KEYNOTE SPEECH : MAJOR FUTURE ECONOMIC CHALLENGES

ESRI INTERNATIONAL CONFERENCE

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- I. Geo-economic Fragmentation
 - :US-China Rivalry
- II. Climate Change & New Industrial Policy
- III. Demographic Changes and Immigration
- IV. Restoring Liberal International Order & World Peace



1. The geo-economic fragmentation of the world economy has been intensified by the US-China rivalry since the mid-2010s under the Trump/Xi Jinping administration.

- > The Trump administration jumped from the rules-based to the power-based trade policy.
- Biden administration inherited the same fundamental position vis-à-vis China, although it put more emphasis on multilateralism.

2. In May 2024 the Biden administration imposed a 100% tariff on EVs imported from China based on Section 301 as a unilateral action, contradicting the world trading rule.

> China is ready to commence the second trade war with the US.

3. The Japan Center for Economic Research (JCER) examined the consequence of the future of the US-China rivalry in the long-term world economic outlook every five years (2007, 2014, 2019). ***Figure 1-1**

In 2014 we argued that China would not be able to catch up with the US, because of China's low quality of social, economic, and political institutions, based on the basic insight that the difference in institutional quality brings about the difference in total factor productivity.

4. In 2019 we presented the baseline scenario that the US and China will play a 50-50 match, as China emerges as a "regional hegemon" seeking techno-supremacy, notably in applying AI, Big Data, and supercomputer.

- In 2018 the Trump administration adopted the "Denial Strategy" against China's move toward establishing a regional hegemon and aimed at constructing a resilient supply chain of defense industry against the Chinese influence "Colby(2021)".
- This triggered the shift of the production base from offshoring to reshoring, nearshoring, and friend-shoring of the global supply chain network.
- US policy aims at avoiding the dependence on Chinese sourcing and expansion of production capacity of the frontier industry through decoupling or de-risking in trade/investment and the global value chain.

5. According to our 2019 forecast China's GDP will exceed that of the US in the early-2030s, while in the early 2050s, the US will restore the dominant position, similar to the scenario presented in 2007.

6. Now we find that we may have underestimated the US potential growth rate; namely the massive inflow of immigrants since 2021 and large-sized fiscal expansion of subsidy on semiconductor and climate change technology.

According to the estimate by the CBO (2024), the US potential growth rate in 2024-29 is likely to move up to 2.1% from 1.8%, due to the massive inflow of immigrants, although there exists uncertainty about the future development of immigration policy.

7. At the same time our 2019 forecast may have overestimated China's growth trend after 2020, given policy regime change under Xi Jinping and the revision of the UN World Population Prospects 2024.

- We observe the fundamental reversal of economic policy under the Xi administration from a market-oriented economy (which was initiated by Deng Xiaoping in the late 1970s) to the Communist Party-centered one.
- China tends to show a lower potential growth rate after mishandling the COVID-19 crisis (self-decoupling policy).
- It faces structural problems such as rapid aging before becoming rich, accumulation of real estate non-performing assets, and a large number of unemployed youth.
- Further, we see a sharp decrease in foreign direct investment from abroad, partly due to the implementation of the counterespionage law.
- Facing the risk of a balance sheet recession with a deflationary tendency, some Chinese experts express concerns about the risk of Japanification of the economy.

8. Moreover, the recent revision of the UN and China's population statistics shows a large-sized downward shift in population and birth rate after 2020. ***Figure 1-2,3**

- The speed of decline in the working-age population may erode seriously the future growth potential in China, in the light of the experience of Japan and Italy.
- China's total population will be reduced to about half of its current population in 2100 if the current birth rate of 1.1 continues over the future.
- Our 2007 forecast happens to be close to the recently revised population trend and birth rate.
- In 2007 we employed an econometric model including the economic variables such as per capita GDP to predict the future birth rate, instead of relying on the UN statistics.

9. On the other hand we should not underestimate the strength of technological innovation and resilience in the global value chain network of China which interlinks between the West and the East, including intermediate products and critical minerals.

- China established a strong international competitiveness position in solar panels, window turbines, batteries and EVs; in addition, it has a high market shares of producing rare metals and other critical minerals.
- In the semiconductor industry SMIC (China's state-owned company) started to produce 7nanometer chips for Huawei, despite the stringent export control measures initiated by the US in October 2022.
- In relation to EV, Chinese companies introduced the new business model of "softwaredefined vehicle" which functions as a software-centric electric device.

10. In 2019 we estimated the future development of labor augmenting technological progress by taking into consideration the impact of digital transformation accompanied by the significant increase of investment in intangible assets and openness of digital trade (such as the R&D investment, data, and software). "Iwata=Maeda=Takano(2019)" ***Figure 1-4,1-5**

- The future US productivity growth rate (2015-2060) was predicted to be slightly higher than that of Gordon's (2015-2040). *Figure 1-6
- Japan's technological progress was forecast to catch up with the US in 2060 under the assumption of convergence of technological progress, although we see the divergent development between the US and Japan in the recent period.
- China's technological progress rate peaked after the great financial crisis; then it will rapidly converge to that of the US.

11. Although Prof. Gordon argued that "the AI revolution is already over" at the Gordon-Iwata dialogue in March 2021, recent progress of AI, including generative AI may bring about some acceleration of total productivity by 0.5-0.7% in coming ten years, 0.06% annually.

"Acemoglu (2024)"

12. If former President Trump is reelected, the nightmare scenario of trade wars and antiimmigration policy may become more realistic because of the excessive reliance on his protective tariff policy. ***Figure 1-7**

- > China is more robust in a closed economy, similar to Russia and India than the US.
- The United States would face a stark slowdown of GDP: the economic size of the U.S. would be 70% of China in 2060.
- In addition, if we employ the Hamada=Iwata (1989) model framework on international capital movements, we can show that the rising US budget deficit currently at 7% of nominal GDP in FY 2024 will enlarge the current account deficit with a large-sized accumulation of external foreign debt of more than 100% of GDP in 2060 "Iwata=Maeda=Takano(2019)". *Figure 1-8



FIGURE 1-1. FORECAST ON THE US-CHINA RIVALRY

Past Forecasts on the US and China



Source: IMF, forecast by JCER



FIGURE1-2. POPULATION FORECASTS IN CHINA

Population in China



Note: UNWPP stands for UN World Population Prospects



Figure 1-3. Past Forecast Errors in Birth Rate: China

Past Forecast in Birth Rate (China)

Life expectancy



Source: United Nations, forecast by JCER Note: UNWPP stands for UN World Population Prospects



Figure 1-4.

Labor Augmenting Technological Progress in Japan, US, EA, and China





FIGURE 1-5. INSTITUTION OF THE U.S., CHINA AND JAPAN



Note: Scores indicate where each country stands among 35 countries with their mean 50 and standard deviation 10. Source: Japan Center for Economic Research, Long-term Forecast, December, 2019.



FIGURE 1-6. DIFFERENCE OF FUTURE LABOR PRODUCTIVITY GROWTH BETWEEN PROF. GORDON AND IWATA, MAEDA, AND TAKANO

	Country	Productivity	2015-2040	2015-2060
Prof.		CountryProductivity2015-2040U.S.Output per Hour1.20Output per Person0.80U.S.Output per Person1.20Labor Augmenting Technological Growth1.11JapanOutput per Person1.40	N.A.	
Gordon	Output per Person 0.80	N.A.		
Iwata, Maeda, and Takano	U.S.	Output per Person	1.20	1.35
		Labor Augmenting Technological Growth	1.11	1.25
	Japan	Output per Person	1.40	1.40
		Labor Augmenting Technological Growth	1.08	1.17

Source: Gordon (2016), Iwata, Maeda, and Takano (2019), "Global Imbalances and Demographic Changes"



GDP (protectionism scenario)



Source: Haver Analytics, forecast by JCER



FIGURE 1-8. FUTURE DEVELOPMENT OF CURRENT ACCOUNT IN US, JAPAN, EA, AND CHINA





1. On climate change we observe global subsidy competition on semiconductor and climate technology.

- **2.** The US CHIPS and Science Act provided a \$52 billion subsidy which is designed to counter China's industrial policy built on the military-civil fusion and subsidy competition among local governments in an autocratic country.
- The widespread use of production subsidies and tax credits is based on the recognition of the excessive geopolitical concentration of high-end semiconductor production in Taiwan and Korea.

3. The green legislation of the Inflation Reduction Act (IRA) Biden administration provides \$391 billion (yet \$1.2 trillion, according to Goldman Sachs estimates). ***Figure 2-1**

This measure is designed to avoid the excessive reliance on China concerning EVs and critical minerals necessary for EV and battery production.

- **4.** Strict conditions are attached to the use of tax credits with transferability.
- EV subsidy (amounting to \$7,500 per car or \$12,000 per car including batteries) is limited to the EV assembled in North America.
- Sourcing in producing battery excludes all components and critical materials from "foreign entities of concern".
- The domestic content provisions in IRA may contradict the WTO rules, although the rule is modified for like-minded countries and the leased car use.
- **5.** The EU provides €43 billion for the development of advanced chips in Europe.
- On climate change, the EU relies mainly on carbon pricing including the international tax adjustment measures rather than the subsidy and tax credit.
- In addition, the EU is well-equipped with ample financial programs (Next Generation EU, Recovery and Resilience Facility, and REPower EU) to facilitate green transition amounting to \$600 billion. "Fajeau et al. (2023)"

6. However, India and China would certainly argue that the EU's border tax adjustment based on the carbon contents of imports from the country without carbon tax in the domestic economy violates the MFN procedure, while the EU may argue that it is throughout the rules-based measure based on non-discriminatory principle

- One way to solve the MFN procedure problem, the EU can invoke the "General Exceptions" necessary to protect human, animal, or plant life or health. GATT XX(b)
- Alternatively, It is possible to initiate a new round of MFN carbon tariff negotiation round by employing the renegotiations clause. GATT XXVIII

7. Japan has prepared a ¥3.9 trillion subsidy in the past three years' supplementary budget to promote the domestic semiconductor industry and invite foreign advanced semiconductor companies (TSMC, Micron, Western Digital, and Intel).

- This is part of the Hop (TSMC)-Step (Rapidus)-Jump (Iown) strategy to revive the semiconductor and telecommunication industries as a last chance of survival.
- The "Rapidus" project aims at producing 2 nanometers in collaboration with IBM and IMEC at Brussels.

The success of "Rapidus" may depend on the success in the transformation of internal and external architecture from integrals to modules of logic chips, combined with search strategy seeking wide variety of alliances through open innovation.

"Tatsumoto=Fujimoto=Tomita (2009)"

8. On green growth, Japan's policy is located between the US and the EU.

- The Japanese government will issue ¥20 trillion of GX Economic Transition Bonds over 10 years, beginning in FY2023.
- > The revenue is used to promote and facilitate the energy transition.
- Redemption of issued bonds will be eventually financed by imposing a levy on fossil fuels and deriving the auction revenue from the ETS trading, although the schemes in detail are not yet fully revealed.
- > The initial step was taken by introducing the carbon credit market in October 2023.
- Although the order of policy implementation from subsidy to tax may be correct, the size is too small and the speed is too slow.

9. The JCER proposed to employ a carbon tax of ¥12 thousand per 1 ton-CO2 emission in the 2030s.

This proposal includes promoting digital transformation and industrial structure changes toward services in achieving the goal of a zero-emission society in 2050.

"Kobayashi=Iwata (2021)" *Figure 2-2

10. It assumes the rapid expansion of renewable energy to 60% of electricity sources, the phase-out of coal/oil fire power stations replaced by the use of ammonium and hydrogen, a complete shift from internal combustion engine cars to EV and FCV, and fully utilize the CCS and advanced technology such as quantitative computing and opto-electronics (IOWN).

- **11.** The current carbon tax rate in Japan is too low; it is ¥289 per one ton emission of CO2.
- ➢ If we can transform the current energy tax revenue into carbon tax (=greening tax system on energy), it is equivalent to ¥7000 carbon tax. Then, we need to add the ¥5,000 carbon tax.
- However, the estimates of carbon pricing to achieve the zero emission target in 2050 are divergent.
- In France needed carbon price starts from €60 in 2021 and reaches €190-220 in 2050. "Blanchard and Tirole (2021)"

12. So far Japan implemented the policy measures in line with achieving the target of a 46% reduction in CO2 emission in 2030.

- ➢ Japan reduced CO2 emission by 23% in FY2020, based on FY2013.
- ➢ If Japan follows the target of a 60% reduction in 2035 on the basis of FY2019, which is proposed by the IPCC, it is translated into a 66% cut based on FY2013.

13. The Japanese government now prepares the new energy projection until 2040 under the circumstance of sharply increasing demand for electricity, due to the increasing number of construction of data centers and generative AI business development.

The new demand for electricity can be somehow mitigated by the technological breakthrough of energy and electricity saving of semiconductor and optoelectronics, in addition to direct air capture, nuclear fusion, and geo-engineering.

14. The IPCC also predicts that the earth's temperature will rise to 1.9-2.1 degree Celsius by 2050 above the pre-industrial revolution era, much higher than the 1.5 degree target, even if the current policy commitments by the governments are implemented.

- **15.** There remains the risk the temperature will reach 4 degree in 2100.
- In that case, there will emerge massive climate refugees (internal displacement) amounting to 3 billion in 2070 from 32.6 million in 2022 (according to the IDMC), because of the expansion of uninhabitable regions on earth.

16. On subsidies of semiconductor and climate technology for domestic and foreign companies of like-minded countries, we need to develop global rules and standards, aside from adequate monitoring mechanisms and transparent notification.

- The industrial subsidy rule is the weakest at WTO, although the WTO identified three types of permissible subsidies; research and development, the development of disadvantaged regions and the adaptation to new environmental regulations in 1995.
- It may be useful to apply to the EU subsidy rules including the foreign subsidy rule in 2023, based on the competition policy.
- Bown and Clausing (2023) propose to carve out green subsidy and widen the scope for the subsidy rules, combined with the issue of China's non-market economy.
- We should concentrate on discussing the negative externality of industrial policy within the framework of GATT/WTO "Staiger (2022)", while it is desirable to establish common standards on subsidy for maintaining the free and fair trading system.

17. Professor Hirofumi Uzawa (2003) made proposal to implement active use of the carbon tax proportional to income level (= rate of change in disutility index of CO2 emission multiplied by per capita income level).

- \succ It is the shadow price to measure the strength of constraint on the CO2 emission.
- The proposed carbon tax satisfies the optimality condition of public goods supply (=the Samuelson rule or the condition of Lindahl equilibrium).
- He pointed out the importance of maintaining dynamic optimality and sustainability of social common capital consisting of natural capital, social infrastructure, and institution capital(including education, medical service, science and technology, and social capital).

18. Arrow et al.(2004) also proposed to measure human progress by the increase of per capita inclusive wealth and the total factor productivity reflecting the improvement of institutions.

> Inclusive wealth consists of natural capital, human capital, and productive capital. *Figure2-3

19. Moreover, they posed the question of whether the consumption time profile is sustainable, given the limited natural resources.

- One indicator of sustainability is the difference between the social rate of return on investment in inclusive wealth and the social rate of interest on consumption equal to the natural interest rate satisfying the intertemporal optimization of consumption.
- If the former is higher than the latter, excess consumption or shortage of investment appears, pointing to the unsustainability.
- When they wrote the paper, they could not find any solid empirical evidence of excess consumption.
- > I will be back to the issue in Section III.



FIGURE 2-1. SUBSIDY ON SEMI-CONDUCTOR AND GREEN GROWTH IN JAPAN, THE US, THE EU, AND CHINA

	Japan	US	EU	China
Semi- conductor	 Revised 5G Promoting Act Allocating ¥2.0 trillion (FY2021 and FY2022), and ¥3.4 trillion (FY2023, undecided) from supplementary budgets. ¥476 billion for TSMC (additional support (up to ¥900 billion) is under consideration), ¥92.9 billion for KIOXIA and Western Digital, and ¥46.4 billion for Micron, etc. 	 CHIPS and Science Act Stipulating \$52 billion toward renewing the (heavily outsourced) U.S. semiconductor manufacturing sector \$39 billion in direct payment, \$11 billion for promoting cutting-edge chip research, etc. 	 Chips Act Mobilising €43 billion in public and private investment, for doubling the EU's global market share in semiconductors, from 10% now to at least 20% by 2030. €3.3 billion from the EU budget. 	 「国家集成電路産業投資基金」 Fund for "China Manufacturing 2025" The first planned fund is set up with a registered capital of 144 billion yuan, the second with 200 billion yuan, and the third (May, 2024) with 344 billion yuan.
Green Growth	 GX Economy Transition Bond Promoting public and private investment of about ¥150 trillion over the next 10 years. Government issued bond of Yen ¥20 trillion with the maturity of 10 year. 	 Inflation Reduction Act Investing \$391 billion in Energy Security and Climate Change programs over the next ten years. \$192 billion for clean electricity, \$120 billion for Grants/loans, \$37 billion for advanced manufacturing tax credits, \$14 billion for EV, etc. 	 The European Green Deal Investment Plan Preparing \$600 billion to facilitate green investment. The two main programs are REPowerEU and Recovery and Resilience Facility, followed by REACT-EU and InvestEU. 	 Subsidy for purchasing EV 10 thousand yuan for purchasing new EV. Until now, government assist about 300 billion yuan (in sum). Investment for semiconductor Setting the fund with 12.8 trillion yuan. From 2021 to 2022, local governments invested at least 21.6 trillion yuan (in sum).



FIGURE 2-2: DECOMPOSITION OF CO2 EMISSION REDUCTION



FIGURE.2-3: WORLD PER CAPITA INCLUSIVE WEALTH



Figure 1.7 Changes in worldwide inclusive wealth per capita and other indicators for 1992–2014

1. In 2014, the JCER made policy a recommendation to terminate the ever-declining tendency of Japan's population, given the unsustainability of maintaining growth with sound fiscal policy management.

2. In order to stabilize the size of the total population at about 90 million in 2100, we recommended raising the total fertility rate to 1.8 from 1.4 by expanding public assistance for child care and family expenses to the French level (3.2% of national income from 1%), while accepting the increase of foreign workers to 0.2 million annually.

3. The recommendation was well-accepted by the "Committee for Japan's Future" under the second Abe cabinet except for the words about the increase of immigrants.

The use of the word immigrants was avoided and replaced by the expansion of the program of training foreign workers as an international contribution.

4. If this trend continues, the resulting share of foreign workers in the total population will be 14% in 2100, under the assumption of the total fertility rate birthrate of 1.4 ***Figure 3-1**

- **5.** Today, we observe the decline of the total fertility rate from 1.4 to 1.2 in 2023.
- The number of foreign workers also increased by 0.22million from the previous year and reached 2.04 million in 2023.

6. If we want to achieve the target of a total population of 90 million in 2100 under the assumption of a constant birth rate of 1.2 we need to accept the increase of foreign workers of 0.27 million annually.

7. In order to facilitate the further increase of foreign workers we need fundamental reform of the legal and infrastructure framework of immigration and provide the long-term plan to accept immigrants.

8. The Council of Fiscal and Economic Policy under the Kishida cabinet recently announced the long-term projections covering the period of 2025-2060 which provided three scenarios. ***Figure 3-2**

Three scenarios assumed much higher birth rates (1.36,1.64 and 1.8) than 1.2 with corresponding higher growth rates (0.2%,1.2% and 1.6%).

9. In assessing the future growth path we start with the decomposition of the growth rate into the working age population and labor productivity.

The labor productivity per number of working age population in 1990-2019 registered an average annual growth rate of 1.3%.

> It is almost comparable to the US (1.6%) and Germany (1.6%).

10. However, the real wage per worker peaked in 1996 and exhibited a declining trend (minus 0.4% annually) until today, although it was accompanied by cyclical ups and downs.

This is in sharp contrast to the development of labor productivity per number of working age population. *Figure3-3

11. The gap can be attributed to the large increase of nonregular (part-time) workers due to the increase in the labor participation ratio of women and elderly under the Abe administration, the terms of trade deterioration, the increase in employer social security contribution, and the decline of labor income share.

- Over the future, the terms of trade is likely to deteriorate as a trend, due to the rising trend of carbon prices and continued energy dependency.
- In addition, the rising tax and social security burden of the working generation will also squeeze the real household income. *Figure 3-4
- It should be noted that the pensioners' benefits lag behind the wage increase due to the macroeconomic adjustment scheme in the public pension system.

12. Given weak real wage development and increasing tax and social security burden, the growth rate of per capita real consumption decreased in the past decade.

It will continue to register negative growth rate over the future, even though the potential growth rate will be marginally positive, as in the baseline scenario of long-term projection by the Cabinet Office.

13. This is the basic insight of Krugman (1998) who pointed to the emergence of deflation, due to the appearance of a negative natural interest rate in the Japanese economy.

> In growth theory, the natural interest rate is defined as below:

 $r^* = \rho + \delta g$:

 ρ : time preference rate

 δ : intertemporal elasticity of substitution of marginal utility of consumption

g: growth rate of per capita consumption

- ✓ In the overlapping generations model, the time preference rate is equal to the intergenerational discount rate applied to the next generation's utility.
- ✓ Both Ramsey and Keynes strongly insisted that we should not discount the next generation's utility and set discount rate at zero.
- ✓ Under the assumption of intertemporal elasticity of consumption is one, then the natural interest rate is equal to the growth rate of per capita consumption.

14. There are two important policy implications arising from the emergence of a negative natural interest rate.

15. First, Japan's deflation can be described by Krugman's deflationary equilibrium, not Friedman's.

Professor Cochrane argues that the Bank of Japan implemented the optimal monetary policy with a zero interest rate policy under zero inflation rate and zero time preference rate.

"Cochrane(2024)" *Figure 3-5a,b

- The difference between the two equilibria arises from the interpretation of the effective lower bound on the nominal interest rate; namely, zero or negative.
- The quantitative easing and negative interest policy adopted by the BOJ implies the negative effective lower bound, thus allowing the existence of a negative interest rate.

16. Second, the excess consumption on sustainability put forward by Arrow et.al. will become more realistic, because the negative natural interest rate is likely to be lower than the social rate of return on investment in inclusive wealth presumably at above zero.

- The negative natural interest rate may imply that the consumption activity of human beings may not be sustainable to maintain inclusive wealth.
- This indicates the limit of planetary boundaries and the need for investment in inclusive wealth, notably natural and institution capital.



Projection of the Japanese population



Projection of the share of the immigrants in Japan





FIGURE 3-2: THREE LONG-TERM PROJECTIONS: BIRTH RATE, TFP AND GROWTH RATE BY THE CABINET OFFICE

	Total fertility rate	TFP growth rate (Annual)	Real growth rate (Annual)
Case 1 (Baseline)	1.36	0.5%	0.2%
Case 2	1.64	1.1%	1.2%
Case 3	1.8	1.4%	1.7%

Source: Cabinet Office



FIGURE 3-3A:

LABOR PRODUCTIVITY PER WAP, LABOR PRODUCTIVITY PER WORKER, TERMS OF TRADE AND REAL WAGE PER WORKER



Source: National Accounts, Population Estimation, Labor Force Survey, Monthly Labor Statistics Survey



FIGURE 3-3B: REAL PER CAPITA CONSUMPTION AND SOCIAL SECURITY BURDEN AT FIRM AND HOUSEHOLD LEVEL





FIGURE 3-4: NATIONAL TAX BURDEN



(Note) Both cases are based on the scenario where growth accelerates as a result of system reforms. In the Stagnation Scenario, the burden would be higher. The fiscal burden to increase the birth rate (family allowance) is taken into account. Assumes that, toward 2030, consumption tax is raised to 25%.



Figure 3-5a : Friedman's Deflationary Equilibrium and Cochran's Equilibrium

$$i = r^N + \pi$$

$$i = (\rho + g^c) + \pi$$

where

 ρ : time preference rate

 g^c : growth rate of per capita consumption





Note1: \diamond are data for Japan. Inflation rate and nominal interest rate are defined as y/y changes for CPI(excl. fresh food and consumption tax) and as uncollateralized overnight call rate, respectively. Data is from 1991Q1 to 2023Q4.

Note2: × are data for Swiss. Inflation rate and nominal interest rate are defined as y/y changes for CPI(excl. fresh food and energy) and as policy rate, respectively. Data is from 2001Q2 to 2023Q4. Note3: Data above 5% were not shown.

Source: Ministry of Internal Affairs and Communications, Swiss National Bank, Bloomberg



Figure 3-5b : Krugman's Deflationary Equilibrium

$$i = r^N + \pi$$

$$i = (\rho + g^c) + \pi$$

where

 ρ : time preference rate g^c : growth rate of per capita consumption

Suppose i < 0 and $r^N < 0$. If $\rho > 0$ or $\rho = 0$, then $g^c < 0$

(Per capita consumption decreases.)



Note1: \diamond are data for Japan. Inflation rate and nominal interest rate are defined as y/y changes for CPI(excl. fresh food and consumption tax) and as uncollateralized overnight call rate, respectively. Data is from 1991Q1 to 2023Q4.

Note2: × are data for Swiss. Inflation rate and nominal interest rate are defined as y/y changes for CPI(excl. fresh food and energy) and as policy rate, respectively. Data is from 2001Q2 to 2023Q4.

Note3: Data above 5% are not shown.

Source: Ministry of Internal Affairs and Communications, Swiss National Bank, Bloomberg



1. In revitalizing the liberal international order and the multilateral trading system (WTO), Ambassador Alan Wm. Wolff identifies the principles by citing twenty values of a multilateral trading system"Wolff (2023a,b)".

It is interesting to see sustainability, well-being, and peace in the twenty values, aside from the rule of law, reciprocity, universality, openness, and development.

2. On peace he pointed to the positive association between peace and free trade in constructing postwar liberal international order, thereby pointing to the importance of the Atlantic Charter in 1941 and the philosopher of Immanuel Kant.

In 1941 US President Roosevelt and British Prime Minister Churchill confirmed the importance of certain common principles in the postwar national policies to enjoy equal access to the trade and the raw materials by all the countries, including victor or vanished.

3. Kant argued that humanity faced either the peace of the graveyard of the human race or peace by reasoned design, based on the recognition that humanity is characterized by an "unsocial sociability".

- He envisaged that a voluntary federation of republics could form a perfect civil union of mankind which secures a cosmopolitan system of general security.
- Kantian categorical imperative means that one should take those actions and only those actions that one would advocate all others take as well.
- ➤ "All others" should certainly include the future generation.

4. We face a serious supply shortage of global public goods such as clean air and water, world peace, and a free trading system.

- **5.** Prof. Roemer provided the interpretation of Kantian categorical imperatives in the game theory framework with the Kantian optimization which is different from the Nash optimization.
- Kantian optimization starts with the question "What is the strategy I would like all of us to play?", instead of the question "What is the best response to the counterparty's strategy?"
- Under the condition of a symmetric payoff matrix with a common diagonal with Kantian optimization the Kantian equilibrium emerges and the optimal supply of public goods is realized. "Roemer (2010), (2019)"

6. Kissinger (2014) found that Kant ignored the organic view of political evolution where the world is too complicated and too diverse to form the governmental order through the power of reason alone.

- **7.** However, Kantian ethics on peace may be reinforced, if the people share a common interest in the future generation's life or the collective survival of human beings as the public reciprocity.
- Deliberation with "imaginary future generation" will work to cause changes in the payoff matrix in favor of Kantian equilibrium "Future Design". {Hiromitsu (2023)}
- \succ It is important to note that the preference may change in the process of deliberation.
- Binmore (1992) noted that in cooperative games the preference structure (payoff matrix) and a binding agreement before the game matter more than the available strategies, as compared with non-cooperative games.

8. Those who committed unilaterally to free trade can be regarded as "everyday Kantianist" who seek perpetual world peace, based on moral discipline. "Iwata (1994)"

- In a small and open economy like Singapore it is the best trade policy, irrespective of the protective trade policy of trading partner countries.
- We need to adopt the cooperative optimization approach in reestablishing liberal international order and stress the role of the countries in favor of a unilateral free trade policy.
- Under the circumstance of diversified players with different strategies the existence of everyday Kantianism (unconditional cooperation) plays the role as a catalyst in transforming from a noncooperation to a cooperation regime, if it is combined with normative behavior adopting tit-for-tat strategy within the game theory framework based on Bayesian learning. "Kondo(1990)"

9. An alternative way of restoring the liberal international order relies on the development of regional integration into super-regionalism and the open plurilateral agreement or the Joint Statement Initiative among like-minded members (such as e-commerce and domestic regulation on services) at the WTO.

- This approach is based on the idea of the origin of cooperation among people by the French philosopher Jean Jacque Rosseau.
- > We don't need cooperation, in order to hunt rabbit. But we need it in the stag hunt where the cooperative gain is much larger than that of non-cooperation.

ab

10. The Indo-Pacific countries have achieved significant progress toward an open and free trade/investment system by establishing the CPTPP (Comprehensive and Progressive Agreement for Trans-Pacific Partnership) and the RCEP (Regional Comprehensive Economic Partnership). ***Figure 4-1**

- The entry by the United Kingdom to the CPTPP demonstrated a burst of middle-power diplomacy to reinforce rules-based trade. "Solis (2023)"
- **11.** It will open a new perspective toward super-regionalism if the EU joins the CPTPP.
- It may be remembered that the EU has already engaged in trade and investment negotiations with the Mercosur (Mercado Comun del Sur) since 1995 and joined the ASEAN Regional Forum.

12. If the CPTPP and the EU join together, they enlarge the coverage of FTAs in the global economy (covering 30% of the World GDP) and strengthen the rules-based trading system.

- In our estimates on zero tariff rate policy in expanded CPTPP, only limited real income gain is obtained in advanced economies, because the tariff rates among advanced economies reached already low levels. * Figure 4-2
- > This may point to the importance of deeper economic integration in the region.
- ➢ But the gain derived by UK+EU is relatively large, as compared with CPTPP 11.
- If China enters the expanded CPTPP, China's real income gain is the largest, while the benefit of the US is still limited.

13. Given the large real income gain enjoyed by Vietnam which participates both in CPTPP and RCEP, we can reasonably expect an expansion of membership of the CPTPP including other ASEAN member countries and South Korea. ***Figure 4-3**



FIGURE 4-1 : MEGA-REGIONALISM IN ASIA PACIFIC GDP OF EU +TPP ACCOUNTS FOR AROUND 30% OF THE WORLD







FIGURE 4-2 : REAL INCOME EFFECTS OF CPTPP AND RCEP

Change in real income in the case of CPTPP + RCEP



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Source: Park=Petri=Plummer: ADB (2021)



Figure 4-3:

Effect of Zero-Tariff Policy: Economic Impact of the CPTPP Expansion

Change in real income in the case of CPTPP expansion



Source: JCER estimates.

Note: US = United States, CHN = China. Each case assumes a 0% tariff within the CPTPP region. The impacts are calculated by using GTAP dataset. Since the latest available GTAP dataset draws on data from 2014, this estimation may not fully reflects the changes in the pattern of trade between 2014 and today.

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