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Changes in the Global Economic Landscape and Issues for Japan's Economy

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Changes in the Global Economic Landscape and Issues for Japan's Economy*

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March 2024

Abstract

The effects of globalization on Japan's economy over the past quarter century can be summarized in the following five features. First, compared with the United States and Europe, Japanese firms have tended to raise productivity by improving the efficiency of their production processes through use of low-cost inputs from abroad. Second, a decline in the competitiveness of Japan's trading sector is due to intensifying competition from abroad and it can be seen as a factor behind the deterioration in Japan's terms of trade and the depreciation of the yen's real effective exchange rate in the long run. Third, there has been a shift in employment from the manufacturing sector to the nonmanufacturing sector, while a wage gap between these two sectors has widened. Fourth, globalization has exerted continuous downward pressure on inflation in Japan for most of the past 25 years. Fifth, in the face of declining price markups, partly due to intensified competition from overseas, Japanese firms have been able to secure their profits by increasing wage markdowns. Given the growing debate about the risk of deglobalization and the impact of heightened geopolitical risks, it is worth deepening our understanding of the impact of these factors on Japan's economy by carefully examining how the five characteristics outlined above will change (or whether they will not).

JEL classification numbers: F10, F20, F30, F40, F60, F61, F62

Keywords: globalization, productivity, FDI, terms of trade, exchange rates, labor market, wages, inflation, price markups, wage markdowns

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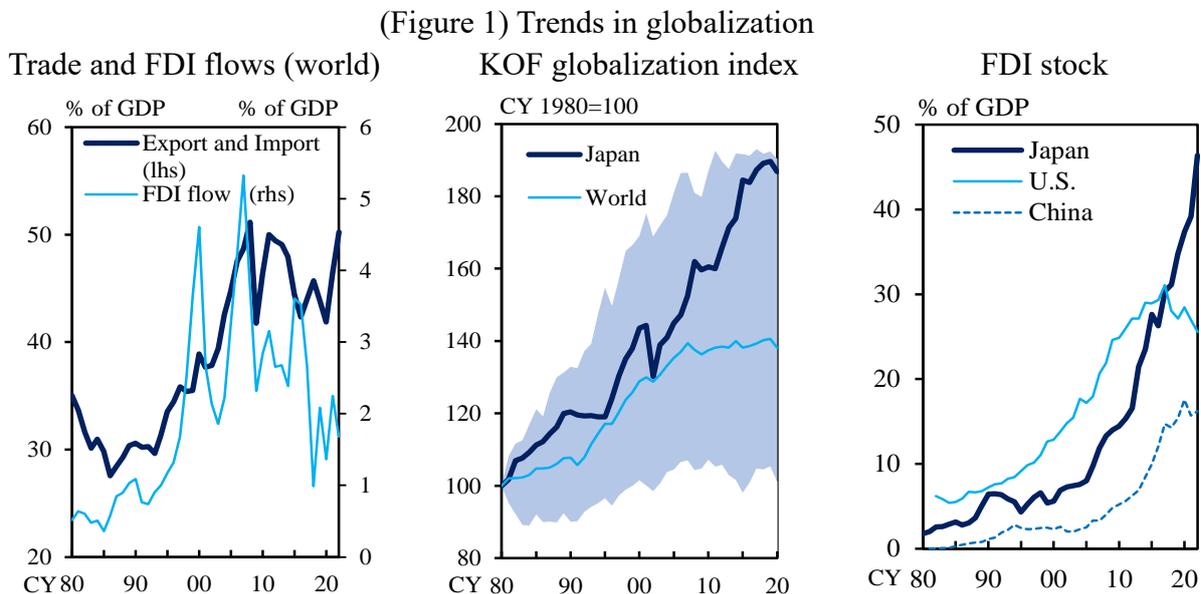
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1. Introduction

Over the past quarter century, Japan's economy has been affected by various structural factors such as globalization and demographic changes. Under these circumstances, there is an ongoing debate on recent changes in the international economic landscape, including risks of deglobalization, heightened geopolitical risks, and firms' responses to address climate change. To gain insights into the impact of these changes, this paper reviews various effects of globalization mainly on advanced economies -- i.e., Japan, United States and Europe -- and discusses implications for Japan's economy.

The trend in globalization since the 1980s can be divided into two broad phases (Aiyar *et al.* [2023]). The first phase is from the 1980s to the mid-2000s, when trade liberalization expanded against the backdrop of the end of the Cold War and China's accession to the WTO (Figure 1, left panel). The second phase -- referred to as "slowbalization" -- is after the global financial crisis (GFC), when trade and foreign direct investment (FDI) flows stagnated due to factors such as the internalization of production in China (Antràs [2020]). However, the degree of economic globalization is heterogeneous across countries as indicated by the KOF Globalization Index (Figure 1, Goldberg and Reed [2023]).¹ In this context, Japan's economy can be seen as an outlier in the slowbalization phase where the pace of globalization had outpaced other countries due to acceleration of FDI.²



Note: The shaded area in the middle figure indicates 90 percentile bands of 158 countries.

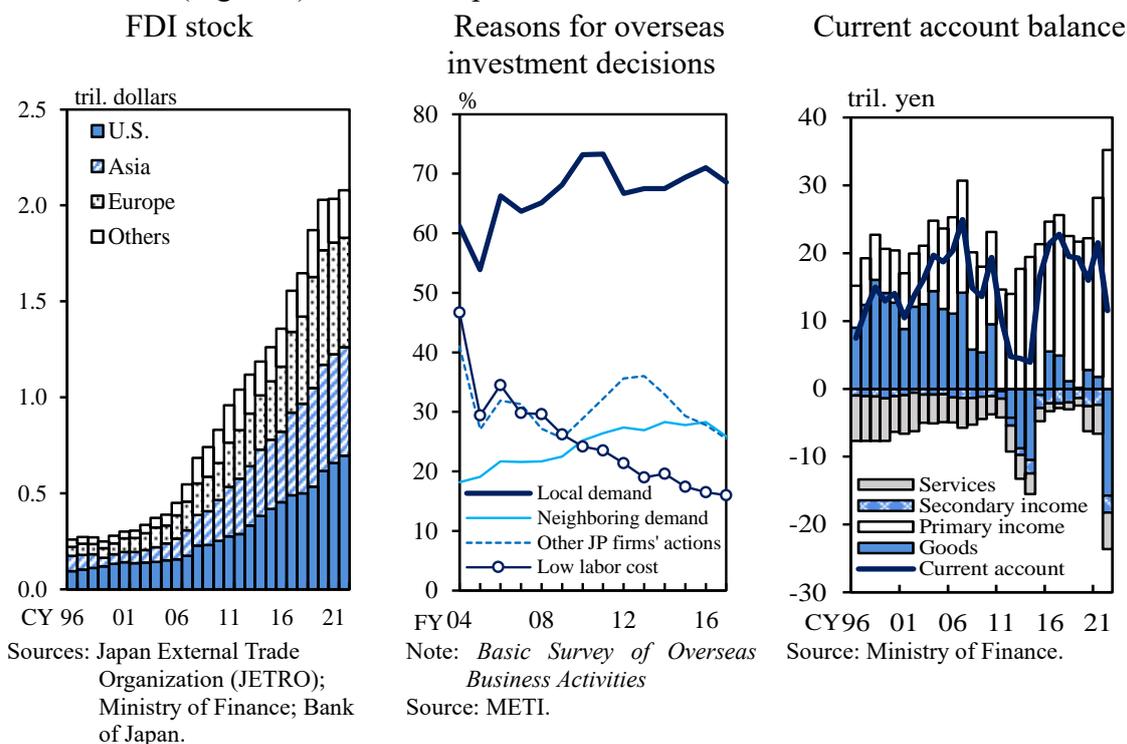
Sources: Bureau of Economic Analysis (BEA); KOF Swiss Economic Institute; United Nations Conference on Trade and Development (UNCTAD); World Bank.

¹ The KOF Globalization Index is constructed from trade flows, diversity of trading partners, FDI (stock), etc.

² In economic terms, FDI stock is considered to be related to the global value chains due to the role of capital in the international production (Wang *et al.* [2021]).

As a factual summary of Japan's past quarter century, in what follows, we review trends in FDI, the current account balance, and labor productivity. Looking at Japan's FDI stock, growth was concentrated mainly in the United States until the early 2000s, and the epicenter shifted to East Asia after the early 2000s (Figure 2, left panel).³ A survey of Japanese firms' reasons for investing overseas shows that "low labor cost" was a key factor in the early 2000s, but the low-cost benefits of offshoring appear to be diminishing (Figure 2, middle panel). On the other hand, the share of firms citing "local demand" is increasing. This suggests that weak domestic growth amid a declining population in Japan has incentivized firms to invest abroad (Nishiguchi [2021a, 2021b], Masuda [2015]). Given these developments in FDI, the long-term evolution of the current account balance shows that Japan's economy has shifted from one financed by trade surplus to one supported by the primary income surplus (Figure 2, right panel) (Ito [2015]).⁴

(Figure 2) Trends in Japan's FDI and current account balance



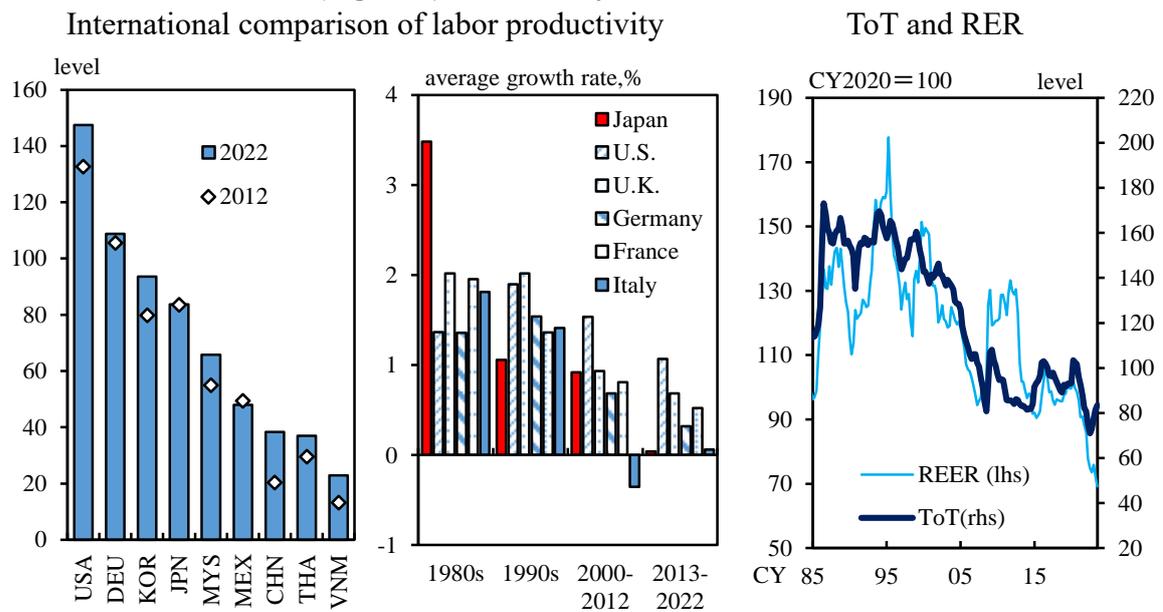
Next, we look at labor productivity trends (Figure 3, left and middle panels). Although Japan's level of labor productivity is relatively high, its growth has slowed over these 25

³ Within the past 25 years, the overseas production ratio of Japanese firms (1990s: 9 percent -> 2010s: 23 percent) and the overseas investment ratio (1990s: 12 percent -> 2010s: 23 percent) continued to rise. The source of the figures in parentheses are from the Ministry of Economy, Trade and Industry (METI).

⁴ At the conference, Motoshige Ito asked about the implications of the slowdown in domestic investment in the face of Japan's rapid growth in FDI. Over the long term, Japanese firms' domestic investment has shifted from research and development (R&D)-related investment to maintenance and replacement-related investment, which may have led to a change in the stimulating effect of investment on the economy.

years, in which some argue that Japan's competitiveness in the global market has weakened (Kiyota, Oikawa, and Yoshioka [2017]). These changes in the competitive environment are also signaled by a deterioration in the terms of trade (ToT), which is closely related to the depreciation of the real effective exchange rate (REER, Obstfeld [2010], Morikawa [2023], Cabinet Office [2011], Morikawa [2012], Figure 3, right panel). In general, long-term trends in the real exchange rate (RER) are said to be consistent with the Balassa-Samuelson (BS) effect, which states that productivity differentials in the trading sector are the main driver in the long run (Chinn and Johnston [1996], Lothian and Taylor [2008], Chong, Jordà, and Taylor [2012]).⁵ In particular, the bilateral RER between the United States and Japan is considered as a classic example of the BS effect among developed countries (Rogoff [1996], Ito and Hoshi [2020], Ito [2022b]). Obstfeld [2010] points out that the declining competitiveness and price dominance of Japan's trading sector and the intensifying competition with China were two major factors behind these developments.

(Figure 3) Productivity, ToT, and RER



Note: Labor productivity is calculated as GDP per worker, converted to real terms using the purchasing power parity-based exchange rates.
Source: The Conference Board.

Sources: Bank for International Settlements (BIS); Bank of Japan.

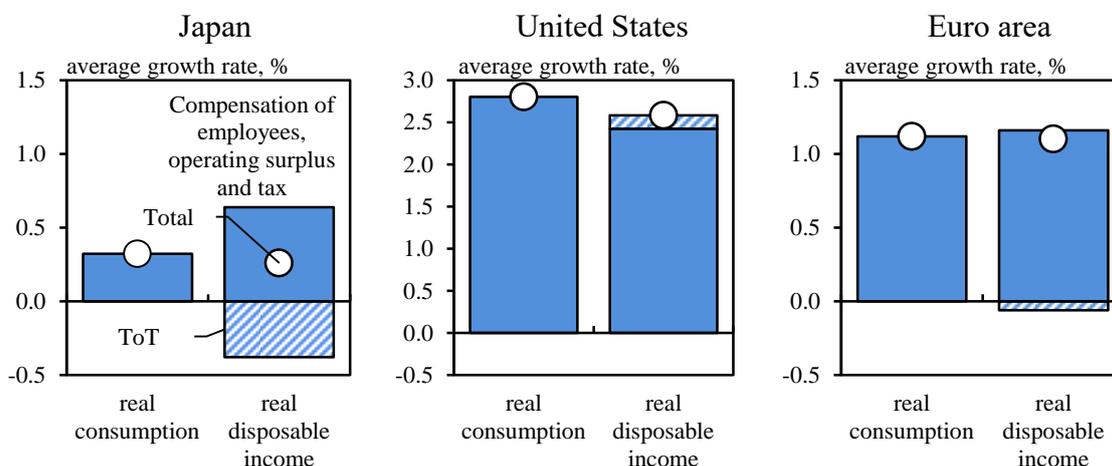
Fluctuations in ToT affect private consumption through real disposable income.⁶ As shown in Figure 4, long-term growth rates of real consumption and real disposable income tend to coincide. However, Japan is exceptional in the sense that the negative

⁵ The BS effect occurs when productivity in a country's trading sector rises relative to its foreign counterparts and the country's RER appreciates. See Section 2. (B) for details.

⁶ In open economy models, changes in ToT are treated as shocks to real disposable income. For a formal treatment, see Mendoza [1997] and Uribe, Schmitt-Grohé, and Woodford [2022].

income effect of deterioration in ToT is much larger than those in other countries. In this regard, [Saito \[2023\]](#) points out that the deterioration in ToT has led to the outflow of Japan's national wealth, which has ultimately led to a stagnation in private consumption.

(Figure 4) Impact of ToT on consumption and disposal income



Note: The contribution of ToT is calculated from the difference between the GDP deflator and the consumption deflator. Sample period is from 2002 to 2022.

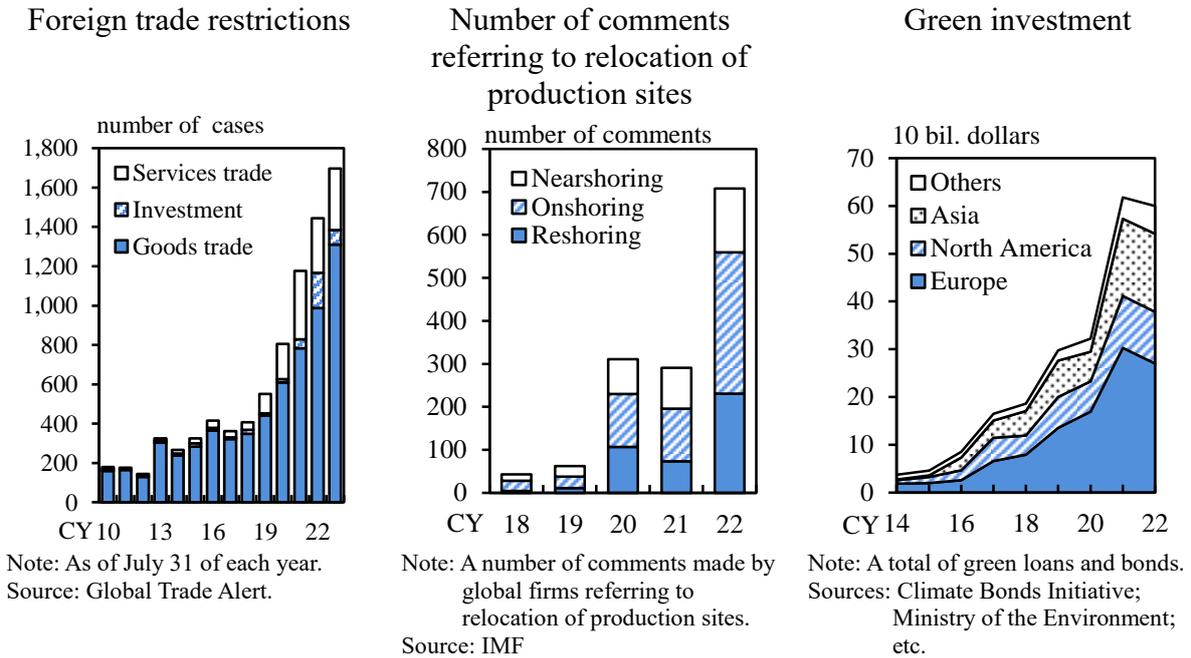
Sources: BEA; Bokan, Dossche, and Rossi [2018]; Cabinet Office; European Union.

In terms of prospects of future trends in globalization, many policymakers and academics have rejected the view that globalization is currently unwinding, but have pointed to risks of deglobalization due to increasing trade restrictions (Figure 5, left panel, [Rajan \[2022\]](#), [Krugman \[2022\]](#), [Powell \[2022\]](#), [Lagarde \[2022\]](#), [Stiglitz \[2022\]](#), [IMF \[2022a\]](#), [Goldberg and Reed \[2023\]](#), [Antràs \[2020\]](#)). In addition, factors such as U.S.-China trade tensions and the situation in Ukraine have made the corporate sector increasingly aware of geopolitical risks such as risks associated with supply chain fragmentations ([Lagarde \[2022\]](#)). This is evidenced by a recent increase in the number of comments referring to relocation of production sites by company officials (Figure 5, middle panel).

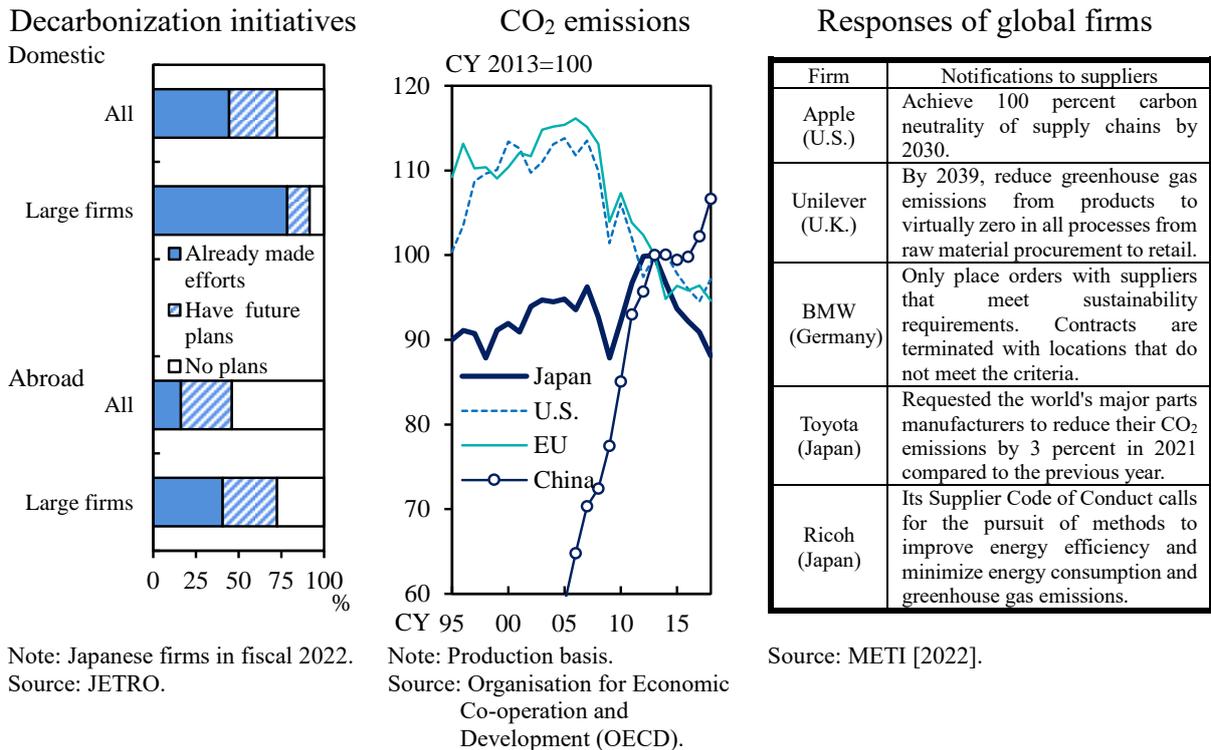
Another change in the global environment is the progress in firms' efforts to address climate change (Figure 5, right panel). According to a JETRO survey, a large proportion of firms in Japan have reported that they have "already made efforts" to decarbonize their emissions (Figure 6, left panel). As a result, CO₂ emissions in Japan have decreased significantly over the past decade (Figure 6, middle panel).⁷ In addition, some large global firms have notified their suppliers to use renewable energy to decarbonize their global value chains (GVCs, Figure 6, right panel). In this context, there are risks that GVCs may be restructured with access to renewable energy ([METI \[2022\]](#)).

⁷ Households' use of energy-saving products has improved energy efficiency ([Aoki et al. \[2023\]](#)).

(Figure 5) Changes in the global environment



(Figure 6) Decarbonization efforts and CO₂ emissions



The remainder of the paper proceeds as follows. Section 2 surveys the literature on the impact of globalization to the real economy and inflation, Section 3 discusses implications of the changing economic landscape on Japan's economy, focusing on the risks of deglobalization and heightening geopolitical risks, and Section 4 concludes.

2. Effect of globalization on the real economy and inflation

In this section, we review the literature on the effects of globalization on advanced economies, with a particular focus on Japan's economy. Specifically, on the real economy side, we focus on the effects on (A) productivity, (B) ToT and RER, (C) the labor market, and (D) risks. On issues related to inflation, we focus on (E) inflation and international linkages, (F) price markups, and (G) wage markdowns. A review of the impact of climate change is discussed in the appendix.

Real economy

(A) Productivity

There are a number of transmission channels through which globalization affects productivity, such as trade activity, FDI,⁸ and GVCs. Note that these channels are not mutually exclusive and are interrelated across groups.

(Trade activity)

The channels through which trade activity affects productivity can be categorized into three broad categories: (i) the "R&D channel" (Lileeva and Trefler [2010], Acemoglu and Linn [2004]), in which exporters engage in R&D as a means to expand their sales channels; (ii) the "input-variety channel", in which increased access to inexpensive imports increases productivity (Halpern, Koren, and Szeidl [2015], Amiti and Konings [2007], Auer, Degen, and Fischer [2013]), and (iii) the "knowledge spillover channel"⁹ (Grossman and Helpman [1991]). There is ample evidence that Japanese firms' have increased their productivity through these channels. For example, firms that conducted R&D abroad improved their technology and quality, developed new products, and acquired intellectual property rights (Ito and Lechevalier [2010], Yashiro and Hirano [2010]). Low-cost intermediate goods from East Asia have suppressed production costs and raised productivity in Japan, especially in downstream firms (Fabinger, Shibuya, and Taniguchi [2017], Furusawa *et al.* [2015]). In the context of knowledge spillovers, firms that have expanded its activities to the United States appear to have benefited from the acquisition of the know-how in the design of R&D and product development facilities (Branstetter *et al.* [2006]).

⁸ Inward FDI also has effects in boosting productivity (Iwasaki [2013]), however, inward FDI in Japan remains at a low level.

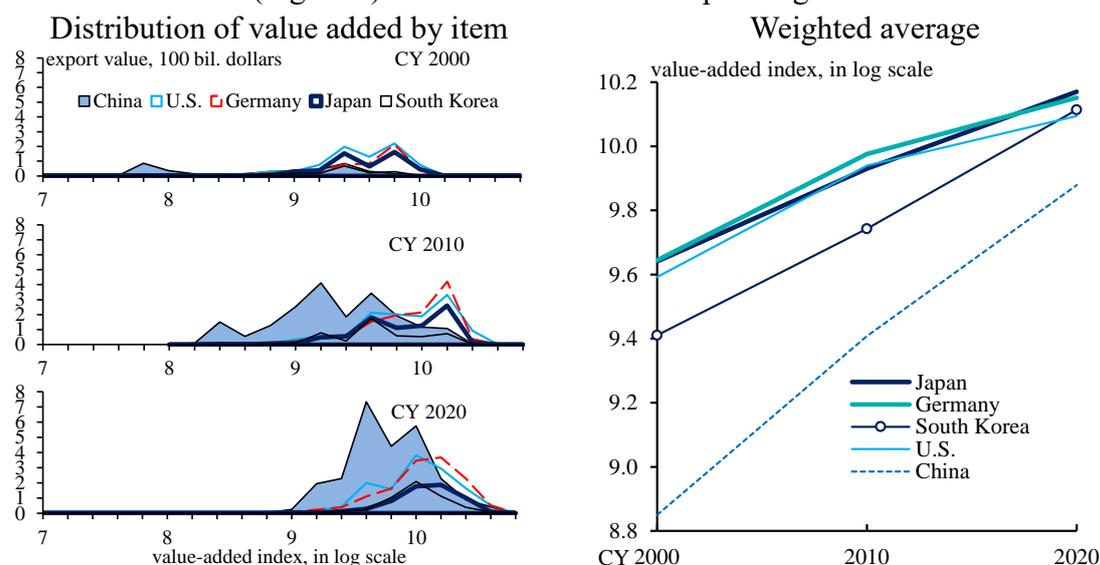
⁹ The knowledge spillover channel is not limited to trade activities, but can also arise from other activities such as FDI (Javorcik [2004], Haskel, Pereira, and Slaughter [2007], Fons-Rosen *et al.* [2021]). We consider the knowledge spillover channel as a broad concept that includes effects from FDIs.

(FDI)

Firms that engage in FDI tend to be large firms, given high fixed costs of investments (Helpman, Melitz, and Yeaple [2004]). In general, channels through which FDI affects productivity in the home country include (i) offshoring low-productivity processes (Antràs and Helpman [2004], Trefler [2004]) and (ii) avoiding import competition by reallocating resources to R&D in nearby sectors (McKendrick, Doner, and Haggard [2000], Hombert and Matray [2018], Branstetter *et al.* [2021]). In this context, Japanese firms that have engaged in FDI have improved productivity by shifting labor-intensive processes mainly to East Asia, thereby concentrating skill-intensive activities at headquarters at home (Todo [2013], Ito and Tanaka [2012], Ito, Tomiura, and Wakasugi [2011]). As a result, some firms have shifted from low-value-added to high-value-added products through creative destruction within the firm (Hahn and Ito [2020]). Some firms were able to avoid import competition by differentiating their products from China which has a comparative advantage in low-end products (Yamashita and Yamauchi [2019]).

Figure 7 shows the value-added distribution of products exported from each country. Trade-oriented firms in Japan have maintained a relatively high position through positive effects of the above channels. However, global competition from foreign manufacturers has intensified, as evidenced by China's catching-up process (Schott, Fuest, and O'Rourke [2008], Gaulier, Lemonie, and Deniz [2007]). Macroeconomic implications of these developments are discussed in more detail in Section 2. (B).

(Figure 7) Value-added index of exported goods



Note: The value-added index is a weighted average of labor productivity of the country exporting goods, weighted by the country's share (of the goods) in the world export.

Sources: IMF; Kwan [2002]; UNCTAD.

(GVC)

The impact of globalization on productivity can also be considered in relation to GVCs. In recent years, there have been methodological innovations in the measurement of GVCs, such as the GVC participation rate in value-added trade.¹⁰ The GVC participation rate of value trade consists of forward participation, which represents the value added supplied by the country in another country's exports, and backward participation, which represents the amount of value added from other countries in the country's exports. Conceptually, forward participation and backward participation are closely related to the R&D channel (Ito [2022a]) and the input-variety channel, respectively (Banga [2013], Cabinet Office [2014]).¹¹ GVC participation can also lead to productivity gains through learn-by-doing and knowledge spillovers (ECB [2019], World Bank [2020], World Bank and WTO [2019], Urata and Baek [2023], Cigna, Gunnella, and Quaglietti [2022]).¹²

Looking at Japan's position in the GVC, although its forward participation rate is higher than other countries, the degree has declined since the GFC (Figure 8, top left panel). During this period, the United States has increased its forward participation rate by adding more value to its services exports, and China has also accelerated its high-value-added exports (Kruger, Steingress, and Thanabalasingam [2017]). Meanwhile, Japan's backward participation rate has risen as a result of increased imports of low-cost intermediate goods. In contrast, China's backward participation rate has declined due to the internalization of production (Figure 8, top right panel). This change in Japan's position in GVCs may be related to changes in its international competitiveness. That is, until the early 2000s, Japan's position as a GVC hub stimulated knowledge spillovers and innovation within the country, but since then, the Asian hub has shifted from Japan to China, which may have influenced changes in Japan's relative competitiveness (Ito [2019a, 2019b], World Bank and WTO [2019]). At the conference, Keiichiro Kobayashi asked about the impact of exchange rate fluctuations on the GVC participation rate. Given the possibility that Japan's deeper integration into GVCs may have reduced the exchange rate sensitivity of its exports (as discussed later in Section 2. (B)), it is unlikely that short-term exchange rate fluctuations would lead to changes in GVC participation rates.

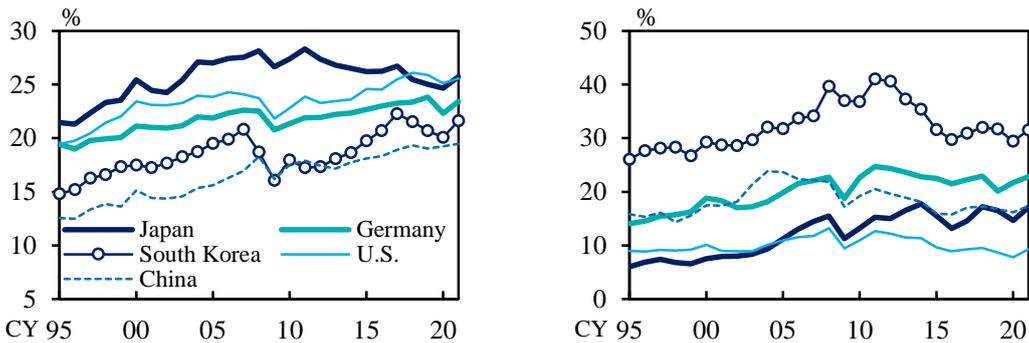
¹⁰ There is a so-called double counting problem in trade, where the gross export value includes value added from other countries. Koopman, Wang, and Wei [2014] developed a method to allocate the value added included in the gross export value by country of origin using the international input-output table.

¹¹ A country's forward participation rate is positively related to the number of patents it holds (Ito [2022a]), while a higher backward participation rate contributes to the price competitiveness of exports by importing low-cost intermediate goods (Banga [2013], Cabinet Office [2014]).

¹² Studies on GVC measurement using international input-output tables have proposed various indicators such as the GVC participation rate (Koopman, Wang, and Wei [2014]), upstreamness and downstreamness (Wang *et al.* [2017], Antràs and Chor [2018]), supply chain length (Antràs and Chor [2022]), and links to other countries (Cigna, Gunnella, and Quaglietti [2022]), among others.

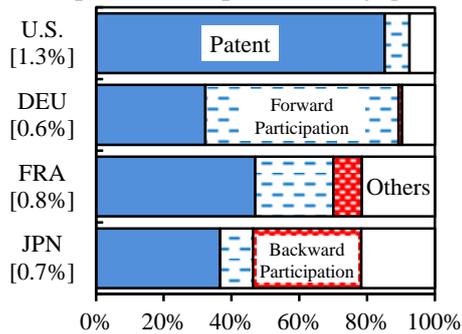
To measure the overall impact of R&D, intellectual property (IP), and GVC participation on productivity, we conducted a panel regression analysis consisting of advanced economies (Figure 8, bottom left panel).¹³ The estimation results show that R&D, IP, and GVC participation explain a substantial part of the productivity growth rate of each country, but there are some notable differences. The positive effects of patents/IP and forward participation are relatively large for the United States and Europe, while the positive effect of backward participation is large for Japan. This suggests that compared with the United States and Europe, Japanese trading firms have tended to increase productivity by improving the efficiency of production processes through the use of low-cost production inputs from abroad. This finding is consistent with the fact that in Japan, the share of "process innovation," or improvements in production efficiency, has increased more than the share of "product innovation," which is conceptually similar to the provision of innovative products and services (Figure 8, bottom right panel).

(Figure 8) Relationship between GVC participation rate and productivity



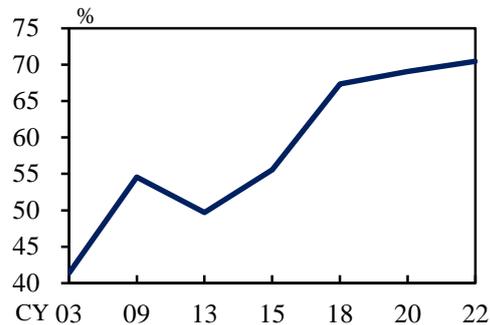
Note: Trade on a value-added basis; estimates using Asian Development Bank (ADB) values after 2019. Sources: ADB; OECD.

Decomposition of productivity growth



Note: Contributions of each factor on the average growth rate of labor productivity (2000-18). Numbers in brackets are average growth rates. Sources: The Conference Board; OECD; World Intellectual Property Organization (WIPO), etc.

Process innovation ratio (Japan)



Note: Firms with 10 or more employees. The horizontal axis shows the year of the survey. Source: Ministry of Education, Culture, Sports, Science and Technology

¹³ Panel estimation was conducted for a cross-section sample of 12 advanced economies, using growth rates of the number of patents and intellectual property rights and the GVC participation rate (forward and backward participation) as explanatory variables for labor productivity. The estimation period is 2000-2018.

(Heterogeneous impact across firms)

Since the impact of globalization on productivity may vary by firm size, this subsection considers the heterogeneous impact of globalization. As discussed above, relatively large firms that engage in trade and FDI can raise productivity through various channels. On the other hand, for smaller firms that do not trade, globalization may have a negative impact on productivity due to increased competition from abroad (Shu and Steinwender [2019], Peters, Roberts, and Vuong [2022], Furusawa, Konishi, and Anh Duong [2020]). In the United States, (i) increased export competition has reduced the willingness of low-productivity firms to innovate (Aghion *et al.* [2018]), (ii) increased imports from China have reduced R&D for existing products (Campbell and Mau [2021], Autor *et al.* [2020a]), and (iii) in industries where imports of Chinese products have increased, demand for domestic products has decreased, reducing gross value added in that industry and its upstream industries (Acemoglu, Akcigit, and Kerr [2016]). A similar trend has been observed in Japan, where firms facing severe competition from Chinese manufacturers are compelled to switch products and adjust employment as a means of avoiding fierce competition (Ito and Matsuura [2022], Bellone, Hazir, and Matsuura [2021]).

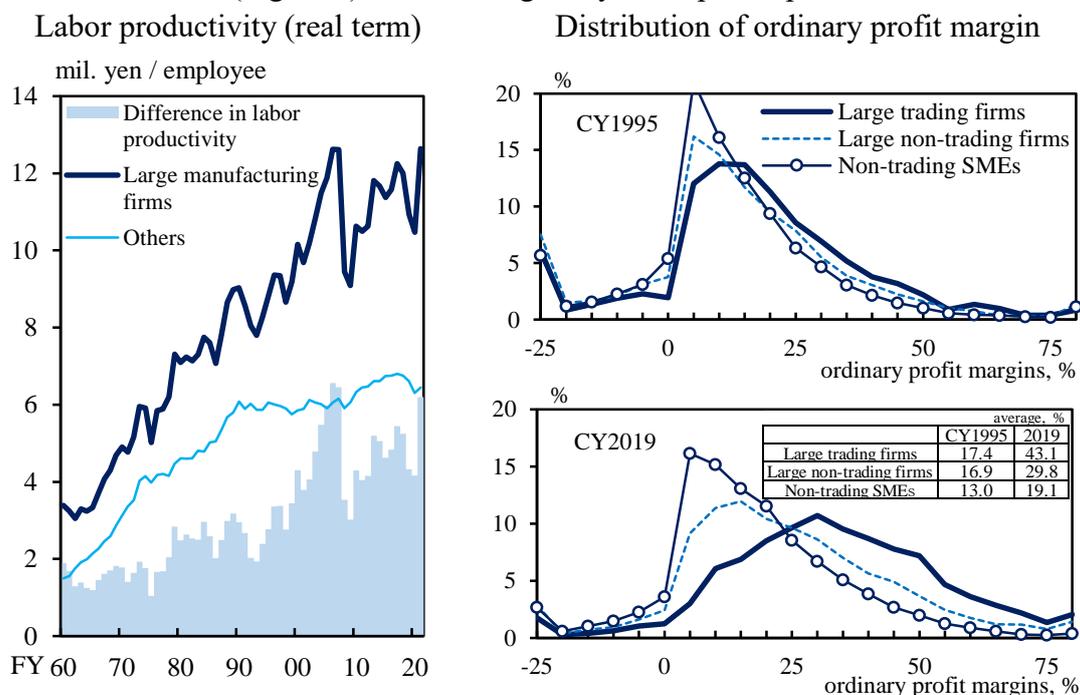
Figure 9 presents the productivity differential between Japanese large manufacturing firms and that of small and medium-sized enterprises (SMEs). This shows that productivity differential has widened significantly over the past 25 years. In addition, exports have increased mainly in large firms, while those of SMEs have barely increased (change in the export sales ratio [1998 to 2021]: from 13 percent to 23 percent for large firms, from 2 percent to 5 percent for SMEs). On this point, Iwamoto [2015, 2016] focuses on differences between Japanese and German SMEs engaged in trade activities. That is, German SMEs tend to have upstream (product planning, development, and design) and downstream (sales, marketing, and customer service) functions in addition to production processes, and are therefore more willing to develop overseas operations on their own. Japanese SMEs, on the other hand, tend to have only production processes and are relatively weak in developing business relations in global markets.¹⁴

The positive and negative effects of globalization on productivity will ultimately be reflected in corporate profits. This claim is theoretically supported by Furusawa, Konishi, and Anh Duong [2020] where they show in a modern trade model that as market integration deepens through globalization, profits of top firms producing high-value-added products will increase significantly, leading to a widening gap in profitability across firms. Looking at Japanese firms' corporate profits by firm size, large trading firms

¹⁴ According to Iwamoto [2015], Japanese SMEs tend to take a considerable amount of time to develop trade channels (54 years in Japan and 13 years in Germany).

(those engaged in both FDI and exports) have seen their ordinary profit margins rise by more than 20 percentage points over the past 25 years, while the performance of non-trading and smaller firms has barely improved (Figure 9, right panel). This suggests that globalization has had an impact on a widening gap in corporate profits across firms.

(Figure 9) Firm heterogeneity of corporate profits



Note: Labor productivity = value added / number of employees. Large firms are those with capital of 100 million yen or more.
Source: Ministry of Finance.

Note: Ordinary profit margin is on a value-added basis. Large firms are those with capital of 100 million yen or more. The table shows averages for each year.
Source: METI.

(B) ToT and RER

In this subsection, we summarize the implications of changes in Japan's productivity and competitiveness on ToT and RER.

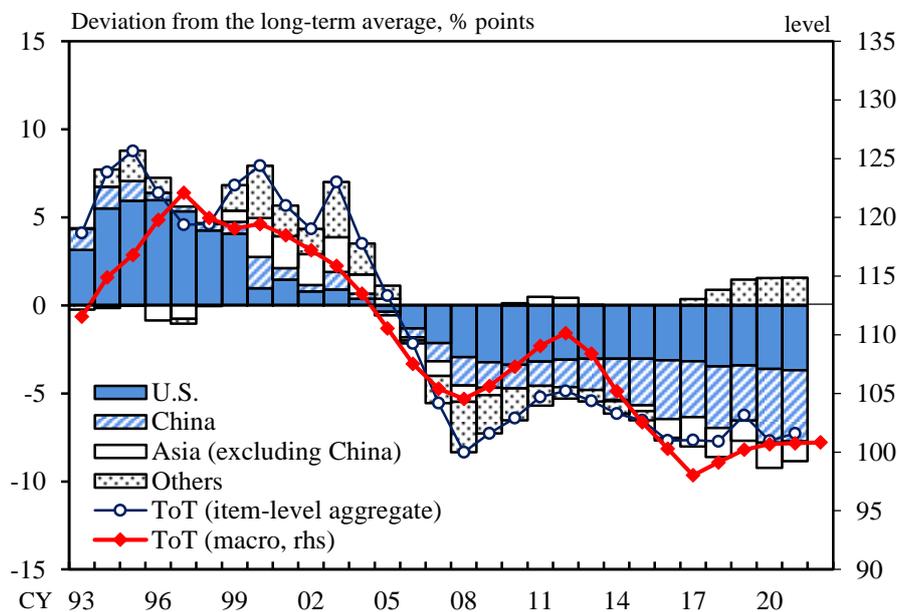
(ToT)

Changes in the global competitive environment are likely to be reflected in ToT (Obstfeld [2010], Morikawa [2012], Morikawa [2023], Cabinet Office [2011]).¹⁵ However, looking at the macro data alone is not sufficient to identify the trading partners that have contributed to these developments. With this in mind, we use the method developed by Gopinath *et al.* [2020] to decompose changes in Japan's ToT by trading

¹⁵ Following the method in Obstfeld [2010], it is estimated that about 60 percent of the long-term deterioration in the terms of trade is due to factors other than commodity prices such as crude oil.

partners using an item-level database (Figure 10). The figure shows that the aggregate ToT calculated from item-level data exhibit similar trends as the macro ToT. In addition, there are some notable features. The bilateral ToT with the United States has shifted downward from the mid-1990s to the early 2000s due to increased competition, especially in IT-related goods. Looking at cumulative changes since 1995, the United States has been the largest contributor to the downward shift in Japan's ToT. As with Asian countries, ToTs have gradually deteriorated due to increased competition from China, Korea, Taiwan, and other countries following China's accession to the WTO. These results are consistent with the view that Japan's competitiveness in global trade has declined due to increased competition.

(Figure 10) ToT decomposition (Japan)



Note: ToT (item-level aggregate) is calculated by country and goods based on the method developed by Gopinath *et al.* [2020]. Figures are estimated from BACI-CEPII data after 2016. ToT (macro) is calculated as the ratio of the export price index / import price index, and excludes the effects of commodity price fluctuations.

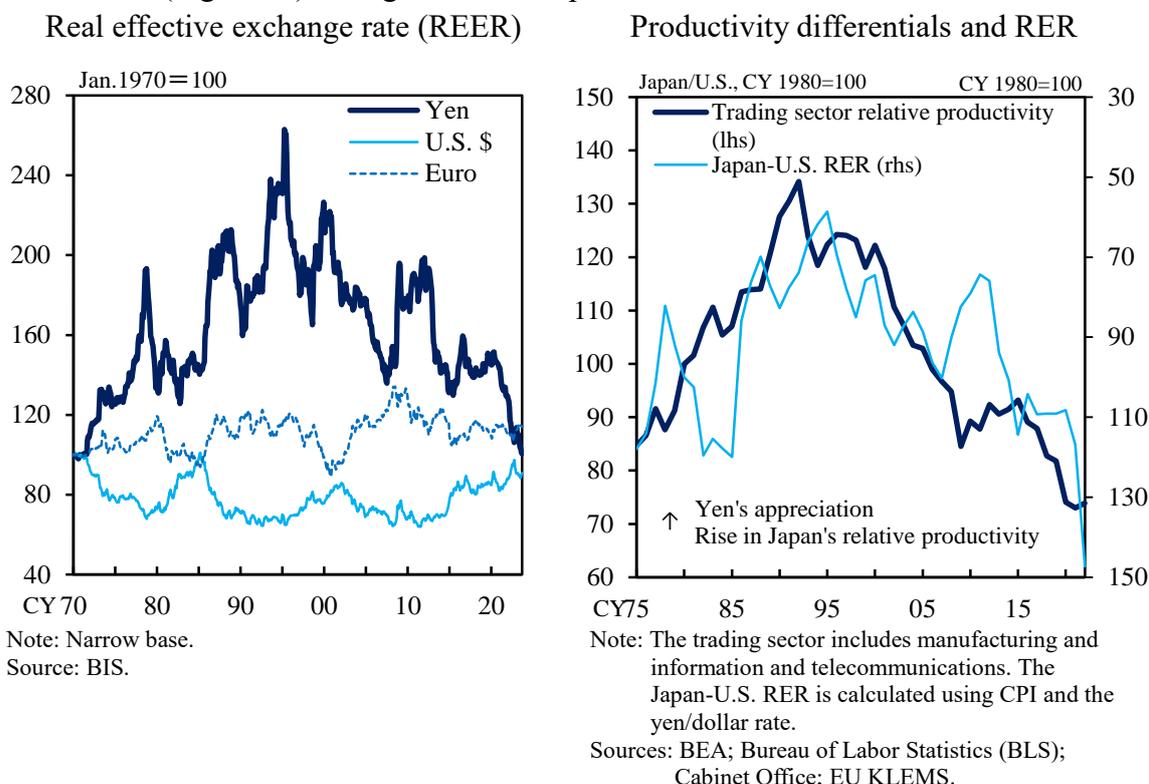
Sources: BACI-CEPII dataset; Gopinath *et al.* [2020]; IMF.

(RER and productivity differentials)

In the short run, RER fluctuations are said to be disconnected with macroeconomic fundamentals, such as productivity, while the long-run behavior is said to be driven by productivity differentials in the trading sector -- the Balassa-Samuelson (BS) effect -- (Rogoff [1996], Chinn and Johnston [1996], Lothian and Taylor [2008], Chong, Jordà, and Taylor [2012]). The BS effect is the idea that a positive productivity shock in a country's trading sector raises wages in that sector, which in turn raises wages and prices in the non-trading sector, ultimately leading to an appreciation in the RER of the country where the positive productivity shock originated. Looking at the long-term trend of the yen's RER, the yen appreciated from the 1980s to its peak in the mid-1990s, due to

relatively high productivity growth in Japan's trading sector and the effects of the 1985 Plaza Accord (Figure 11, left panel, Rogoff [1996], Ito [1997, 2005], Ito and Hoshi [2020], Yoshikawa [1990]). Meanwhile, the RER has depreciated from its 1995 peak, which has been interpreted as a reverse Balassa-Samuelson effect due to declining competitiveness of Japan's trading sector (Ito [2022b], Ito and Hoshi [2020]). Figure 11 shows a comparison of labor productivity differentials between the U.S. and Japan's trading sectors and their bilateral RER, suggesting that the two are closely related. Hogen and Kishi [2024] uses a two-country, two-sector dynamic stochastic general equilibrium (DSGE) model to show that the BS effect can explain a large part of the trends in the dollar-yen RER.

(Figure 11) Changes in the competitive environment and RER



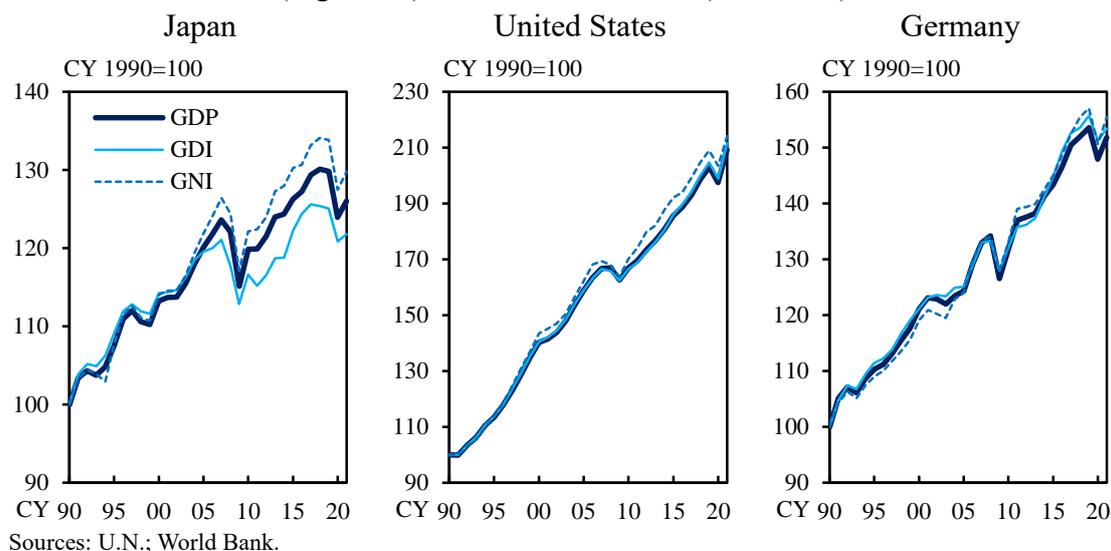
(Distributional implications)

In the System of National Accounts (SNA) statistics, the effects of fluctuations in ToT and FDI are reflected in real gross domestic income (GDI) and real gross national income (GNI). Real GDP does not reflect the impact of ToT because prices are fixed in the base year, while real GDI includes "trade gains" calculated from fluctuations in ToT.¹⁶ In addition to GDI, real GNI includes the effects of FDI by including "net income received

¹⁶ Trade gains are calculated as follows: nominal net exports / weighted average of export and import deflator – real net exports.

from abroad." While Japan's GDI has been sluggish due to the deterioration in ToT, its GNI growth has been relatively higher than in other measures due to the effects of income gains from FDI. Japan is unique in the sense that the gap between these indicators is larger than other countries (Figure 12). Regarding Japan's GDI, [Saito \[2023\]](#) points out that the deterioration in ToT has led to outflows of Japan's national wealth abroad which have ultimately led to a prolonged stagnation in private consumption.

(Figure 12) GDP, GDI, and GNI (real terms)



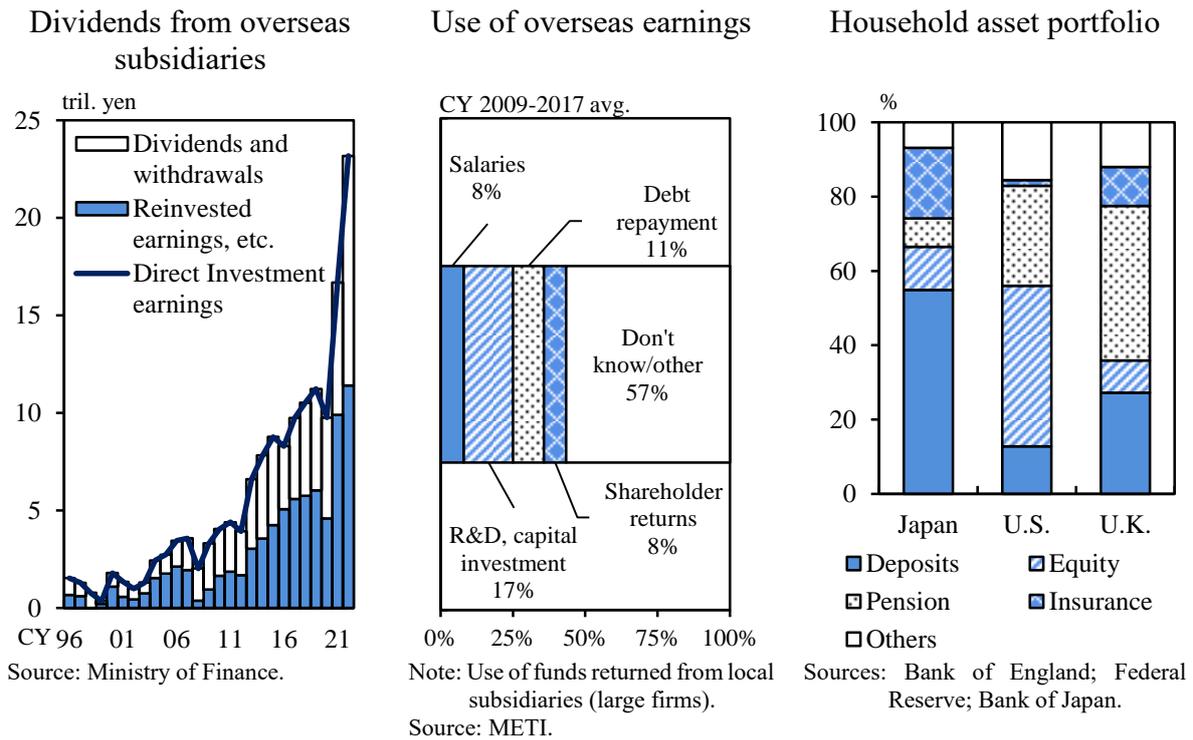
When discussing the macroeconomic impact of FDI on the domestic economy, it is important to consider distributional effects of how firms return FDI earnings to their home economy. As shown in Figure 13, about a half of Japanese firms' FDI earnings (e.g., dividends from local subsidiaries) are saved as retained earnings (shown as "reinvested earnings" in the figure). In the literature, precautionary motives based on risks of overseas expansion ([Amess \[2015\]](#), [Aoyagi and Ganelli \[2017\]](#)) and collateral demand ([Kang and Piao \[2015\]](#), [IMF \[2023a\]](#)) have been suggested for this phenomenon.¹⁷ In addition, the results of a corporate survey on how firms use their retained earnings in the domestic market show that while a total of about 20 percent of the respondents answered that they have used these funds on R&D, capital investment, and salaries, about 60 percent of the respondents chose "don't know/other" as the use of such funds (Figure 13, middle panel). In this regard, the [Cabinet Office \[2023\]](#) points out that dividends and other payments from overseas are not sufficiently used for domestic investment and wage payments.¹⁸

¹⁷ Intangible assets (e.g., patents) are difficult to use as collateral for FDI, which increases the demand for liquid assets as collateral.

¹⁸ At the conference, Ryutaro Kono asked how the effects on domestic spending differ between an economy with a trade surplus and one with a primary income surplus. In the former, producers' surpluses are distributed mainly through employer compensation, while in the latter, income from abroad is distributed through dividends and other means, and changes in the distribution structure may lead to changes in

As the declining population trend continues in Japan, firms will continue to have incentives to increase their sales by capturing overseas demand through expanding FDI. Under these circumstances, in order to achieve a virtuous cycle of income and spending in Japan, it can be considered effective for households to shift their asset portfolios from deposit-oriented assets to risky assets, while weighing the balance between risks and returns (Figure 13, right panel).

(Figure 13) Foreign earnings repatriation



(ToT and nominal exchange rate)

This subsection focuses on the relationship between ToT and nominal exchange rates (NER). In general, NERs are affected by nominal interest rate differentials, and also has implications for the pass-through to prices. The effects of changes in the U.S. interest rate on Japan's NER is discussed in detail in Miyamoto [2024] at this conference. The pass-through from import prices to consumer prices appears to have increased in Japan in recent years, as the import penetration ratio for some items, such as durable goods, has continued to rise (Shioji [2014], Yagi et al. [2022]).

In general, the pass-through from the NER to ToT can vary depending on the pricing stance of firms (Obstfeld and Rogoff [1995]). To illustrate, holding quantities and prices fixed, when the NER appreciates, ToT improves in the case of Producer Currency Pricing

households' spending behavior (Sakura and Iwasaki [2012]).

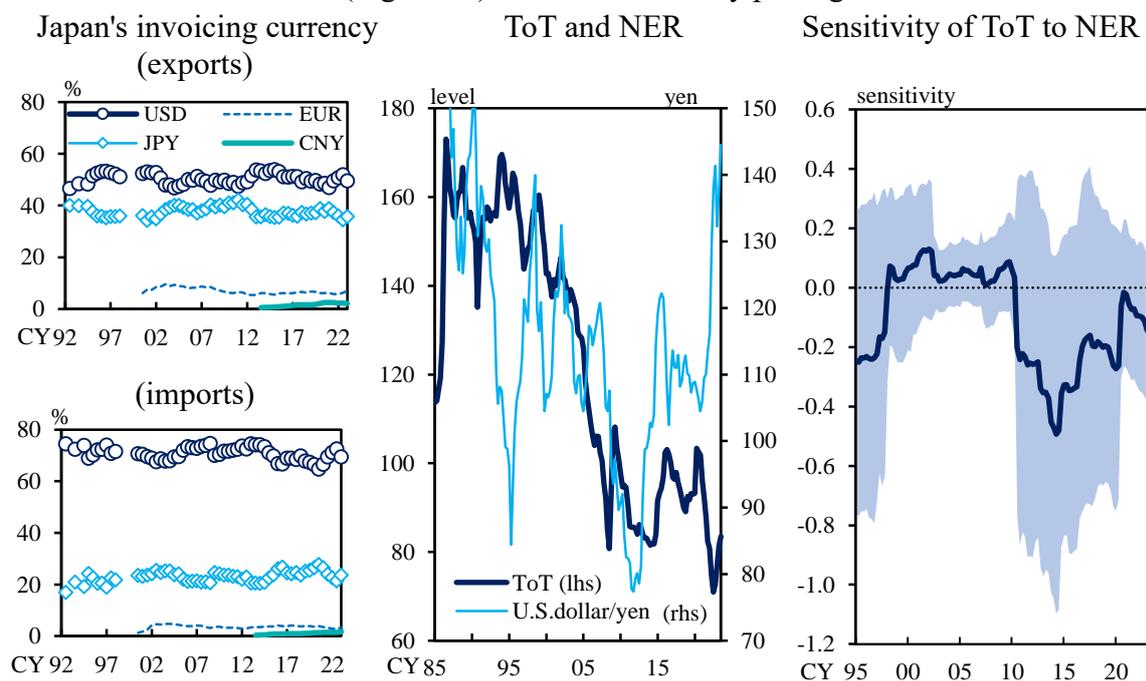
(PCP), while ToT deteriorates in the case of Local Currency Pricing (LCP).¹⁹ In this context, the literature has traditionally discussed the pass-through of the NER on ToT in the context of PCP and LCP. However, in recent years, the concept of Dominant Currency Pricing (DCP) has attracted attention in the literature given the fact that the majority of trade transactions are invoiced in major currencies such as the U.S. dollar (Goldberg and Tille [2008], Gopinath *et al.* [2020]). Figure 14 shows the invoicing currencies of Japan's trade activities. This shows that about 50 percent of exports and 70 percent of imports are invoiced in U.S. dollars, and this ratio has been stable over time.²⁰ In a two-country case, DCP can be viewed as a mixture of LCP and PCP; taking Japan and the United States as an example, DCP implies that Japanese firms engage in LCP and the United States firms engage in PCP. The main implication of DCP is that since both the numerator (export prices) and the denominator (import prices) of ToT are invoiced in the dominant currency, changes in the NER have little effect on ToT. In fact, looking at the relationship between Japan's ToT and dollar/yen NER, there have been periods, such as the late 1990s through the mid-2000s, when the yen appreciated and the ToT deteriorated at the same time. There have also been periods, such as the recent period, when they moved in opposite directions (Figure 14, middle panel). With these observations in mind, we estimated the sensitivity of ToT to the dollar/yen NER using a rolling regression, where we found that these estimates are not significantly different from zero (Figure 14, right panel). This implies that the long-run relationship between ToT and NER is weak, which is consistent with the implication of DCP. Given these results, it can be viewed that changes in ToT tend to reflect productivity differentials and changes in competitiveness, rather than developments in NER.²¹

¹⁹ For a formal treatment of PCP, see for example Obstfeld and Rogoff [1995], Gali and Monacelli [2005]. For LCP, see Betts and Devereux [2000] and Devereux and Engel [2003] among others.

²⁰ Regarding the choice of invoicing currency, Japanese manufacturing firms tend to choose the destination currency for exports to advanced economies: more than 85 percent of exports to the United States are in U.S. dollars, and about 55 percent of exports to the European Union are in euros (Ito *et al.* [2018a]). Local subsidiaries in advanced economies tend to choose local currencies to avoid exchange rate risks in the face of market competition. Intra-Asian trade in intermediate goods also tends to choose the U.S. dollar, as final goods exported from Asia to the United States are often denominated in U.S. dollars (Ito *et al.* [2018a]). In recent years, the share of Asian currencies has increased somewhat due to a growing presence of Asia as a final consumption destination and the development of its financial markets (Ito *et al.* [2018b], Ueda [2023]).

²¹ When considering the pass-through of exchange rates to ToT, one can assess export and import prices, respectively. The pass-through of export prices is said to be declining due to competition from China and other countries (Georgiadis and Schumann [2021], Taylor [2000], METI [2012]). On the other hand, import prices have shown an increasing share of imports from emerging economies in recent years, and the exchange rate pass-through has been on an upward trend (Shioji and Uchino [2011]). Given these results, it is possible that the nominal exchange rate pass-through to ToT is increasing, but the estimation results in this paper do not suggest such tendency.

(Figure 14) Dominant currency pricing



Note: Figures for 1992-1998 are taken from the Ministry of International Trade and Industry and those for 1999 onward are from the Ministry of Finance.
Sources: METI; Ministry of Finance.

Note: ToT is calculated as the ratio export price and import price indexes.
Source: Bank of Japan.

Note: The estimates are obtained using 10-year rolling window regressions. The shaded area indicates 2 standard deviation bands.
Source: Bank of Japan.

(Exchange rate sensitivity of exports)

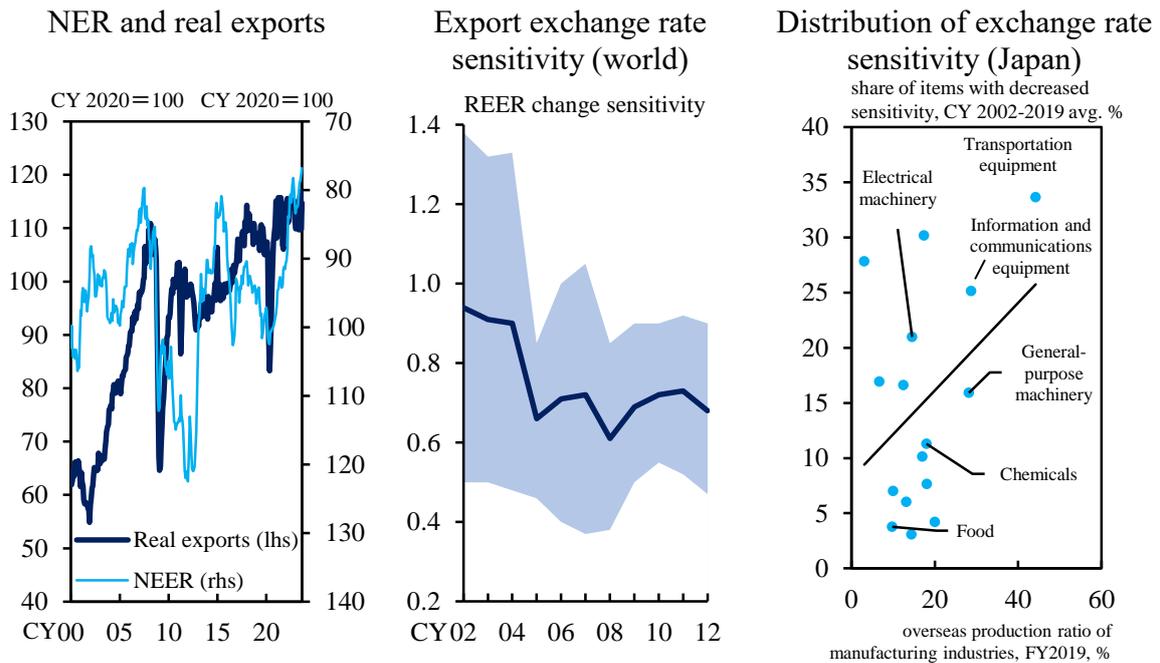
To conclude this subsection, we summarize the discussion on the sensitivity of export quantities to exchange rate fluctuations. In Japan, despite a rapid depreciation of the yen observed in the second half of 2012, export volumes did not increase significantly (Figure 15, left panel). In considering this case, it is important to keep in mind that the exchange rate sensitivity of exports appears to have declined globally (Ahmed, Appendino, and Ruta [2016]). While it is common in the literature to measure the exchange rate sensitivity of exports with respect to the RER, from a practical perspective, it is also useful to check the relationship with the NER (Bank of Japan [2018, 2022]).

There are two main hypotheses in the literature behind the global decline in the exchange rate sensitivity of exports (Figure 15, middle panel). The first hypothesis is that countries have become more integrated in GVCs (De Soyres *et al.* [2021]). As firms become more integrated into GVCs, exchange rate fluctuations in a country are less likely to be reflected in final prices. This is because even if a country's currency depreciates, it only increases competitiveness of the product in part of the overall supply chain (Ahmed,

Appendino, and Ruta [2016]). Indeed, looking at the exchange rate sensitivity of Japan's exports by product category, the higher the share of overseas production is, the lower the exchange rate sensitivity of exports gets, which is consistent with this view (Figure 15, right panel, Bank of Japan [2018, 2022]).

Another hypothesis is that firms increasingly tended to exercise market power and absorb the effects of exchange rate fluctuations through price markups (Amiti, Itskhoki, and Konings [2014a, 2014b]), Chen and Juvenal [2016], and Berman, Philippe, and Thierry [2012]). There are views suggesting that this is also true for Japan; the effects of low-cost intermediate goods from Asia may have been offset by higher import costs due to the depreciation of the yen (Amiti, Itskhoki, and Konings [2014a], Inui and Kim [2020], Sato *et al.* [2020]). In addition, there is some anecdotal evidence that Japanese manufacturers, such as automakers, tend to price in the contract currency which may have contributed to the weakening of the linkage with exchange rates (Bank of Japan [2018]).

(Figure 15) Exchange rate sensitivity of Japan's real exports



Note: The NEER is inverted.
Sources: BIS; Bank of Japan.

Note: The estimates are obtained using 7-year rolling window regressions. The shaded area indicates 2 standard deviation bands.
Source: Ahmed, Appendino, and Ruta [2016].

Note: 2,710 items are covered.
Source: Bank of Japan [2022].

(C) Labor market

The impact of globalization on the labor market of advanced economies has been the subject of various discussions. We group them into two categories: (1) macro reallocation

of labor and (2) increased demand for high-skilled labor and a widening wage gap.

(Macro reallocation of labor)

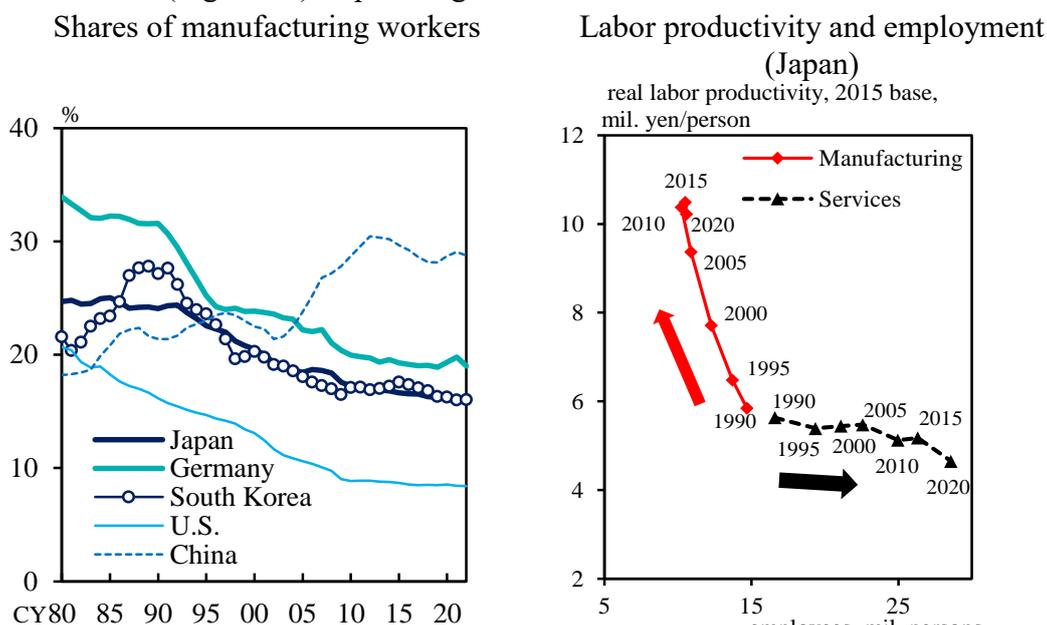
In advanced economies, offshoring of low-profit processes has led to a shift in employment from manufacturing to non-manufacturing (Figure 16 left panel) (Autor, Dorn, and Hanson [2013], Magyari [2017], among others).²² In the United States, increased competition from China is reported to have led to a loss of about 800,000 manufacturing jobs (Caliendo, Dvorkin, and Parro [2019]). On the other hand, some argue that the macroeconomic impact on aggregate employment has been rather limited. In the United States, some of manufacturing job losses were absorbed by the non-manufacturing sector (e.g., information technology, finance, and engineering) (Pierce and Schott [2016], Fort, Pierce, and Schott [2018]).²³ Similarly, in Europe, the number of manufacturing workers declined by about 1.8 million between 1995 and 2008, while the employment of high-skilled professionals increased by about 4 million (Auer, Degen, and Fischer [2013], Timmer *et al.* [2014]). In Japan, manufacturing employment also declined due to the outsourcing to East Asia, but the aggregate employment did not decline as much due to the expansion of other businesses (Todo [2013], Ito [2019], Kiyota, Nakajima, and Takizawa [2022], Hayakawa, Ito, and Urata [2021]).²⁴ In fact, while Japan's manufacturing sector increased its productivity through various channels and the employment declined, the services sector continued to increase employment with little improvement in productivity (Figure 16, right panel). The impact of globalization on Japan's labor market is examined in detail in Takizawa [2024] at this conference.

²² In advanced economies, firms and regions exposed to increased foreign competition experienced lower employment and lower wages (Caliendo, Dvorkin, and Parro [2019], Ebenstein *et al.* [2014], Auer, Degen, and Fischer [2013], Trefler [2004]). For the United States, Autor, Dorn, and Hanson [2013] find that regions facing trade competition from China experienced higher unemployment rates, lower wages, and higher unemployment benefits, and that the employment adjustment was more significant the larger the increase in imports. In contrast, Magyari [2017] argues that it is not appropriate to look at regional-level data because increased imports from China provided incentives for U.S. firms to diversify and restructure production, and in many cases firms that cut jobs expanded employment in other (non-manufacturing) businesses in other locations.

²³ Other aspects include an increase in the number of high-wage paying firms that do not have a production process, but rather diversify their business (engineering, design, marketing, etc.) in response to increased competition in imports (Bernard and Fort [2015]).

²⁴ For Japanese firms, offshoring seemed to have had a limited impact on the total domestic employment, with the positive effects outweighing the negative effects of domestic plant closures and other factors (Todo [2013]). It has also been noted that the increase in imports from China led to a slight decline in employment, especially in industries that compete directly with China, but employment had increased in upstream firms that purchase raw materials and intermediate goods (Hayakawa, Ito, and Urata [2021]). Related to this point, Kiyota, Nakajima, and Takizawa [2022] found that the number of employees in the manufacturing sector declined due to competition from overseas, but demand for technology-intensive activities increased as a result of the offshoring of non-technology-intensive activities through FDI.

(Figure 16) Impact of globalization on the labor market



Sources: BLS; National Bureau of Statistics of China; OECD. Source: Cabinet Office.

(Increased demand for skilled labor and a widening wage gap)

Globalization has increased wage premiums for high-skilled workers in many advanced economies, including Japan, due to increased demand for such workers.²⁵ In particular, multinational firms tend to allocate gains from offshoring to high-skilled workers, and wage premiums for these firms have expanded significantly (Burstein and Vogel [2017], Todo [2013], Head and Ries [2002], Ito and Fukao [2005]).²⁶ Thus, globalization appears to have increased wage inequality in many advanced economies, mainly by increasing demand for high-skilled workers.²⁷

Looking at the situation in Japan, over the past 25 years, nominal wages (per capita) of non-trading firms have stagnated, while those of trading firms (large firms) have grown

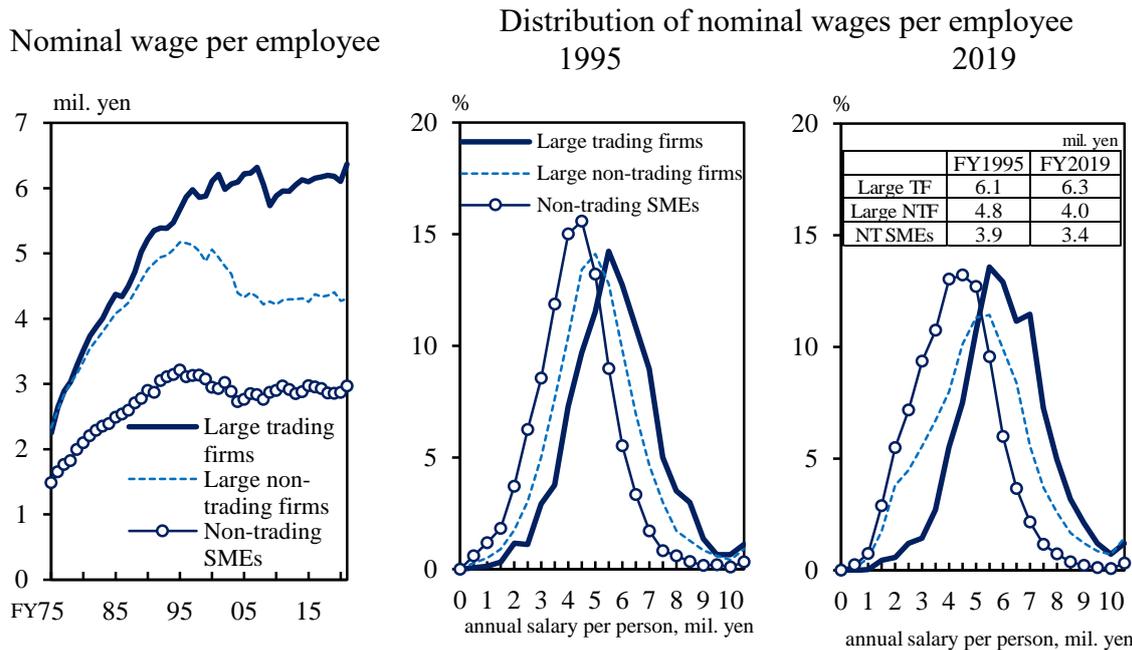
²⁵ On the expansion of wage premiums for high skilled workers, see Timmer *et al.* [2014], Burstein and Vogel [2017], Head and Ries [2002], Ito and Fukao [2005], Todo [2013], Hayakawa *et al.* [2013], Ito [2019].

²⁶ According to Ebenstein *et al.* [2014], wages for workers who had to change jobs due to increased foreign competition had fallen by 12-17 percent in the United States.

²⁷ On the relationship between trade activity and wage inequality, see Helpman, Itshoski, and Redding [2010], Manasseh and Turrini [2001], Feenstra and Hanson [1996], Bernard and Jensen [1997], Sampson [2014], Stolper and Samuelson [1941], Furusawa, Konishi, and Anh Duong [2020], and Endoh [2018]. A classic prediction is given by the Stolper-Samuelson theorem, which states that trade expansion is expected to increase wage inequality in developed countries through higher wages for knowledge workers, while reducing inequality in emerging economies through higher wages for low-skilled workers. Another view is that trade liberalization in emerging economies increases demand for high-skilled labor in both advanced and emerging economies leading to greater wage inequality in all countries (Feenstra and Hanson [1996]). Other channels include effects of entries of highly productive firms into trade activities (Helpman, Itshokhi, and Redding [2010]).

at a rather moderate pace (Figure 17, left panel). As a general tendency, Sampson [2014] notes that the effects of rising wage inequality due to globalization show up at the top of the wage distribution, mainly due to the effects of rising wage premiums. In that sense, the wage distribution of Japanese firms shows that the gap between large trading firms (firms engaging in FDI or exports) and non-trading firms has widened since the mid-1990s (Figure 17, middle and right panels).²⁸ There are views that the stagnation of wages in Japan's non-trading sector is related to the reverse BS effect, as productivity growth in the trading sector slowed relative to overseas from the mid-1990s to the mid-2000s (Yamamoto [2013]). At the conference, Takashi Kano asked how to reconcile the fact that the BS model equalizes wages in the trading and non-trading sectors under free labor mobility, while in reality, a domestic wage gap has emerged. In this regard, while the increase in wage premiums for skilled workers has, in some respects, led to a widening of the wage gap in Japan and a reduction in the linkage between wages in the trading and non-trading sectors, wage arbitration between sectors is still believed to work through adjustments in working hours and other factors.

(Figure 17) Domestic wage differentials in Japan



Note: Trading firms are the sum of firms in manufacturing and information and telecommunications industries. Large firms are those with capital of 100 million yen or more.
Source: Ministry of Finance.

Note: Trading firms are those that engage in FDI and exports. Large firms are those with capital of 100 million yen or more. The table shows averages for each year. Large TF stands for large trading firms. Large NTF stands for large non-trading firms. NT SMEs stands for non-trading SMEs.
Source: METI.

²⁸ Furusawa, Konishi, and Anh Duong [2020] shows using a trade model that globalization leads to greater income inequality.

(D) Risks

This subsection summarizes the risks associated with globalization on the real economy.

Globalization has increased the presence of global shocks in business cycle fluctuations through the deepening of production sharing and GVCs.²⁹ In this context, [Fernandez, Schmitt-Grohé, and Uribe \[2017\]](#) analyzed that the share of the impact of global shocks on the fluctuations of individual countries' real GDP was around 30 percent until the early 2000s, but has increased to almost 80 percent after the mid-2000s (Figure 18, left panel). Stress event studies focusing on the GFC, natural disasters, and COVID also show that shocks to an economy spill over globally through supply chains.³⁰ From a theoretical perspective, [Sugita *et al.* \[2019\]](#) use a general equilibrium trade model incorporating GVCs to show that the presence of GVCs increases income volatility.

Although the above studies point to the role of shock propagation through GVCs, there are also views that diversification of supply channels works as mitigating the effects of negative supply shocks ([Bonadio *et al.* \[2021\]](#), [IMF \[2022b\]](#)). This is because firms are able to substitute their sourcing when there is a supply constraint in one of their channels. To investigate this point, Figure 18 shows the relationship between the degree of globalization and the volatility of trade volumes (a sum of imports and exports). The figure shows that there is a strong negative correlation between the two, which is consistent with the view that diversification of supply channels leads to a mitigation of shock propagation. Moreover, studies on the experience of natural disasters and COVID also support the view that diversification of firms' supply sources has been effective in mitigating the impact of supply shocks transmitted through supply chains ([Kashiwagi, Todo, and Matous \[2021, 2018\]](#), [Ando and Hayakawa \[2021\]](#), [Ando, Kimura, and Obashi \[2021\]](#), [Kimura \[2021\]](#)).³¹ According to a DSGE model simulation by the [IMF \[2022b\]](#),

²⁹ On the relationship between international linkages of globalization and the real economy, see [Burstein, Kurz, and Tesar \[2008\]](#), [De Soyres and Gaillard \[2020\]](#), among others. In addition, there is a discussion that international linkages tend to be more prominent in nominal variables (e.g., inflation) than real economic variables ([Herinksen, Kydland, and Šustek \[2013\]](#)). There is also a discussion on- globalization and financial risks ([Lane \[2013\]](#)), but this paper focuses on the effects on the real economy and inflation.

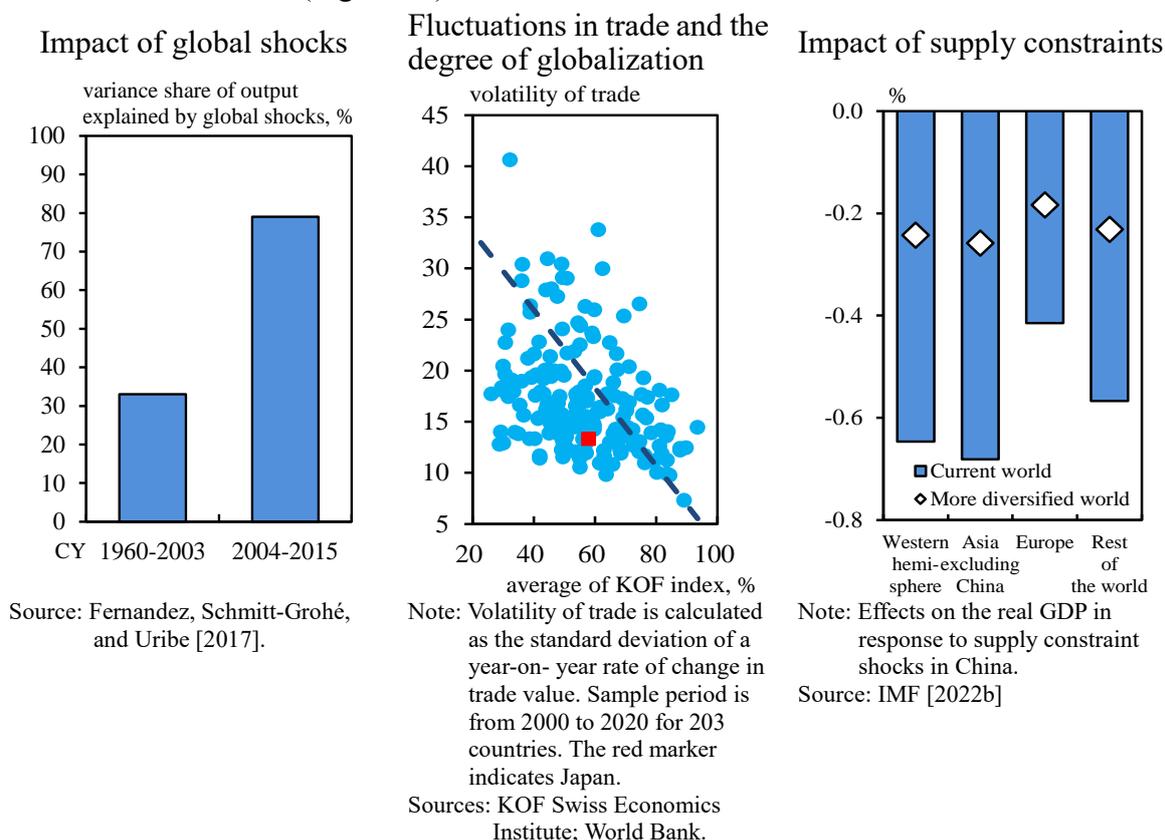
³⁰ In the GFC episode, countries that are relatively upstream in GVCs, such as Japan, were hit hard by significant declines in demand in final demand destinations ([Wang *et al.* \[2022\]](#)). The Great East Japan Earthquake caused supply constraints on a global scale ([Boehm, Flaaen, and Pandalai-Nayar \[2019\]](#), [Arto *et al.* \[2015\]](#)). During the COVID outbreak, disruptions in the imports of intermediate goods caused large production losses at multinational firms, which were then transmitted to downstream firms ([Inoue and Todo \[2022\]](#), [Lebastard, Matani, and Serafini \[2023\]](#), [Hayakawa and Mukunoki \[2021\]](#)). [Hayakawa and Mukunoki \[2021\]](#) find that the spread of COVID in intermediate good-providing countries significantly depressed the trade volume of countries consuming these goods, and the magnitude of this effect was closely related to the structure of the supply chain (the number of trading importing firms and customer firms). Another perspective is there are risks in concentrating production sites ([Inomata and Hanaka \[2021\]](#)).

³¹ In the case of Hurricane Sandy that hit the United States in 2012, firms that had business relations with foreign firms were able to limit negative impact on sales by flexibly substituting its procurements

diversification of procurement instruments has the potential to mitigate the impact of supply constraints (Figure 18, right panel).³²

In terms of the resilience of supply chains, after major disasters such as the Great East Japan Earthquake, Japanese firms have worked to strengthen the resilience of their supply chains by eliminating excess inventories and simplifying supply routes, albeit at some cost to competitiveness (IMF [2022b], Fujimoto and Park [2014]).³³ Due to such efforts, the highly developed international production network in East Asia was effective in mitigating the impact of shocks on economies during the spread of COVID (Kimura [2021]). From the perspective of enhancing the resilience of supply chains, as Fujimoto and Park [2014] point out, it will be important for firms to prepare for stress events in normal times and establish a system that can flexibly shift its procurements.

(Figure 18) Globalization and economic risks



(Kashiwagi, Todo, and Matous [2021]). In the case of the COVID period, the machinery industry was severely affected by supply shortages, while industries with more diversified imports of intermediate goods were less affected (Ando and Hayakawa [2021], Ando, Kimura, and Obashi [2021]).

³² Using a multilateral multi-sector model that includes trade in intermediate goods, the analysis shows by simulation that an economic decline is smaller relative to the baseline in the "diversification case," in which intermediate goods are sourced from diversified sources, and in the "higher substitutability case," in which intermediate goods are highly substitutable across countries.

³³ After the Great East Japan Earthquake, Toyota standardized parts and decentralized suppliers across vehicle models (IMF [2022b]).

2.2 Impact of globalization on inflation

(E) Inflation and international linkages

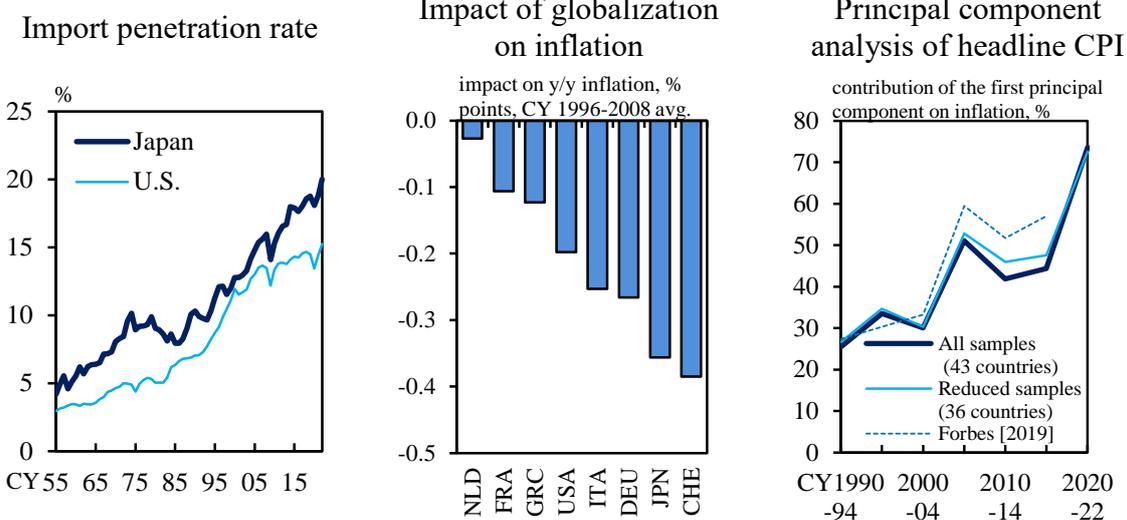
Globalization has put downward pressure on inflation in advanced economies through lower marginal costs and the deepening of GVCs.³⁴ Some studies indicate that in Japan, this effect has been larger relative to other countries due to factors such as rises in the import penetration rate and the backward participation rate of GVCs (Andrews, Gal, and Witheridge [2018] and Goodhart and Pradhan [2020], Figure 19, left and middle panels). Fukunaga, Kido, and Suita [2024], presented at this conference, use a time-series method to show that (1) various types of global shocks, including downward cost pressure due to globalization, continued to lower Japan's CPI inflation rate until the late 2010s. This effect has partly offset the inflationary effects of the quantitative and qualitative monetary easing introduced by the Bank of Japan in 2013. (2) In recent years, these global shocks have turned around and made significant contributions to raising the inflation rate. The paper also discusses the impact of global shocks on Japan's inflation expectations, nominal wages, and implications for monetary policy.

Globalization has also led to greater synchronization of inflation across countries. Since the early 2000s, when the integration of emerging economies into the global economy was in full swing, the linkage has increased while lowering inflation in each country (Ha, Kose, and Ohnsorge [2023]).³⁵ As shown in Figure 19, the contribution of the global factor to each country's inflation has continued to rise, confirming that the international linkage of inflation has increased. In terms of the impact of global shocks, Auer, Levchenko, and Sauré [2019] report that about a half of the variance in each country's producer price index can be explained by common global inflation factors.

³⁴ See Forbes [2019] and other sources for a discussion on the effects of globalization lowering inflation. Producer and consumer prices have been pushed down in developed countries as firms have incorporated low-wage countries into their supply chains and shifted to procuring low-cost intermediate goods (Andrews, Gal, and Witheridge [2018]). The supply of low-cost products and high-quality, low-cost services from China and elsewhere is also believed to have contributed to low inflation and low interest rates worldwide (Goodhart and Pradhan [2020]). Sekine [2009] argues that the persistent downward trend in inflation in advanced economies, from the 1970s - 1980s to the mid-1990s - mid-2000s was more a function of relative price changes between import prices, wages, and consumer prices rather than monetary policy.

³⁵ For more on the global synchronization of inflation and the increasing presence of global shocks in inflation dynamics, see Auer, Borio, and Filardo [2017], Auer, Levchenko, and Sauré [2019], Correa *et al.* [2022], Forbes [2019], and Fukunaga, Kido, and Suita [2024]. There is also a discussion that deepening of GVCs and increased global competition have made inflation in each country more sensitive to global supply and demand shocks (Auer, Borio, and Filardo [2017]). It has also been reported that the number of countries where the contribution of global factors to inflation exceeded 10 percent doubled between 1986 and 2000 (Ha, Kose, and Ohnsorge [2019]).

(Figure 19) Impact of globalization on inflation and global synchronization of inflation



Note: Import Penetration Rate = imports / (GDP+imports-exports).
Sources: BEA; Cabinet Office; Ministry of Finance; Bank of Japan.

Source: Andrews, Gal, and Witheridge [2018].

Note: Principal component analysis for 43 countries. Forbes [2019] conducted the same analysis for advanced economies (31 countries) with data up to 2017.
Sources: Forbes [2019]; Fukunaga, Kido, and Suita [2024].

(F) Price markups

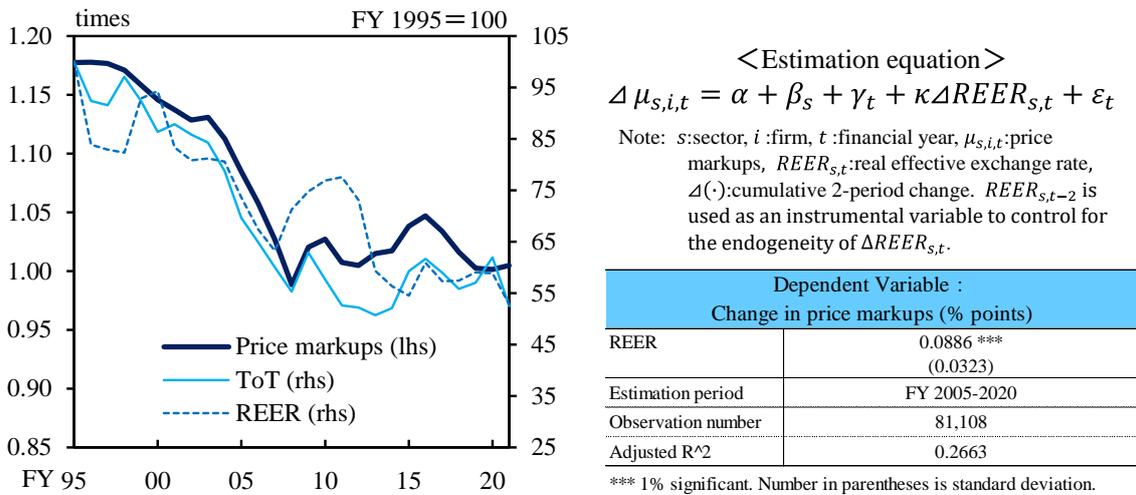
Globalization affects firms' price markups through changes in the competitive environment, but the direction of such changes may vary across firms. For example, increased foreign competition has acted as a force to lower price markups for firms that were unable to fully differentiate their products (Melitz and Ottaviano [2008], Grossman and Rossi-Hansberg [2008]).³⁶ On the other hand, the so-called superstar firms, as represented by GAFA, have enhanced their market power and raised their price markups while enjoying the benefits of globalization (Autor *et al.* [2020b]).

Given these firm-level developments, the aggregate price markup of an economy largely depends on how many of these superstar firms are located in the country. In this respect, in the United States, the presence of superstar firms has led to a rise in the aggregate price markup and a decline in the labor share (Autor *et al.* [2020b]). Nakamura and Ohashi [2019] note that there are fewer superstar firms in Japan than in the United States, and many manufacturing firms have faced increased competition from abroad, as evidenced by declining price markups (Figure 20, left panel, e.g., Kato [2014], Dobbelaere and Kiyota [2018], Aoki, Hogen, and Takatomi [2023]). To examine the situation in Japan in more detail, we conduct a firm-level panel analysis and investigate

³⁶ For more on the relationship between globalization and price markups, see De Loecker and Eeckhout [2021], Guerrieri, Gust, and López-Salido [2010], Amiti *et al.* [2019], Caselli and Schiavo [2020].

the relationship between the competitive environment and price markups in the manufacturing sector. In the analysis, we use the industry-specific REER as a proxy for the industry competitiveness. The estimation results show that a decline in competitiveness implied by the depreciation of the REER is significantly associated with lower price markups (Figure 20, right panel). This is consistent with the international evidence that firms facing increased competition from foreign products have lowered their price markups in order to maintain their competitiveness (Guerrieri, Gust, and López-Salido [2010], Amiti *et al.* [2019]).³⁷ Caselli and Schiavo [2020], using data on manufacturing firms (with more than 20 employees) in France, show that price markups declined for firms exposed to intensifying competition from Chinese counterparts, while firms that started exporting to escape competition from import products were able to maintain their markups (in other words, an escape strategy). In light of this finding, and given that Japanese SMEs' exports barely grew during these 25 years, it may have been difficult for Japanese SMEs to implement this type of escape strategy, making firms more vulnerable to changes in the competitive environment.

(Figure 20) Impact of competitiveness on price markups in manufacturing (Japan)



Note: Price markups are estimated based on the method of Aoki, Hogen, and Takatomi [2023] using individual company data from the Development Bank of Japan's "Corporate Financial Databank" (the same applies to wage markdowns). The figures in the lower right table cover manufacturing industries for which industry-specific REER are available. Two-way fixed effects estimation including industry and time fixed effects is employed. Sources: Cabinet Office; Development Bank of Japan; METI; Research Institute of Economy, Trade and Industry (RIETI).

³⁷ At the conference, Kenichi Ueda pointed out that the observed decline of price markups in Japan could be deemed as positive in terms of social welfare due to less monopolistic distortions. On this point, this need not be the case as reduction in price markups may also indicate a decline in household income in the long run through reduced investment and wages (Cavenaile, Celik, and Tian [2019], Mertens [2022]).

(G) Wage markdowns

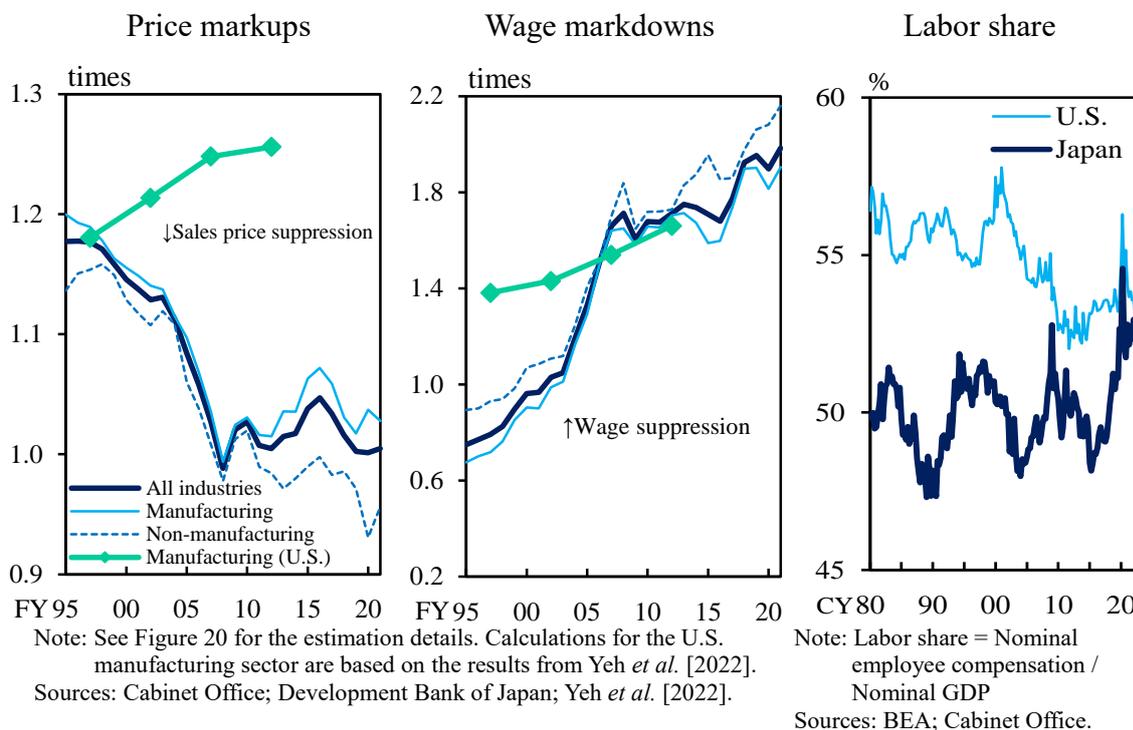
In this subsection, we review the relationship between wage markdowns (the ratio of the marginal revenue product of labor to nominal wages) and price markups.³⁸ As a general claim, globalization increases the substitutability of jobs at home and abroad, which incentivizes domestic employees who want to keep their jobs to accept somewhat less favorable terms, thereby shifting wage bargaining power to firms (Rodrick [1998], Stiglitz [2017], Forbes [2019]).

In the United States, it is said that at aforementioned superstar firms, wages were significantly suppressed relative to productivity (Autor *et al.* [2020b]). In Europe, the integration of China and Eastern European countries into GVCs has increased the supply of low-cost labor, which in some respects has worked to weaken the wage bargaining power of domestic workers (ECB [2021], Abraham, Konings, and Vanormelligen [2009]). In Japan, multinational firms tend to have high bargaining power, and the recent increase in FDI has reinforced this trend (Dobbelaere and Kiyota [2018]). As a background to the difficulty of raising wages under severe labor shortages in Japan, Goodhart and Pradhan [2020] note that (1) Japanese firms have continued to reduce working hours without laying off workers even in recessions, and (2) the reallocation of labor from manufacturing to services has weakened workers' wage bargaining power.

In this context, a look at the wage markdowns of Japanese firms shows that while price markups have declined, wage markdowns have risen significantly, suggesting stronger wage bargaining power on the part of firms (Figure 21, left and middle panels). This implies that firms have secured profits by offsetting a decline in price markups by raising wage markdowns, which may be one reason why the labor share in Japan has been stable over the long term (Figure 21, right panel, Aoki, Hogen, and Takatomi [2023]). This mechanism provides a consistent interpretation of a long-lasting difficulty in raising prices and wages in Japan over the past quarter century. Mertens [2022] point out that the theoretical background to the relationship between price markups and wage markdowns is consistent with the so-called rent-sharing model. According to this type of model, firms with small (large) price markups share the surplus they generate with their employees, resulting in large (small) wage markdowns. Given these insights, it is possible that such mechanism took place in Japan as well.

³⁸ In recent years, analyses that focus on firms' monopolistic power in the labor market (wage bargaining power), by analogy with price markups in product markets, have attracted attention. In these analyses, a firm's monopoly power in the labor market is assumed to be reflected in the "wage markdowns" which is the difference between the marginal revenue product of labor and wages. Note that the marginal revenue product of labor represents the extent to which sales vary with changes in labor input and includes factors such as productivity.

(Figure 21) Price markups, wage markdowns, and the labor share



3. Recent discussion on risks of deglobalization

This section summarizes the recent discussion on the risks of deglobalization and the reallocation of production sites due to heightened geopolitical uncertainty.

(Risks of deglobalization)

Potential effects of deglobalization on the real economy and inflation are often discussed by analogy to globalization, as discussed in Section 2 (Georgieva, Gopinath, and Pazarbasioglu [2022], Rajan [2022], Rogoff [2022], Reis [2022], Brainard [2022], among others). That is, the effects of deglobalization on the real economy and inflation can be summarized as (1) slower real economic growth (e.g., lower productivity growth), (2) higher inflation (e.g., higher marginal costs), and (3) higher volatility of the real economy and inflation due to lower supply substitutability.³⁹ In terms of productivity, deglobalization could lead to less joint technological development among firms (Georgieva, Gopinath, and Pazarbasioglu [2022]), and higher tariffs could reduce R&D incentives (Peters, Roberts, and Vuong [2022]).⁴⁰ In terms of inflation, if trade

³⁹ Given the discussion on risks in Section 2. (D), it could be argued that deglobalization may work in the direction of increasing the robustness of an economy through weaker spillovers of global shocks. However, to the best of the authors' knowledge, there has been no such discussion in the literature.

⁴⁰ Cerdeiro *et al.* [2021] find that the fragmentation of technological developments can lead to losses of around 5 percent of GDP in many economies.

fragmentation were to occur, supply constraints could lead to a substantial increase in production costs. Moreover, if supply substitutability is reduced due to less international risk sharing, an economy could become more vulnerable and inflation is more likely to rise due to more frequent supply constraints ([Lebastard, Matani, and Serafini \[2023\]](#), [European Commission \[2021\]](#)).⁴¹

(Reallocation of production sites)

In recent years, the risk of a fragmented global economy as a result of heightened geopolitical risks has received considerable attention ([Ueda \[2023\]](#), [Broadbent \[2023\]](#), [Iweala \[2023\]](#), [Lagarde \[2023\]](#), [IMF \[2023b\]](#)). It has been argued that U.S. firms may be approaching a tipping point of a major reallocation of production sites ("Great Reallocation") in response to a recent rise in geopolitical risks, such as between the United States and China ([Alfaro and Chor \[2023\]](#)). [Alfaro and Chor \[2023\]](#) argue that U.S. firms took a wait-and-see approach when protectionist policies were first implemented under the Trump administration, but given the fact that the same stance was taken under the Biden administration, firms have begun to act on the assumption of high tariffs against China. In addition, there are signs that U.S. manufacturing firms are bringing back their production facilities to the United States (reshoring), as indicated by China's share of U.S. imports falling from 21.6 percent in 2017 to 16.5 percent in 2022. There are also signs of production being replaced by friendly (friendshoring), neighboring (nearshoring), and low-wage countries (such as Vietnam and Mexico). In addition, this trend is suggested by the fact that the stock of U.S. FDI has started to decline (Figure 1).

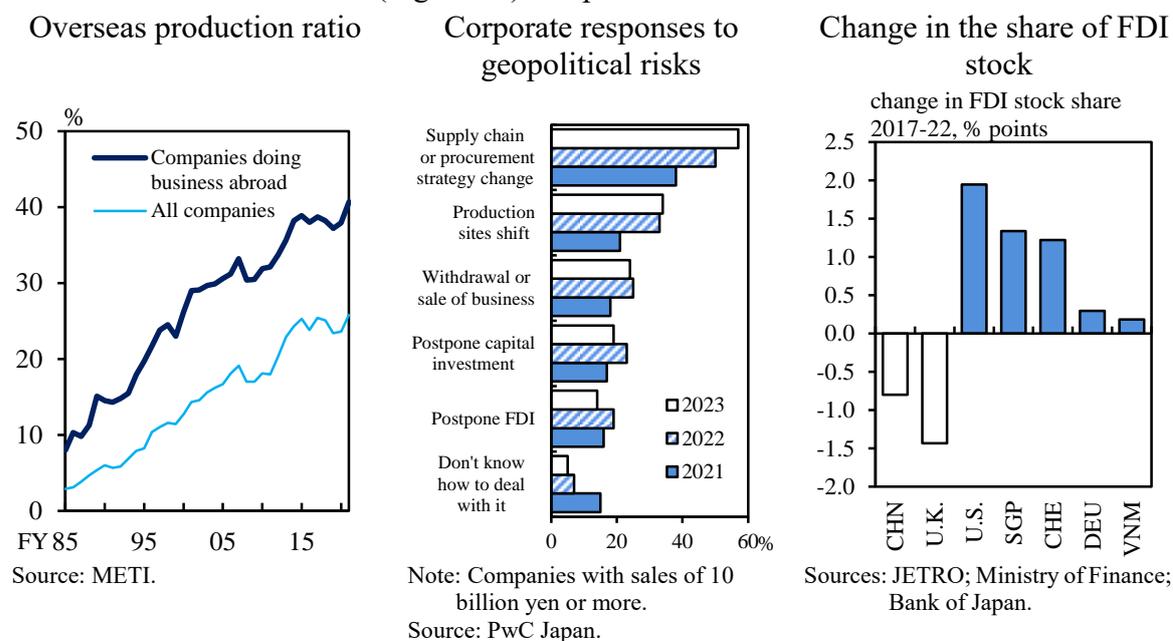
In general, the negative impact of supply constraints is said to be greater when reshoring is pursued due to less substitutability of production input ([Bonadio *et al.* \[2021\]](#), [IMF \[2022b\]](#)). Moreover, while friendshoring and nearshoring may increase supply stability, as some argue, they can also be associated with slower economic growth and higher costs ([Georgieva, Gopinath, and Pazarbasioglu \[2022\]](#), [Javorcik *et al.* \[2022\]](#), [Cabinet Office \[2018\]](#)). In particular, trade-restrictive measures such as tariff hikes could have adverse effects not only on the affected countries, but also on a wide range of countries and industries through GVCs. As the United States shifts imports from China to Vietnam and Mexico, China also tends to increase its exports to the same region ([Alfaro and Chor \[2023\]](#)). Thus, even if the United States imposes high tariffs on China, it may

⁴¹ Other channels include trade policy uncertainties ([Handley and Limão \[2017\]](#), [Graziano, Handley, and Limão \[2021\]](#), [Caldara *et al.* \[2020\]](#)). Events that increase trade policy uncertainties (e.g., Brexit and FTA renegotiations in recent years) can reduce investment and undermine consumer welfare even if the trade policies are not implemented. Regarding price markups, some argue that deglobalization may lead to an easing of the global competitive environment, which is a factor for higher inflation, while others argue that price markups may decline if marginal costs and other effects of deglobalization are not fully passed onto consumer prices ([De Loecker and Eeckhout \[2021\]](#), [Arkolakis *et al.* \[2019\]](#)).

ultimately lead to higher costs in the United States through third countries (Amiti, Itskhoki, and Konings [2019], Alfaro and Chor [2023]). In a more general analysis related to geopolitical risks, Furusawa and Sugita [2024], reported at this conference, use a general equilibrium trade model incorporating GVCs to examine the impact on the GDP and social welfare of countries around the world when the Western countries and the China and Russia group are fragmented.

Japanese firms tend to locate their production sites close to the location of final demand (Figure 22, left panel). Recently, however, due to heightened awareness of geopolitical risks, some firms have been reviewing their sourcing strategies and considering shifting production sites (Figure 22, middle panel, Ueda [2023]). Specifically, there are moves to attract production sites to Japan and strengthen domestic investment, with the intention of making GVCs more resilient. A closer look at changes in the share of stocks in Japan's FDI shows a shift from China and the United Kingdom to the United States and ASEAN countries (Figure 22, right panel). Destinations of the reallocation include reshoring to Japan and substitution to ASEAN and other countries where population growth and infrastructure demand are expected to grow. FDI from Japan to the United States is also on the rise, reflecting positive investment in related industries due to policies such as (1) the Inflation-Reduction Act (IRA), which encourages local production of electric vehicles, and (2) the CHIPS and Science Act, which attracts semiconductor-related factories to the United States.

(Figure 22) Geopolitical risks



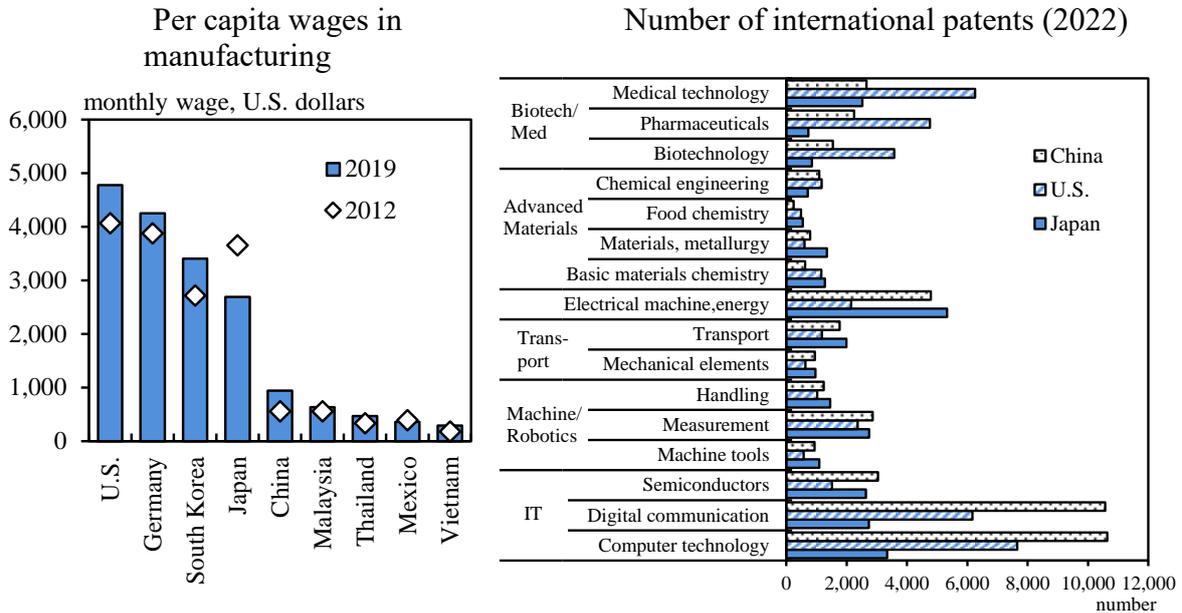
(Implications for Japan's economy)

Based on the review in this paper, this subsection discusses key points on the implications for the future and the potential impact of deglobalization and heightened geopolitical risks on Japan's economy.

The first issue is how to view the long-term productivity growth of Japan's trading sector. As we have discussed, the relative competitiveness of the trading sector (relative to foreign countries) affects ToT and RER and higher productivity growth in the trading sector can create a virtuous cycle in the macroeconomy, including positive spillovers to non-trading sectors.

Moreover, compared with the United States and Europe, productivity of Japan's trading sector has grown relatively more due to improvements in the efficiency of the production processes. As the wage gap with China and other Asian countries narrows, the low-cost benefits of offshoring are likely to diminish (Figure 23, left panel; Figure 2). As [Goodhart and Pradhan \[2020\]](#) point out, as labor force growth in emerging economies slows, wage growth abroad is likely to remain high. Under these circumstances, Japanese firms may find it difficult to raise productivity by improving the efficiency of production processes as they have tended to do over the past quarter century. If this were the case, Japanese firms would need to shift more to product innovation, which would make use of R&D and patented technologies, in order to raise productivity. In this regard, the number of patents granted by industry shows that Japan has more patents than the United States and China for industries such as transportation and machinery (Figure 23, right panel). However, the number of patents related to the next-generation IT industry, which is expected to drive the so-called Industry 4.0 (computer technology and digital communications), is lower than the United States and China ([Inomata \[2020\]](#)). If the productivity of Japan's trading sector does not increase relative to foreign countries, there is a risk that the deterioration in ToT caused by productivity differentials will continue, eventually exerting downward pressure on consumption through a mechanism advocated by [Saito \[2023\]](#). To avoid such a situation, it is important for the corporate sector to shift from a focus on improving the efficiency of production processes to product innovation centered on R&D and investment in intangible assets, while actively investing in high-skilled domestic labor. If firms continue to seek FDI as a means to raise productivity, from the perspective of creating a virtuous cycle of income and spending in Japan, it is important for Japanese households to increase their investment in risky assets while balancing risk and return.

(Figure 23) Wage gap and number of international patents



Note: Full-time workers.

Source: International Labour Organization.

Source: WIPO.

The second issue is how Japanese firms can enhance the resilience of GVCs to geopolitical risks and natural disasters (JETRO [2023]). In this context, the key point is to mitigate the impact of adverse supply shocks by diversifying firms' input sources. The results of a survey of Japanese firms on their policies on future supply chain construction policies show that the most common response was "supplier diversification" (45.1 percent). In light of the discussion so far, this could contribute to enhancing resilience.⁴² On the other hand, the share of firms that chose the response "strengthening domestic production sites" has increased significantly in one year (from 24.5 percent in 2021 to 41.1 percent in 2022), partly due to firms' increased awareness of geopolitical risks. While there is an argument that strengthening domestic production sites contribute to supply stability, it should be noted that the literature suggests that, under fragmentation, the substitutability of production input may be less effective in times of stress, and the impact of supply constraints may be greater (Bonadio *et al.* [2021], IMF [2022b]). From a productivity-enhancing perspective, it is also vital to consider how Japanese firms will respond to the wave of Great Reallocation of production sites, and how they will position themselves in the GVCs and the R&D system in the future.

The third issue is whether Japan will face higher inflation due to the effects of deglobalization and other related factors. Regarding long-term prospects of globalization, Antràs [2020] and Goodhart and Pradhan [2020] point out the possibility of a trend

⁴² Figures are based on the Mitsubishi UFJ Research and Consulting's "Survey on Challenges and Direction of Response of Japan's Manufacturing Industry" (March 2021 and March 2022).

reversal in the sense that inflation and interest rates are likely to be higher in the future due to deceleration of labor force growth in emerging economies. However, there is some uncertainty about how persistent the effects of deglobalization will be, as globalization has brought various benefits as summarized in this paper.

As we have discussed, while Japan has been raising productivity by utilizing low-cost labor inputs from abroad, changes in the competitive environment have led to declining price markups and rising wage markdowns, which in turn have made it difficult for firms to raise prices and wages. With inflation recently rising at the highest rate in about 40 years, [Fukunaga, Kido, and Suita \[2024\]](#) find that services prices and nominal wages have also been pushed up by the impact of global shocks, which has not been the case for most of the past quarter century. They also indicate that these factors may spill over into inflation expectations over time. Given the limited amount of data, it is too early to assess whether the recent rise in inflation and wage growth would replace the low-inflation norm and lead to a new normal under the forces of deglobalization. However, it would be useful to examine, through various theoretical models and detailed micro data analyses, such as those using firm-level data on prices and quantities, and assess whether the adjustment mechanism to globalization that has been in place in Japan's economy over the past quarter century will be sustainable in the future.

4. Conclusion

This paper has reviewed the effects of globalization on Japan's economy, and then discussed issues related to the recent discussions on deglobalization and heightened geopolitical risks.

While the effects of globalization have been wide-ranging, a review of the past quarter century reveals the following five characteristics of its impact on Japan's economy. First, compared with the United States and Europe, Japanese trading firms have tended to raise productivity by improving the efficiency of production processes through the use of low-cost inputs from abroad. Second, the decline in the competitiveness of Japan's trading sector due to intensifying competition from abroad is seen as a factor behind the deterioration in Japan's ToT and the depreciation of the yen's REER. Third, in terms of employment and wages, there has been a shift in employment from manufacturing to nonmanufacturing, while at the same time the wage gap between the trading and non-trading sectors has widened. Fourth, Japan's inflation has become more sensitive to the inflow of low-priced goods from abroad than other countries, because of rises in the import penetration rate and the backward participation rate in GVCs ([Andrews, Gal, and Witheridge \[2018\]](#), [Goodhart and Pradhan \[2020\]](#)). It is also likely that these global

factors, exerted continuous downward pressure on inflation until the late 2010s, offsetting to some extent the inflationary effect of the BOJ's powerful monetary easing since 2013. In recent years, however, these global factors have been reversed and become inflationary factors (Fukunaga, Kido, and Suita [2024]). Fifth, Japanese firms have been securing profits by expanding wage markdowns amid declining price markups, partly due to intensifying overseas competition. Such an adjustment mechanism is a consistent interpretation of the fact that firms have long found it difficult to raise prices and wages in Japan.

Looking ahead, while trade restrictive measures between the United States and China have led to a debate about the potential impact of deglobalization, there are other factors relevant to long-term trends that are also present; such as a decline in labor supply growth in emerging economies (Goodhart and Pradhan [2020]) or inflationary pressures from firms' responses to climate change (Schnabel [2022]). In addition, the recent increase in geopolitical risks has added momentum to the reallocation of global production sites. Under these circumstances, how the trading sector in Japan will develop in the wave of the Great Reallocation is an essential issue for the economy. Moreover, the expansion of product innovation in Japan is particularly important from the perspective of realizing a virtuous cycle of income and spending in Japan.

In order to deepen our understanding of the potential impact of deglobalization and geopolitical risks on Japan's economy, it is worthwhile to deepen our understanding of the impact of these factors on Japan's economy by carefully examining how the five characteristics outlined above will change (or whether they will not). We hope that the discussion in this paper will stimulate further debate among academics and practitioners.

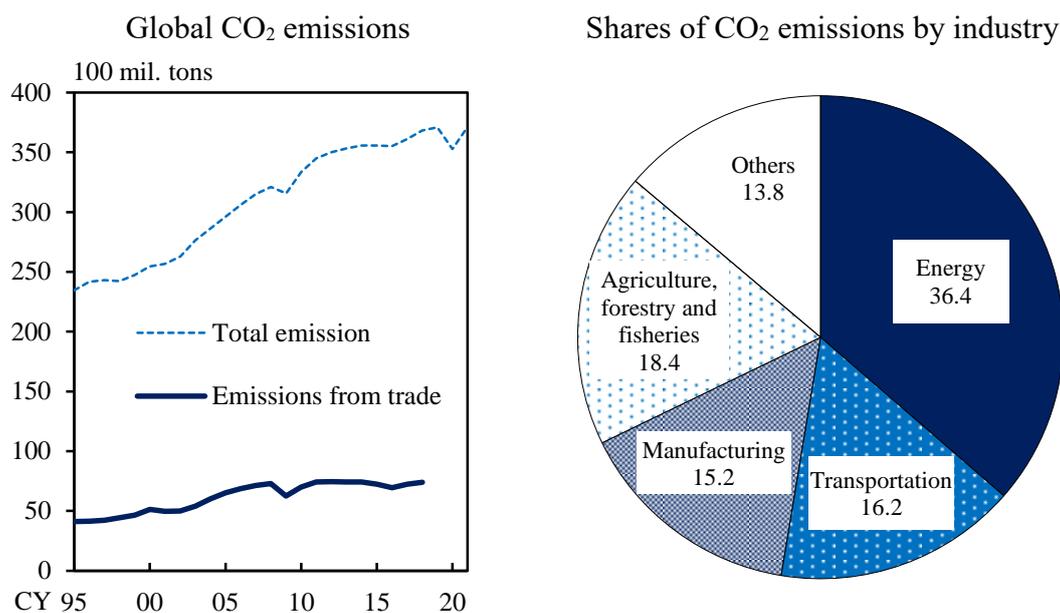
Appendix. Impact of climate change

This appendix reviews issues related to the relationship between globalization and climate change and the impact of climate change on the real economy and inflation.

(Globalization and climate change)

In the process of globalization, firms pursued economic rationales (e.g., industrial concentration, raw material supply, skilled labor, and availability of capital and infrastructure) rather than GHG (greenhouse gas, hereafter assumed to be CO₂) emissions (Cole, Elliott, and Zhang [2017a], Sanna-Randaccio and Sestini [2012], Zeng and Zhao [2009], Bu, Lin, and Zhang [2016]). As a result, global CO₂ emissions increased due to China's internalization of production and increased freight transport (Cadarso *et al.* [2010], Figure A-1, left panel).⁴³ Note that emissions from trade have remained stable at about 20 percent of the total, in part because of the small weight of manufacturing relative to energy and transportation (Figure A-1, right panel).

(Figure A-1) CO₂ emissions from trading activities



Note: Emissions from trade refers to CO₂ emissions in the production processes of trading goods.
Source: Our World in Data.

Note: As of 2016.
Source: OECD.

Engaging in trade activities and FDI transfers CO₂ emissions to other countries. For example, switching the sourcing of intermediate goods abroad has the effect of offshoring domestic CO₂ emissions (Li and Zhou [2017], Brunel [2017]). FDI in developed countries

⁴³ One way to capture the impact of globalization on climate change is through carbon accounting, which uses a system of international input-output tables. This method estimates greenhouse gases (GHGs), such as CO₂, emitted from production, transportation, and consumption activities across the entire GVC.

also tends to transfer production processes with high CO₂ emissions abroad (Shapiro and Walker [2018], Cole, Elliott, and Zhang [2017b]).⁴⁴ In addition, GVC activities also have the effect of spreading advanced "clean" technologies relevant to climate change (Wang *et al.* [2022], WTO [2022]). Given these facts it cannot be said that GVC activities themselves somehow increase CO₂ emissions.⁴⁵

(Real economy)

The economic impacts of climate change are considered in long-term scenario analysis, focusing on "physical risks" of increased frequency of natural disasters and damages, and "transition risks" of decarbonization (IMF [2020], NGFS [2021], Devulder and Lisack [2020], Allen *et al.* [2020], Kurachi *et al.* [2022]). In the NGFS [2021] net-zero scenario, the concept of physical risks includes more frequent and acute natural disasters that disrupt the economy, as well as chronically lower crop production (Figure A-2, left panel).⁴⁶ The impact of transition risks, on the other hand, is relatively small compared to these factors, in the baseline. This is because the negative effects of raising carbon prices (carbon taxes, emissions trading schemes, etc.) are somewhat offset by increased investment in decarbonization (Figure A-2, right panel, IMF [2020]).⁴⁷ However, the impact of transition risks is highly uncertain, as a rapid transition could lead to large declines in consumption and investment due to a sharp increase in carbon taxes, and also depends on what environmental regulations will be in place in each economy.

⁴⁴ In developed countries, CO₂ emissions are negatively correlated with trade, while in emerging economies, CO₂ emissions are positively correlated with FDI inflows (Essandoh, Islam, and Kakinaka [2020]). In terms of environmental regulations, firms tend to outsource pollution-intensive production processes to less regulated regions (Cole, Elliott, and Okubo [2014], Cherniwchan, Copeland, and Taylor [2017]). In this context, Peters *et al.* [2011] point out that countries that had set CO₂ reduction targets under the Kyoto Protocol were able to meet their reduction targets from 1990 to 2008 solely through outsourced CO₂ emissions.

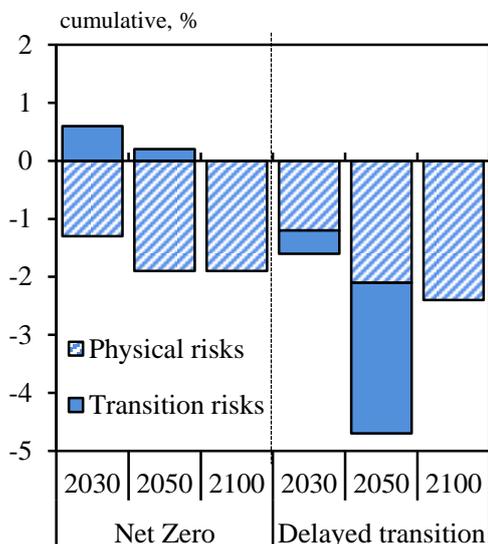
⁴⁵ The composition of imports in each country indicates a shift to cleaner industries (Levinson [2023]).

⁴⁶ Physical risks include "acute risks," in which natural disasters put downward pressure on production activities and profits by damaging business facilities (Yamamoto and Naka [2021], Ashizawa *et al.* [2022], Hashimoto and Sudo [2022]) and "chronic risks," in which rising temperatures cause a persistent decline in agricultural production and labor productivity (Schleussner *et al.* [2018], Ortiz-Bobea *et al.* [2021], Dasgupta *et al.* [2021]).

⁴⁷ Raising carbon taxes can have negative effects on the economy (Cavalcanti, Hasna, and Santos [2021], Frankovic [2022], Devulder and Lisack [2020]). Matsumura, Naka, and Sudo [2023] find that higher carbon tax rate reduces the economy-wide GHG emissions by raising the costs of high CO₂-emitting sectors. However, it also changes the resource allocation and reduces GDP by distorting production input across sectors. Metcalf and Stock [2023] find that, so far, carbon taxes have had zero to moderately positive effects on GDP (and employment) growth in European countries that have implemented such policies. They also find no empirically detectable negative effects, regardless of the level of the tax rate or the timing of carbon tax implementation.

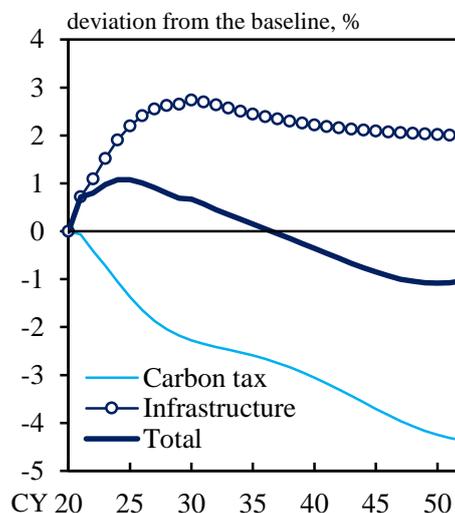
(Figure A-2) Economic impacts of climate change

Impact of physical and transition risks on real GDP



Source: Network of Central Banks and Supervisors for Greening the Financial System (NGFS) [2021].

Effects of transition risks on real GDP



Note: Based on the 2050 net-zero scenario. Source: IMF [2020].

(Inflation)

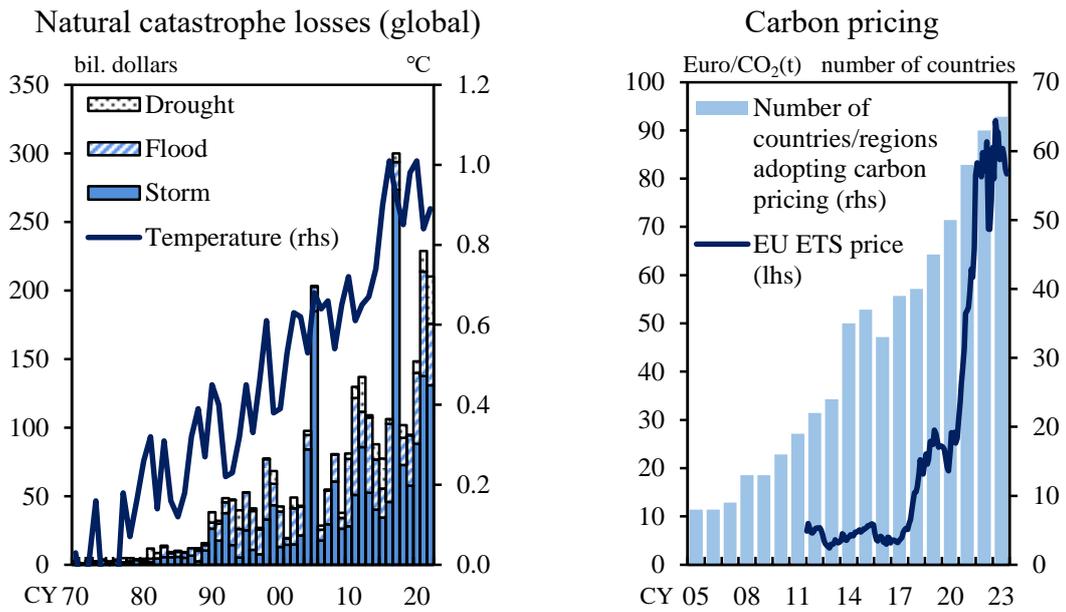
[Schnabel \[2022\]](#) points to three transmission channels from climate change to inflation: (i) the increased frequency of natural disasters, which creates more supply constraints in GVCs and leads to higher inflation -- climateflation -- (Figure A-3, left panel), (ii) carbon pricing directly pushing up energy prices and thus inflation -- fossilflation --, and (iii) inflationary pressure from increased demand for rare metals with high scarcity value (e.g., lithium-ion batteries) – greenflation --. As discussed in Section 2. (D), diversifying the sources of supply of goods and services ([WTO \[2022\]](#), [Bonadio *et al.* \[2021\]](#), [IMF \[2022b\]](#)), can serve as a means to counteract the acute shocks of natural disasters and inflationary pressures.

The number of countries and regions that have introduced carbon taxes and other measures is increasing, and the transaction price of CO₂ in Europe has risen sharply since the situation in Ukraine intensified in 2022 (Figure A-3, right panel). [Känzig \[2023\]](#) show that higher transaction prices of CO₂ in Europe can significantly raise headline inflation.⁴⁸ However, insights from macroeconomic model analysis suggests that the inflationary impact of carbon pricing is highly uncertain ([Bartocci, Notarpietro, and Pisan \[2022\]](#), [Ferrari and Nispi Landi \[2022\]](#), [Del Negro, Giovanni, and Dogra \[2023\]](#)). [Bartocci,](#)

⁴⁸ On the other hand, [Konrad and Mauro \[2023\]](#) and [Moessner \[2022\]](#) also find that carbon pricing affects headline inflation and does not spill over to core inflation.

Notarpietro, and Pisan [2022] find that higher tariffs put downward pressure on the economy and inflation, while Ferrari and Nispi Landi [2022] emphasize the role of anchoring of inflation expectations and inflation could accelerate. Del Negro, Giovanni, and Dogra [2023] show that the impact on inflation can vary depending on the degree of price stickiness, the stance of monetary policy, and the type of carbon pricing (tax or subsidy).

(Figure A-3) Increased risks of natural disasters, carbon pricing



Note: Temperatures are shown as deviations from the long run average (1951-1980).
Sources: Emergency Events Database (EM-DAT); The National Aeronautics and Space Administration (NASA).

Note: Figures indicate the total number of countries and regions that have already implemented carbon taxes and emissions trading schemes.
Sources: European Energy Exchange; World Bank.

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