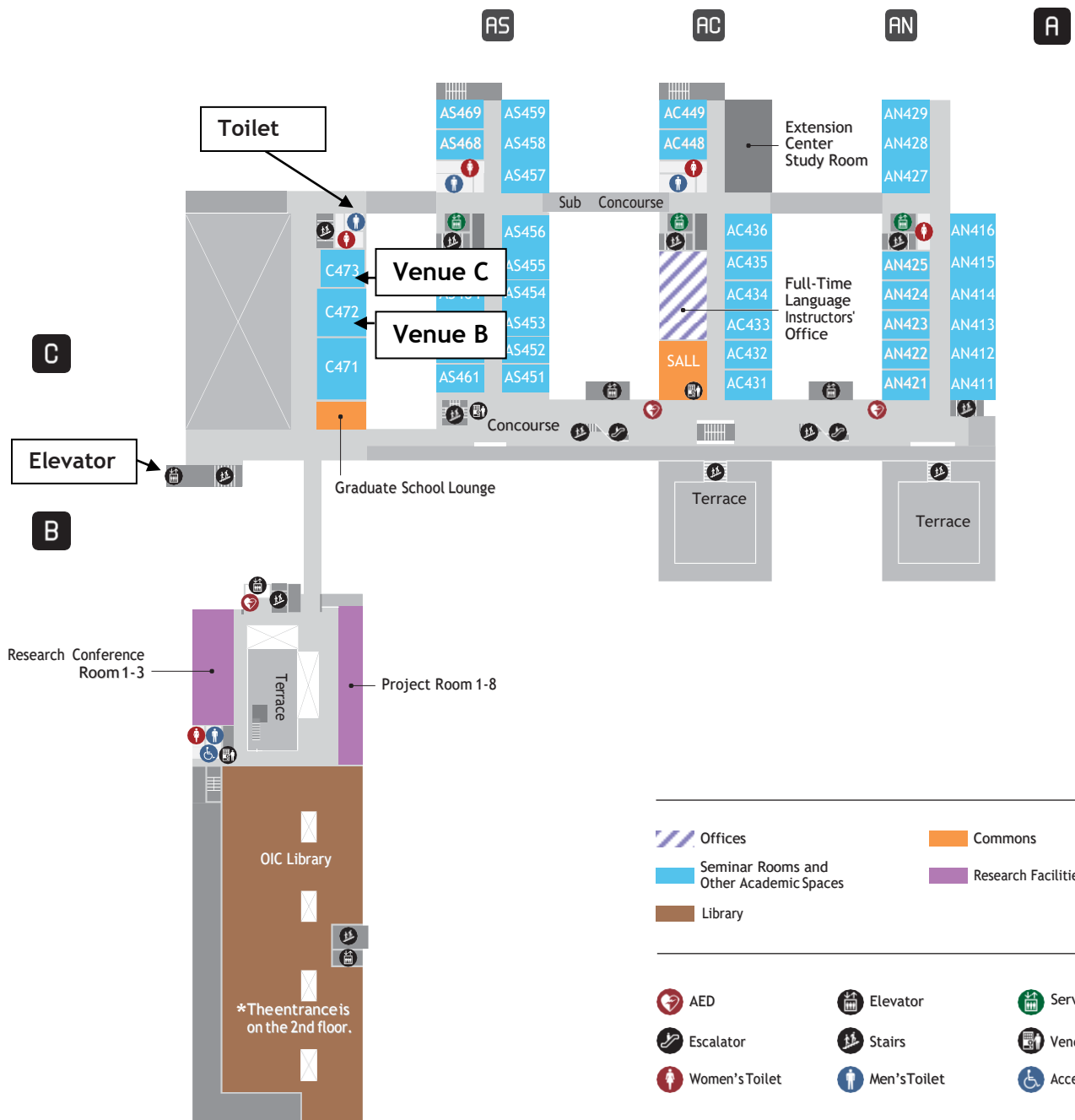
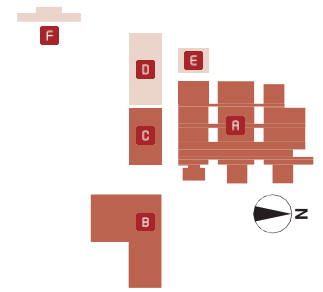




# BUILDING

## A · B · C

Final version

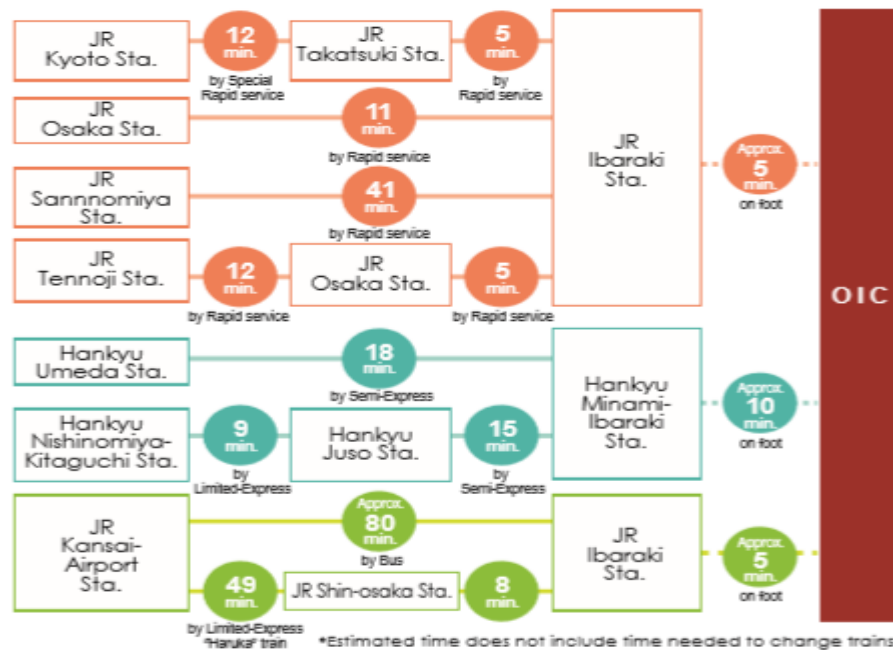




# RITSUMEIKAN

## Osaka Ibaraki Campus Access

- From Kansai-airport station take around 1hour (if not take Haruka express take 90min.) to get JR Ibaraki station



- OIC campus Location

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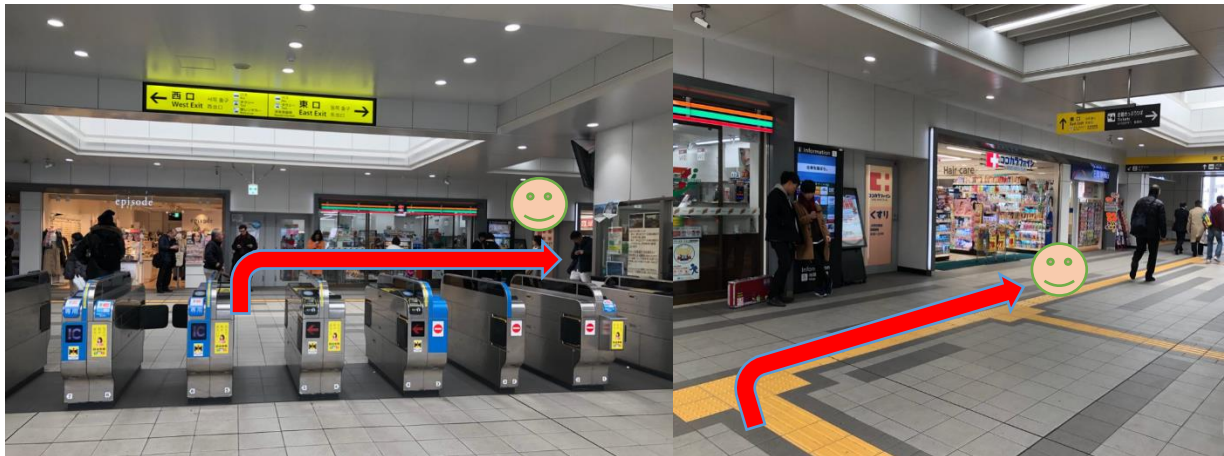
### on the train

#### Route

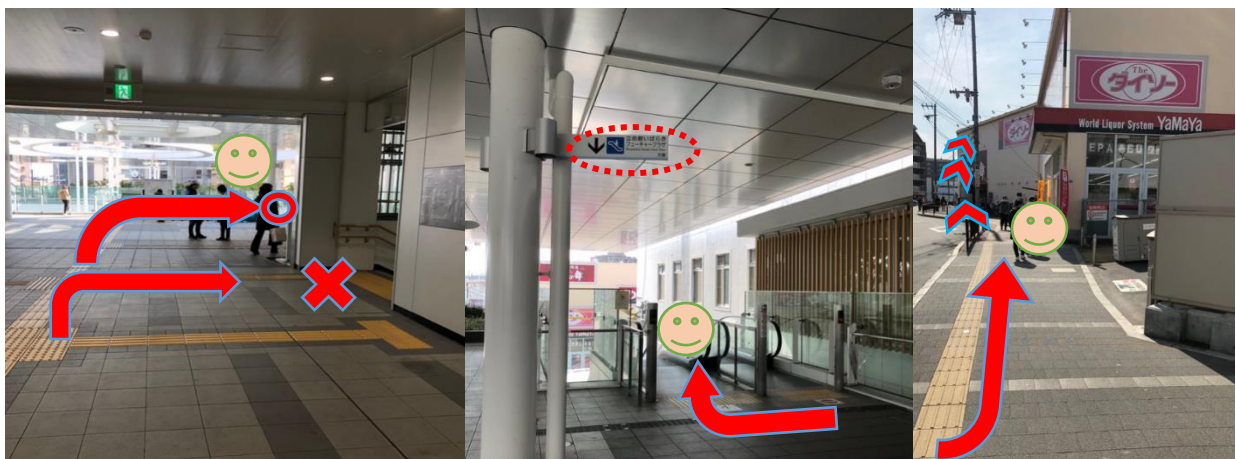
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- Get off at Minami-bashi Station in Hankyu Kyoto Line → about 10 minutes on foot

■ From JR Ibaraki Station get to the OIC Campus :

1. Get out of the gate and turn right.



2. Take elevator(behind the stairs) down to the first floor.



3. Please go straight down the road.





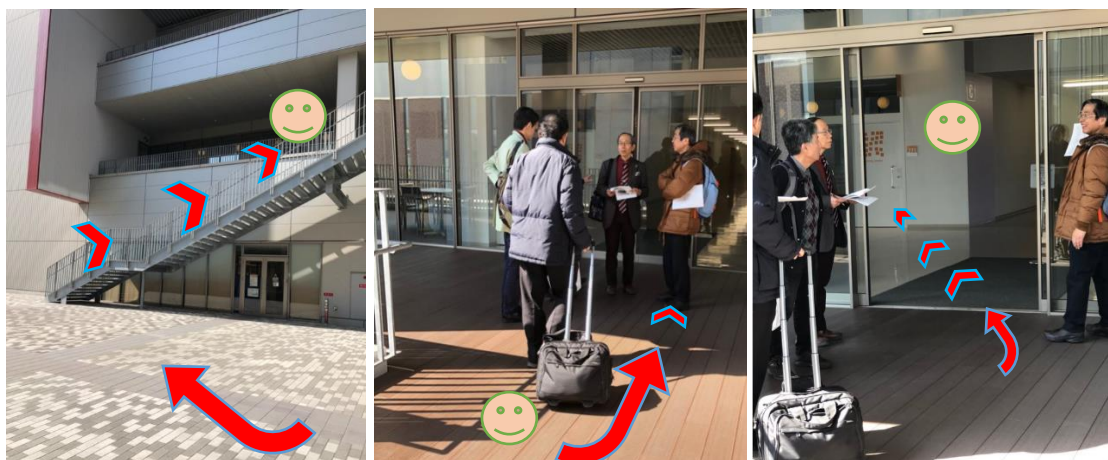
4. You will get the OIC campus (registration is not in Bldg. A).



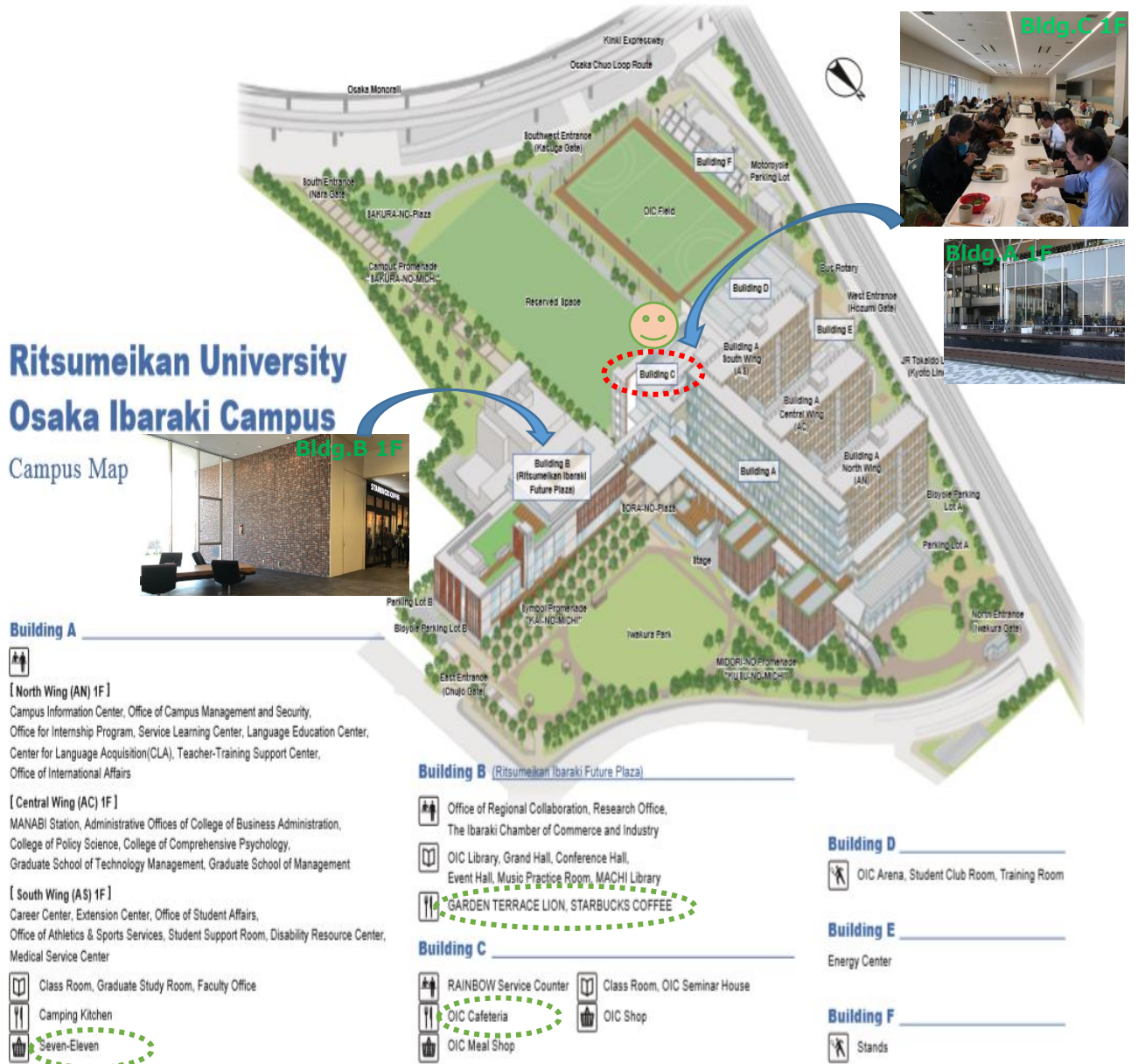
5. Get up the stairs there is the registration place



6. Registration is in the second floor of Bldg. C



## ■ Campus map





**International Conference on Economic Structures 2018  
Nagoya University, Japan, March 28-29, 2018**

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Organized by the Pan Pacific Association of Input-Output Studies (PAPAIOS)

Co-organized by Graduate School of Economics, Nagoya University and  
Applied Social System Institute of Asia, Nagoya University

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