Emergency Economic Response and Evaluation in the COVID-19 Crisis*,**

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Abstract

This paper organises the variations of countermeasures put in place by countries around the world as their emergency financial measures to cope with the COVID-19 crisis that hit the world at the beginning of 2020. At the same time, it surveys policy evaluation analyses in countries that implemented similar policies as Japan's emergency financial measures. In particular, it surveys reports published over the past few years on analyses in the United States, South Korea, and Israel that implemented direct transfer policies on household budgets, similar to Japan's special cash payments, analyses in the United States and Australia that implemented employment retention policies similar to Japan's employment adjustment subsidy, and analyses in Germany that reduced value-added tax (consumption tax) rates, which was not implemented but much debated in Japan. By summarising the experiences and analysis results in these countries, this paper organises the suggestions and implications related to future policy formation in Japan.

Keywords: COVID-19, emergency economic measures, direct transfer, employment retention policies, value-added tax

JEL Classification: H12, H20, H24, H25

I. Introduction

During the COVID-19 crisis that began in early 2020, governments around the world were forced to rapidly devise multifarious and large-scale fiscal responses in response to the economic shrinkage that evolved in a very short period of time due to the suppression of mobility in order to control the infection. In Japan, the Novel Coronavirus Disease (COVID-19) Emergency Response Package was implemented in February and March 2020 (15.3 billion yen and 430.8 billion yen, respectively) with the aim of countering the COVID-19 crisis. In addition, a First Supplementary Budget with a budget size of JPY 25,691.4 billion was passed early in the financial year on 20 April, a Second Supplementary Budget with a budget size of JPY 31,911 billion on 12 June, and a Third Supplementary Budget with a budget size of JPY 19,176.1 billion on 28 January 2021, allocated for the

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COVID-19 crisis response. A straightforward total of these three supplementary budgets amounts to an additional expenditure of approximately 77 trillion yen in FY2020 alone, with the associated additional public debt issuance amounting to approximately 80 trillion yen.[1]

Although many of the fiscal measures implemented in each country were broadly similar, such as income tax cuts, direct transfers to households and subsidies to ensure business liquidity and retain employment, differences in the existing policy infrastructure and fiscal base in each country lead to variations in the content of these measures.[2]

During the COVID-19 crisis, the accumulation of scientific evidence in many infection control measures progressed due to the extremely rapid response by researchers in fields such as medicine, epidemiology and public health, but these trends were also true in social science fields such as economics. Of course, in the social sciences, there is a certain amount of time lag between data collection and analysis, so many researchers and research institutions are analysing, if not at the same rate as in medicine-related fields, and research papers on policy evaluation of COVID-19 crisis measures in various countries are accumulating at a rapid pace.

This paper therefore surveys economic analyses and policy assessments of fiscal responses to the COVID-19 crisis in advanced countries, focusing on those closely related to Japan's policy issues, with the aim of deriving implications for the evaluation of Japan's COVID-19 measures and future policy making. Particular attention is paid to the effects of temporary transfers to households, assistance to businesses (subsidies) and short-term tax relief measures (tax exemptions and VAT).

The paper is organised as follows. In the next section, an international comparison of the scale of emergency fiscal responses to the COVID-19 crisis in countries around the world and the types of policies adopted are summarised. Section III presents an empirical analysis of the various assistance policies outlined in Section II. In particular, the survey here is focused on policies that are close to those implemented in Japan in terms of methods, objectives, etc. Specifically, the survey will focus on direct transfers to households, which are similar to the Special Cash Payments programme; subsidy measures aimed at retaining employment, similar to the Employment Adjustment Subsidies; and empirical analysis of value-added tax (consumption tax) reduction policies, which were not implemented in Japan, but have been the subject of considerable discussion. Section IV is a discussion and conclusion.

[1] As the Third Supplementary Budget, however, included lower tax revenues and reductions in local tax subsidies and existing expenditure (including a ¥1,850 billion deduction in the COVID-19 infectious disease control reserve fund), the net increase in expenditure from the Third Supplementary Budget was JPY 15,427.1 billion. The amount of government debt issued in the first three supplementary budgets was JPY 25,691.4 billion, JPY 31,911.4 billion and JPY 22,395.0 billion, respectively.

[2] OECD (2021) provides a comprehensive overview of the fiscal response measures implemented in each country, on which much of the description in the next section of this paper is based. For a discussion of fiscal responses in Japan in the early years of the COVID-19 crisis, see Ando et al. (2020).

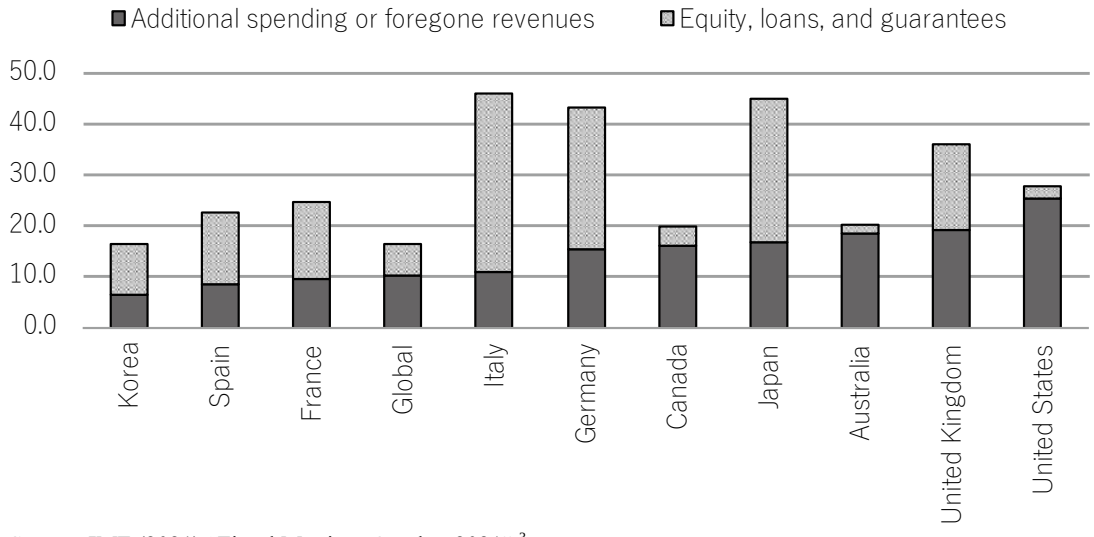
II. Fiscal response to the COVID-19 crisis

II-1. Scale of emergency financial response

The outbreak of the pandemic, which began in the first half of 2020, has forced countries around the world to respond with a strong and rapid fiscal response. In the face of unprecedented uncertainty in a modern economy with transnational supply chains and a high degree of globalisation, many economists argued that rapid and large-scale fiscal and monetary policies were needed to respond to the crisis (e.g. Baldwin and di Mauro 2020). Based on this advice, the governments implemented decisive fiscal stimulus packages at a speed and scale unprecedented in the past.

The IMF (2021) classifies and monitors the scale and impacts of the fiscal measures taken by countries since January 2020 into 'Above the line measures' (such as additional spending or foregone revenues) and 'Below the line measures' (such as Equity, loans, and guarantees). According to the report, the total global fiscal mobilisation in response to the COVID-19 crisis as of September 2021 amounted to approximately USD 16.9 trillion, which is equivalent to about 16.4% of global GDP in 2020. However, if limited to the above the line measures, the amount is approximately USD 10.8 trillion (10.2% of global GDP in 2020).

Figure 1: Fiscal measures as a percentage of GDP in 2020



Source: IMF (2021) "Fiscal Monitor, October 2021".[3]

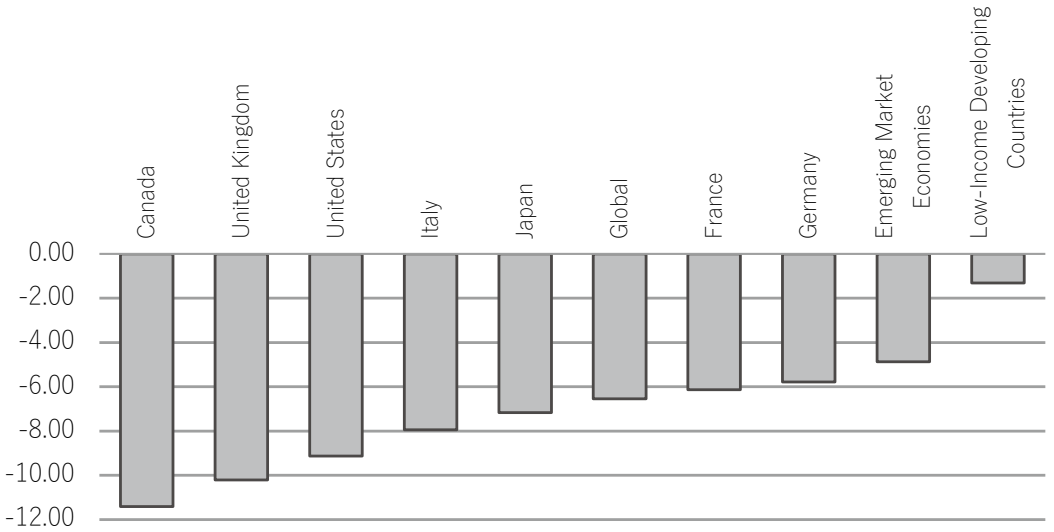
Figure 1 shows the ratio of fiscal measures taken in response to the COVID-19 crisis in major industrialised countries and the world as a whole, sorted by the amount of above the

[3] https://www.imf.org/en/Publications/FM

line measures to GDP in 2020. The report shows that Japan would be classified as a country with a large fiscal spending in terms of both above and below the line.

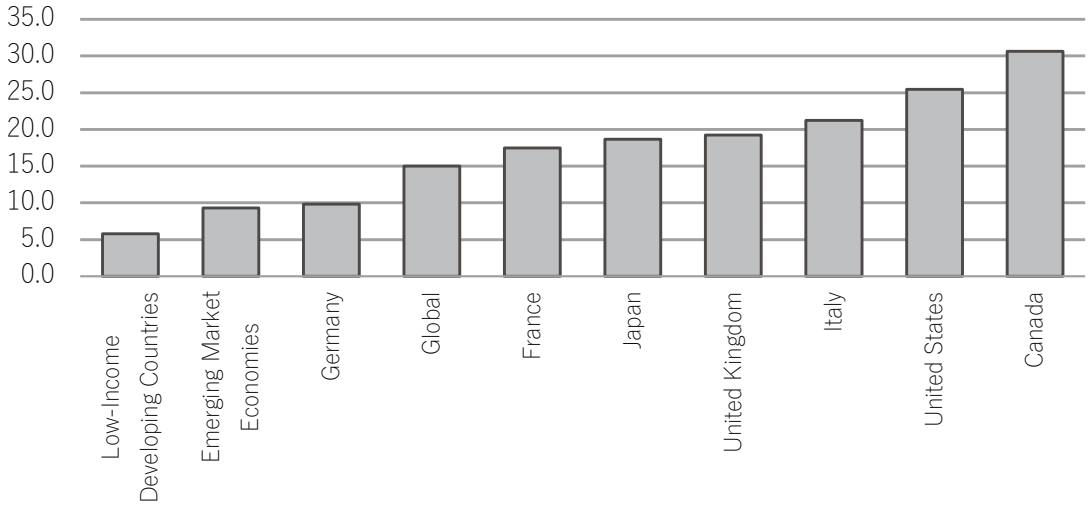
As a general tendency, the scale of fiscal responses to the COVID-19 crisis was larger in the advanced economies. This is because some emerging and developing countries had limited fiscal space for discretionary policy responses due to the limited availability of tax revenue sources. Figures 2 and 3 show changes in fiscal balances and gross public debt issuance (as a percentage of GDP) in G7 countries, the world as a whole, emerging economies and

Figure 2: Change in fiscal balance (% of GDP) between 2019 and 2020



Source: IMF (2021) "Fiscal Monitor, October 2021".

Figure 3: Change in gross public debt issuance (% of GDP) between 2019 and 2020



Source: IMF (2021) "Fiscal Monitor, October 2021".

developing economies between 2019 and 2020, which shows that discretionary fiscal measures were adopted in advanced economies, whereas in emerging and developing economies, this suggests that there were limits to such measures in emerging and developing countries.[4]

II-2. Relief measures for households

This section summarises the types of COVID-19 crisis relief measures directed at households. There are two main types of relief measures for households: support through reduction or refund of income tax and social security contributions, and support through direct transfers to households, and most countries have adopted at least one of these.

II-2-1. Support through income tax and social security contributions

(1) Tax deferments and exemptions

The most adopted form of support related to income tax in each country was tax deferral of income tax and social security contributions: according to the OECD (2021), 54% of OECD countries have adopted this support measure (Israel, Italy, Latvia, Lithuania, Slovenia, Spain, Sweden, USA, etc.). In conjunction with these measures, some countries extended the deadline for filing tax returns or exempted overdue taxes and security. As regards exemption from social security contributions, 24% of OECD countries implemented it, although some (e.g. France, Hungary, Italy) implemented it only in sectors and regions heavily affected by the COVID-19 crisis, such as tourism, food and drink, services and agriculture, or for workers in vulnerable situations, such as unemployed or part-time workers.

The Japanese Government has also extended the ordinary tax deferment system to individuals whose income has decreased by more than 20% due to the COVID-19 crisis or who have temporary disabilities to pay taxes, by providing deferment of tax payments and social security contributions, exemption of overdue taxes and simplifying the procedures for applying for exemption and reduction of social security contributions if the conditions are met.

(2) Tax credits and income tax credits

It is worth noting that many countries incorporated personal income tax relief into their relief measures as early as 2020. There were differences, however, between countries as to whether the reliefs should be weighted towards a specific target group, reach a broad demographic, or a combination of the two.

Several countries have increased the standard tax allowance (e.g. Canada, Germany, Lithuania and the UK) and the general tax credit (e.g. Czech Republic, Finland, Italy, Lux-

[4] According to the OECD (2021), in countries and regions with vulnerable fiscal foundations, fiscal expansion measures such as tax reductions and tax exemptions were difficult to implement, and the main assistance tools were deferment of payment of corporate and business taxes and consumption taxes, and an extension of tax returns. In addition, low-income groups such as those working in the informal sector were not covered by income taxation, and opportunities for assistance in the form of tax reductions and other support measures were limited due to inadequate administrative capacity.

embourg, the Netherlands and Sweden) in order to reach a wider range of populations. Simultaneously, some countries have expanded the tax credit available to households with children (e.g. Germany, Belgium and the USA), and some countries have implemented tax exemptions for essential workers in the medical, health, fire and police services (e.g. Germany, Austria, Argentina and the USA). With regard to support for households raising children, some countries took measures to limit eligibility to single-parent households or low-income households. In New Zealand and other countries, income tax relief was focused on child-care households, low-income households and essential workers. 27% of OECD countries provided such support by increasing tax credits and income tax deductions.

In addition, a number of countries (e.g. Canada, Germany, New Zealand and Sweden) approved tax credits for the cost of installing telework equipment and extended tax incentives such as income and tax credits for charitable donations (e.g. Italy, Poland, Belgium, Spain, Slovenia and the USA).

(3) Changes to tax rates and threshold

Although not as common as the tax deferral and income tax credits mentioned above, 11% of OECD countries have reduced income tax rates or changed taxable income categories in a reduction-oriented manner (e.g. Australia, Austria, Croatia, Germany and the Netherlands). Nevertheless, some countries, such as Australia, brought forward their plans to implement changes in income tax rates that had been planned before the outbreak of the COVID-19 crisis, so that, taken as a whole, including the scale of these changes, they are not necessarily support measures that have been implemented in an agile manner.

Interestingly, as many as 16% of OECD countries have increased the maximum personal income tax rate in order to raise revenue (e.g. South Korea, New Zealand, Spain and British Columbia, Canada). For example, in Spain, a reduction in the maximum pension contribution deduction was also implemented, and it was decided that the associated tax revenue would be invested in the health care system.

II-2-2. Support through direct transfer

Unsurprisingly, unemployment benefits were also utilised to mitigate the shock of job losses associated with the COVID-19 crisis. However, while unemployment benefits were effective in providing economic stability for so-called regular workers in the formal sector, the benefits did not reach workers who were not under a formal employment contract. Countries were forced to address measures such as extending access and coverage (e.g. France, Spain, USA), extending the duration of benefits (e.g. Germany, Italy, USA) and increasing benefit levels (e.g. Australia, UK, USA). Some countries also implemented cash transfers to self-employed and informal workers who do not benefit from such entitlements (e.g. Canada, France, Germany, Italy, South Korea and the UK).

As mentioned above, many countries provided financial support to households through the income tax system, while others provided financial support to a wider segment of households through direct transfers. Obviously, Japan, which implemented the Special Cash

Transfer, was one of the countries that provided such relief, but alongside Japan, a number of countries also adopted such transfers, including South Korea, Israel, Singapore, Serbia and the United States.

The reason why not so many countries provided direct transfers to a broad segment of households is because of the cost: IMF (2020) estimates the cost of a universal cash transfer of around 5% of median national income per capita to all adult residents (which is equivalent to the USD 1,200 transfer payment implemented in the USA) for major countries.

IMF (2020) notes that if direct transfers were implemented across Europe, they would cost approximately 1.5% of European GDP, which is equivalent to 40% of existing social assistance and unemployment benefits. In addition, while highly adequate benefits can be implemented if the existing system can be used to properly target assistance, if the lockdown as an infection control measure causes many people to suffer unexpected income losses, those who were not receiving existing income transfers or social security benefits will be rushed to apply to the programme. This would exceed the administrative capacity to process such applications, and given that there would be delays in providing assistance, the provision of rapid universal transfer benefits could serve as a complementary role to the existing system in the short term.

II-3. Support measures for businesses

This section summarises the types of COVID-19 crisis relief measures targeted at enterprises and businesses. Support for businesses can be broadly categorised as support through corporate and business taxes through exemptions, refunds, deferral of payments and extended loss provisions, as well as tax incentives and subsidies to maintain employment, and increased liquidity support and tax incentives for investment.

II-3-1. Support for corporate income taxation

(1) Tax deferments and exemptions

As with personal income tax, the most commonly adopted support measure through corporate income tax in each country was tax deferment or extension of tax filing (implemented in 73% of OECD countries). The Government of Japan has also provided one-year tax deferment and reduction or exemption of overdue taxes, as well as exemption from providing collateral, to businesses affected by the COVID-19 crisis. While many countries, including Japan, offered tax deferment without limitation on the size of the enterprise or type of industry, some countries restricted the application to SMEs or industries that were severely affected by the COVID-19 crisis (e.g. Italy, South Korea and New Zealand). In relation to tax deferral, some countries also granted deferments or exemptions for interim and prepayment of corporate income tax.

Not many countries reduced their corporate income tax rates (19% of OECD countries), and those that implemented tax rate cuts included countries that had been planning to do so prior to the COVID-19 crisis, and did so as planned. Some countries reduced tax rates tar-

geted at SMEs (e.g. Chile, Hungary). However, corporate income tax exemptions (including partial exemptions) were only implemented by a few countries, such as Singapore. Tax reductions for businesses, even when implemented, were often applied to business taxes other than corporate income tax, such as banking tax (UK) and industrial production tax (France), and even including these, only 11% of OECD countries implemented such measures.

(2) Loss carry-back refunds and loss carry-forward deductions

While corporate and business income tax rate reductions and exemptions have only been implemented to a limited degree, given the extent of their benefits, the extension of the offsetting allowance rules for tax losses has been widely used in many countries as a policy tool to maintain corporate liquidity: 41% of OECD countries have extended tax loss carry-back refunds, and 11% have extended or have expanded tax loss carry-forward deductions. Japan has eased the requirements for loss carry-back refunds, which were previously only available to SMEs with capital of JPY 100 million or less, to those with capital of JPY 1 billion or less, and has made the loss carry forward credit available to large companies with capital of JPY 100 million or more, increasing the maximum credit from 50% to a maximum of 100%.

With regard to loss carry-back refunds, some countries, such as the US and Australia, have reinstated the tax system, while others, such as Japan, the UK and Germany, have extended the period and scope of the system. Others, such as France, the Netherlands and Ireland, have also taken steps such as bringing forward the refund of losses carried forward.

II-3-2. Employment retention support

Immediately after the onset of the COVID-19 crisis, governments used employment retention schemes, mainly wage subsidies, to prevent an outbreak of massive unemployment. Although the details of the design of employment retention schemes differ due to country-specific constraints, these schemes have been used to maintain workers' income and employment by providing at least partial government subsidies for the wages of workers whose working hours have been reduced because their employers have downsized or temporarily closed their businesses, and to help employers to restart economic activity after the COVID-19 crisis. The OECD (2021) estimates that national employment retention schemes will preserve 50 million jobs in the OECD as a whole, which is about 10 times the size of the global financial crisis.

Twenty-three OECD countries, including Germany, Italy, Canada, South Korea and the USA, had such schemes in place before the COVID-19 crisis, and eight countries, including the UK and Denmark, introduced them as new schemes. Countries with pre-existing schemes have also taken measures to extend them, such as simplifying the application process and easing coverage. In Japan, special measures were implemented for the Employment Adjustment Subsidy, which subsidises 80% to 100% (67% to 75% for large companies) of a company's daily wage up to a maximum amount of JPY 8,330 when the company pays 60% of the daily wage as absence allowance, the maximum subsidy amount was increased to JPY

15,000 and the subsidy was extended to cover persons not covered by employment insurance, and the application procedure has been simplified.

Various approaches to employment support were implemented in a multi-layered manner, not only through the employment retention scheme but also through existing schemes. The aforementioned measure to defer payment of social security contributions is considered to be part of this. Also implemented, particularly in the early stages of the COVID-19 crisis, was the use of paid sick leave schemes: many countries supported the granting of paid sick leave entitlements for workers infected with the COVID-19 virus or isolated due to suspected infection, etc. (France, Italy, Spain, South Korea, Australia, the USA, etc.). In Japan, relevant measures included subsidising paid leave for employed parents and guardians, and assisting private entrepreneurs and freelancers to cope with absence from work in conjunction with the school closure measures implemented from the end of February 2020.

II-4. Support measures via VAT

While the previous two subsections have outlined relief measures for households and enterprises in the COVID-19 crisis emergency response respectively, this section will focus on relief measures through the value added tax. As a type of indirect consumption tax, VAT is a tax that businesses are obliged to pay, but since the tax bearer is deemed to be the consumer, support measures through VAT also have the dual aspect of providing support to both households and businesses. Therefore, support measures related to VAT will be described collectively in this subsection.

II-4-1. Support for easing business liquidity constraints

As in the case of corporate income tax and business tax, many countries have taken measures such as deferment of VAT payments or extension of filing deadlines. Interim VAT payments are generally made quarterly or monthly (in Japan, the number of interim payments varies from no interim payment to six months, quarterly or monthly depending on the amount of consumption tax paid in the previous year). The risk of payment deadlines being met with VAT still outstanding from customers was therefore dramatically amplified during the COVID-19 crisis. In this context, the adoption of measures such as the deferment of VAT payments and the extension of filing deadlines is presumably important from the perspective of ensuring the liquidity of enterprises.

Among OECD countries, 81% have adopted measures to defer payment of VAT as an emergency response to the COVID-19 crisis, and 51% have extended the deadline for filing tax returns. In most cases, these measures were accompanied by exemption or reduction of penalties, such as arrears tax, for overdue tax payments. In addition, many countries applied the measures uniformly to all enterprises and businesses, while some countries limited their application to certain sectors, such as tourism and retail, and to SMEs and sole proprietors.

Associated with these, 41% of OECD countries also expedited the processing of VAT refunds. While many businesses faced a rapid decline in sales as a result of the COVID-19

crisis, VAT payments associated with business continuity and fixed equipment installation continued to be persistent. This is why countries such as Canada, Finland and Switzerland have accelerated VAT refunds. In some countries, however, the measure was limited to certain industries damaged by the COVID-19 crisis or to businesses with low tax payments.

II-4-2. Support through reduced value-added tax rates

A number of countries have changed their VAT or goods and services tax rates as an emergency response to the COVID-19 crisis. It is worth noting, however, that most of these changes were limited to specific industries damaged by the COVID-19 crisis, or to consumption activities where the need for masks, disinfectants, etc. grew rapidly, and only a few countries, such as Germany, Ireland and Thailand, reduced the main VAT rate itself (Italy decided not to implement the planned increases in the main and reduced VAT rates).

Table 1 lists the temporary VAT/goods and services tax reduction exemptions in OECD and G20 countries. In many countries, temporary VAT reductions were applied to the tourism industry (27% of OECD countries), the food service and catering industry (16%), cultural and sports services (19%) and health and hygiene products (59%). In this conjunction,

Table 1: Temporary VAT/Goods and Services Tax Reduction and Exemptions in OECD and G20 countries

Standard rate	General reduced rate	Restaurant meals and beverages	Tourism and hospitality	Cultural and sporting service	Specific healthcare supplies	Other
Germany	China	Austria	Argentina	Argentina	Argentina*	Brazil*
Ireland	Germany	Belgium	Austria	Austria	Austria	Colombia*
	Norway	China*	Belgium	Colombia	Belgium	Greece
		Colombia*	China*	Czech Republic	Brazil*	Hungary
		Germany	Colombia*	Greece	Canada*	Korea
		Hungary	Czech Republic	Netherlands	China**	Russia
		United Kingdom	Greece	Portugal	Colombia*	Turkey
			Hungary	Turkey	Czech Republic*	Saudi Arabia
			Indonesia	United Kingdom	Finland**	
			Ireland		France	
			Norway		Greece*	
			Turkey		Ireland*	
			United Kingdom		Italy	
					Lithuania*	
					Netherlands*	
					Poland*	
					Portugal*	
					Russia*	
					Slovak Republic*	
					Slovenia*	
					Spain*	
					Switzerland*	
					United Kingdom*	

Source: OECD (2021) “Tax Policy Reforms 2021.”
Note: * indicates countries with temporary zero tax rates; ** indicates countries with temporary tax exemptions

the EU has given Member States the authority to apply a zero rate of tax on vaccines and testing kits as an exception to the EU VAT Directive, and some countries exercised this authority.

III. Policy evaluation analysis of relief measures

This section surveys empirical analyses of the policy impact of emergency response measures implemented in the early stages of the COVID-19 crisis. However, as there is not enough space to cover all areas of analysis of the effects of emergency relief measures, the coverage of the main research findings is limited to those that are closely related to policies implemented in Japan in terms of methods and objectives, or that have been discussed as issues in the process of emergency response policy debates in Japan. Specifically, this will include an analysis of direct transfers to households, similar in concept to the Special Cash Payments; an analysis of subsidy policies aimed at retaining employment, similar to Employment Adjustment Subsidies; and an analysis on the consequences of value-added tax (consumption tax) reduction policies, which were not implemented in Japan but were often requested, mainly by the opposition parties.

III-1. Evaluation on direct transfer policies to households

As explained in the previous section, although many countries provided support to households through income taxation and unemployment benefits, not many implemented uniform direct transfer policies to a wide range of populations, both nationals and residents, due to constraints in terms of cost. However, some countries have taken to such direct transfer policies, taking into account the screening costs of targeting assistance and the speed of implementation under existing schemes. This section highlights the empirical analysis on direct transfer policies in the USA, South Korea and Israel among such countries.

III-1-1. United States

(1) Economic Impact Payments

The Coronavirus Aid, Relief, and Economic Security Act (CARES Act), passed by the US Congress on 27 March 2020, consisting of a policy package totalling approximately USD 2.2 trillion, included 2020 Recovery Rebate. This cash transfer, later renamed Economic Impact Payments (EIP), has been re-implemented three times by 2021, varying in size and targeting.

Benefit amounts in the first EIP were based on the number of household members and income, with a base payment of USD 1,200 for an individual and USD 2,400 for a couple, plus an additional payment of USD 500 per family member under 17. Adjusted gross income (AGI) for 2019 if the taxpayer had already filed a 2019 tax return in 2020, otherwise 2018 AGI from the 2019 return was identified as income, and if AGI are $75,000 (single), $112,500 (head of household), $150,000 (couple combined) respectively, the payment is re-

duced by 5% of the excess amount. Thus, no benefits are provided if the AGI is above USD 99,000 (single) or USD 174,000 (couple combined). In this sense, the EIP is not a rigid universal benefit, but the income cap is set high enough that it is reasonable to assume that benefits were generally provided to a broad range of people.

EIP is paid directly into the account of individuals who have filed a tax return and registered their account details, and on 15 April, transfers were completed for about half of the 80 million cases. For individuals who have not filed a tax return, a dedicated website has been set up for them to enter the required information, and for applicants without bank account information, benefits have been provided by cheque or prepaid card. As a result, approximately USD 271 billion was delivered during 2020, of which approximately USD 260 billion was disbursed in the second quarter of 2020.

As mentioned earlier, the EIP has been conducted three times (Round 2: December 2020 to January, 2021; Round 3: March 2021), but at the time of this writing, due to data availability constraints, the empirical analysis of the first round of the EIP is largely dominated by the empirical analysis of the EIP. This section summarises the leading studies analysing the effects of this first round of EIPs on expenditures.

(2) Empirical analysis on the EIP

During the COVID-19 crisis, scientific evidence for many infection control measures was provided by the concerted and rapid publication of research results by medical, public health and epidemiological disciplines, but a similar role was also strongly demanded of the social sciences, particularly economics, which was expected to provide prescriptions for an economy and society that had been deeply damaged by the COVID-19 crisis. However, survey data typically used for economic analysis have a time lag between the collection of data and the time when researchers can analyse them, and this constraint made the arguments for economic measures in the early stages of the COVID-19 crisis difficult. In this context, real-time analysis using so-called alternative data, consisting of various types of data from the private sector and not relying on conventional official statistics and survey research, came to be focused on.

Especially noteworthy was the analysis by Chetty et al. (2020), who, in their Opportunity Insights, combined highly granular data from credit card payment data, payroll systems, online recruitment systems, scheduling systems, cloud accounting systems, etc., with publicly available official statistics, and used them to analyse labour and education issues at the postcode level, which they then used for economic analysis of the COVID-19 crisis. Chetty et al. (2020) found that before and after the lockdown, higher-income groups reduced their spending, and that these reductions were driven by a sharp decline in spending on face-to-face services such as eating out, accommodation and transport, which led to a reduction in the number of people infected. Chetty et al. (2020) point out that in an environment where control measures are in place, it is difficult for government transfer measures to have an impact on increasing expenditure. They then point out that since April 2020, when the first round of EIP benefits took place, card expenditure in the bottom quartile of the average

household income distribution by postcode area has increased by 25%, compared with only 8% in the top quartile of the distribution. With this as evidence, they had a significant impact on later policy discussions in direct transfers such as the EIP, arguing that if this was to be re-implemented, the target should be more selective.

Baker et al. (2020) use anonymised daily data from SaverLife, a non-profit fintech app, to analyse the effect of the EIP on spending. SaverLife is an app that allows users to link bank account, cheque and credit card information and uses this information to assist households in accumulating assets, but Baker et al. (2020) connect self-reported information such as age, education, family structure and area of residence to this for analysis. Therefore, there is a certain income bias in the data set.

Their analysis shows that the marginal propensity to consume within three weeks of benefits for households with annual incomes of less than $24,000 is 0.57; for households with annual incomes of $24,000 or more, the marginal propensity to consume is 0.33; for households in the bottom quartile of assets, 0.47; and for the top quartile, 0.26. Furthermore, unemployed households had a reduced marginal propensity to consume, with smaller spending on durable goods, larger spending on food and larger increases in rent, mortgage and credit card payments compared to past benefits.

Cox et al. (2020) use bank account data, including card spending information from JPMorgan Chase, and focus their analysis on the heterogeneity of the impact of the pandemic on spending and savings; they find that before and after the EIP benefits, spending recovered rapidly, particularly among low-income groups and that the supply of liquidity through the EIP contributed to stabilisation. At the same time, there was an overall increase in liquid assets, indicating that the contribution to the increase in liquid assets was particularly high in the low-income group, which benefited relatively more from the EIP. This indicates that, except in the initial period, labour market disruptions may not have been a factor in the spending decline, but the restrictions in the pandemic itself may have been the main driver of the spending decline.

Karger and Rajan (2020) conducted an event study using anonymised debit and credit card transaction-level bank account data from Facteus, showing a marginal propensity to consume of 0.46 in the two weeks after receiving benefits, with 10% of benefits used to pay down debt. In particular, beneficiaries with low monthly incomes had a marginal propensity to consume of 0.60, while those who saved most of their income had a marginal propensity to consume of only 0.24. Karger and Rajan (2020) also estimated the effects for the second round of the EIP, implemented in January 2021, where the marginal propensity to consume within two weeks was 0.39, showing that 14% of benefits were used to repay the debt. This suggests that if benefits could be restricted to households with high marginal propensities to consume, a comparable expenditure expansion effect could have been achieved with less financial resources.

Misra et al. (2021), also using Facteus postcode-level aggregate data, focus their analysis on the geographical heterogeneity of marginal propensity to consume. The marginal propensity to consume estimated by Misra et al. (2021) ranges from 0.29 to 0.51 depending on

the range of expenditure items, with this estimate being three times higher in urban areas with high population density and high cost of living, indicating that in areas with lockdown, marginal propensities are about 60% higher.

The above analyses are not based on individual data from public statistics or surveys, which are ordinarily used, but on high-frequency economic data from private companies, etc., and are considered to be a group of studies that respond at a sophisticated level to the rapid reporting required in times of large-scale economic disaster, such as the COVID-19 crisis. Such studies have also been conducted in Japan, with Kubota et al. (2021) and Kaneda et al. (2021) making seminal contributions using bank account and household application information, respectively.

Aside from these, a number of analyses using public surveys have also been released, albeit with a slight time lag. Analyses using public surveys have the advantage of providing comparability with previous empirical analyses of direct transfers to households. As Sahm (2021) points out, caution should also be taken with sampling bias when alternative data are used, although the authors of the analyses are also explicit in their papers. However, if it is a public survey study sampled in a representative national population survey design, the risk of such bias is reduced.

Coibion et al. (2020) introduced questions on the EIP into the Nielsen Homescan panel survey, a large quarterly survey, to track changes in consumption and savings behaviour when receiving the EIP; Coibion et al. (2020) found that the marginal propensity to consume was on average around 40%, the heterogeneity was substantial, with around 30% of respondents spending their entire EIP benefit (MPC = 1) and around 40% of respondents saving their entire benefit (MPC = 0). The proportion spending was higher for those facing liquidity constraints, unemployed, larger households, less educated and those with smaller benefits, but even when they did spend, they reported that more people, including households with liquidity constraints, used the money to pay down their debts. Coibion et al. (2020) suggest that these interpretations may be due to the fact that the lockdown limited where people could spend in the first place, and that EIPs have very large benefit amounts, which may have reduced the impact of the temporary increase in disposable income on consumption.

Finally, Parker et al. (2022a b) use individual data from the Consumer Expenditure Survey to examine household expenditure responses to the EIP. According to Parker et al. (2022a b), the amount of EIP receipts that went to expenditure was much smaller than the estimates of the previous studies mentioned above, with about 10% spent on non-durable goods and services in the three months following receipt, and little additional expenditure on durable goods was identified. Those who reported spending most of their EIP spent 14.3% of their EIP on consumption, compared with 5.9% and -1.6% of additional consumption by those who reported spending most of their EIP on debt repayment and savings, respectively. Households with low liquid assets and those receiving money on debit cards spent a higher proportion and had marginal consumption propensities of around 0.22 and 0.37, respectively. Parker et al. (2022 a b) point out that these different estimates of marginal

propensity to consume from previous studies may be the result of bias due to the fact that the data used by previous studies utilised data sets biased towards low- and high-income groups. With regard to the small estimates of the EIP's marginal propensity to consume, they also point out that, unlike previous refund programmes whose main objective was to stimulate the economy, the EIP's policy objectives included an insurance function, and that it was intended to provide liquidity to those who faced the risk of unemployment or income decline and were not covered by existing assistance programmes. They point out that the objective was also to provide liquidity to those who were not covered by existing assistance programmes for those facing the risk of unemployment and income decline, and in this sense, they suspend a definitive evaluation of the impact of the EIP benefits.

III-1-2. Korea

(1) South Korea's consumption voucher programme

During the COVID-19 crisis, South Korea was one of the few countries to provide uniform benefits to all its residents, but this took the form of consumption vouchers that could only be used by small businesses in the area of residence. In this sense, the method is similar to the Regional Promotion Vouchers implemented in Japan in the past, but differs in that all residents of the country are eligible for the benefit.

What made the Korean consumption voucher scheme unique is that additional benefits were provided not only by the central government, but also by fundamental local governments and the regional governments that are positioned above them. This may have been influenced by the fact that, in the process of policy argumentation, the voucher benefits from the local government started earlier than the voucher benefits from the central government, and the decision for the voucher benefits from the central government followed in its wake, but as a result, it formed an interesting quasi-experimental environment.

Under these schemes, all Koreans receive consumption vouchers from the central government of KRW 400,000 for one-person households, KRW 600,000 for two-person households, KRW 800,000 for three-person households and KRW 1 million for households with four or more members. In addition, other benefits are received separately from the regional authorities, such as regional cities and provinces (some of which do not implement this), and from the basic authorities, such as cities and counties. Benefits are provided in the form of a credit card registration or a check card, but the recipients are limited to small businesses in the area of residence and the expiry date is set to 31 August 2020.

(2) Empirical analysis of the Korean consumption voucher programme

Kim and Lee (2021) examine the potential consumption effects of vouchers using a survey conducted by the Korea Institute of Public Finance (KIPF). They find that the voucher scheme increased consumption expenditure by 36% of households and total expenditure by 29% of households, with qualitatively the same results obtained only for the 78% of households that had similar incomes before and after the pandemic. With regard to the destination of vouchers, 59% of vouchers were used in the three categories of food, eating out and

health care. However, no evidence was found that the marginal propensity to consume with vouchers was greater for those on lower incomes.

Baek et al. (2021) conducted a DID analysis on data from Gyeonggi Province, which provided between KRW 100,000 and 300,000 per person, and the neighbouring Incheon Metropolitan City, which did not provide its original benefit, and found that the marginal propensity to consume voucher scheme was 0.4 for a single person household, varying from 0.36 to 0.58 depending on the number of household members.

Woo et al. (2021) examine the extent to which consumption voucher benefits in Seoul affect the consumption of Seoul residents. The unique benefits in Seoul are subject to income-related restrictions (monthly income below the median), which are used to estimate the effect in the DID way. The dataset consists of information on the use of Shinhan Card, the largest credit card company in South Korea, a data environment made possible by the fact that many consumption vouchers are registered as pre-paid to credit cards. Woo et al. (2021) found that the marginal propensity to consume brought about by consumption vouchers in Seoul was very high at 0.69 and that an increase in consumption of 18% was observed during the trial period, with a continued increase in consumption of around 6% after the end of the programme.

Choi (2021) exploits the fact that the benefits in Gyeonggi Province are one month earlier than in the rest of the country and conducts a DDD analysis, also using high-frequency data from the Shinhan Card; Choi (2021) found that card spending in business branches where vouchers were available increased significantly by about 4.1% compared to other branches, and that the effect was continued over a three-week period, but that the effect was uneven across sectors, with greater effects in areas such as food, furniture and beauty, but less so in areas such as eating out, leisure and travel.

III-1-3. Israel's flat-rate benefits and its evaluation

The universal flat-rate benefit in Israel was implemented later than in other implementing countries, in August 2020. Benefits were paid to children first, then to the elderly and those eligible for additional benefits, and finally to the remaining eligible adults. By the first week of August 2020, almost all eligible citizens had received account transfers and it took only three weeks from the Government's announcement of implementation to the completion of benefits.

With regard to this benefit scheme, Feldman and Heffetz (2021) analysed the impact on households' spending behaviour using data from an anonymous survey conducted by the Independent Commission at the end of August of the same year. According to Feldman and Heffetz (2021), the marginal propensity to consume benefits was estimated to range from 28-51% in the short term and up to 58% in the long term, with 42% of households saying they would use the benefits to pay down debt, 26% to spend, 15% to save and 14% to donate to third parties or give to family and friends.

In response to these results, Feldman and Heffetz (2021) make two points. First, the proportion of those who donated or used their benefits for family and friends was almost the

same as those who saved, mainly among higher-income groups. While there has reportedly been domestic political controversy in Israel due to the fact that transfers in Israel met uniform benefits, including those of higher income groups, this voluntary redistribution of government transfers may mitigate the trade-off between targeting and simplifying and speeding up the provision of benefits. Second, in examining the destination of spending in direct government transfers, the possibility of spending for the benefit of others is not small, but not many studies have captured such spending. Estimating the true impact of such benefits through surveys may be problematic, especially if the policy is politically controversial.

III-2. Evaluation of employment retention policies

This section provides an overview of the empirical analyses conducted on the government's job retention policies during the COVID-19 crisis. In particular, the analysis on the Paycheck Protection Programme in the US and the JobKeeper Payment Programmes in Australia will be discussed. Hamilton (2020) provides a detailed discussion of how employment retention schemes in both countries are positioned in terms of their connectivity with existing programmes and policy infrastructures.

III-2-1. United States

(1) Paycheck Protection Programme

Special financing for small- and medium-sized businesses (under 500 employees) as part of the CARES act was implemented as the Paycheck Protection Programme (PPP), which was an amendment to the existing Small Business Act. Eligible companies apply through their banks for a loan limit of 2.5 times their payroll costs for the past year or USD 10 million, whichever is smaller (no personal guarantee or collateral required). The US Government has invested approximately USD 800 billion in financial resources for PPPs, resulting in 93% of SMEs eventually receiving one or more loans, plus almost all of the loan amount being exempted from repayment.

(2) Empirical analysis of PPPs

Most empirical analyses of the economic effects of PPPs follow an identification strategy that focuses on two features of PPP financing. One is to estimate employment effects using the threshold level of 500 employees, which is the aforementioned criterion for special loan eligibility, and the other is to use the delay in the timing of the loan. The latter, in particular, focuses on the impact of the attributes of existing financial institutions on the effects of PPPs, as financial institutions played a role in receiving applications when the scheme was used.

The earliest study to capture the impact of PPPs on employment was Chetty et al. (2020), which also evaluated direct transfer policies to households. Chetty et al. (2020) noted that the impact of PPPs on employment rates was small, as the employment rate of enterprises with less than 500 employees supported by the programme increased by only 2 per-

centage points after the PPP was implemented. It further pointed out that the cost per job saved by PPPs cost USD 377,000. This was because the bulk of PPP loans were made to enterprises that did not plan to lay off many employees. However, Chetty et al. (2020) recognise that PPPs, while expensive in the short term to maintain employment rates, may have the potential to bring benefits in the long term in reducing corporate bankruptcies.

Autor et al. (2022 a b) use payroll data from ADP, a payroll processor, to estimate employment effects in a 500-employee threshold design. They estimate that PPPs have preserved between 2 and 3 million jobs over a 14-month period, but at a cost of between USD 170,000 and 250,000 per year to protect one job. It further estimates that 23-34% of the amount financed and subsidised by PPPs went directly to workers who lost their jobs, with the remainder going to company owners and shareholders, including creditors and suppliers of companies that received PPPs. They also noted that about three-quarters of the PPP funds were returned to the top quintile of households.

Hubbard and Strain (2020) provide DID estimates using data from the Dun & Bradstreet Corporation. Hubbard and Strain (2020) showed that PPP had a relatively high impact on SME employment retention and enterprise viability, particularly after June when the economy was partially restarted, although they note that the data used is for a limited period from the start of the programme to August.

Li and Strahan (2021) conducted an analysis by cross-checking call reports submitted by US banks to regulators with information on PPPs published by the US Small Business Administration. Li and Strahan (2021) found that PPP lending was more prevalent among small banks and financial institutions with more operating experience and committed lending in the area, and that firms holding close relationships, such as banks, were more likely to benefit from PPPs. They recognised that the need to distribute large amounts of money in a short period of time inevitably led to banks having an intermediary function, but concluded that there were inefficiencies in the system where the timing of PPP lending varied according to the relationship with the bank, irrespective of the performance of the company.

Faulkender et al. (2020) utilised the fact that local banks approved and distributed PPP funds at a quicker pace than other banks to estimate the impact of PPP loans on unemployment insurance claims at the county level. They report a fairly large effect, with a 10-percent increase in the number of employees eligible for PPP leading to a 1 to 2-percent reduction in unemployment insurance claims, and a similar 10-percentage-point increase in PPP coverage leading to a 5-percentage-point reduction in the insured unemployment rate.

Bartik et al. (2021) used survey data to show that firms estimated to be more effective in treatment were more likely to have loans approved and to have PPP funds allocated to them. It also showed that firms with stronger links to banks were more likely to be approved for loans, while those with less cash reserves were less likely to be approved. This suggests that lending to customers in good financial standing may have been prioritised, and that firms with weak bank connections that would otherwise have benefited from the loans may have been excluded from the programme.

Doniger and Kay (2021) found that delays in lending due to a lack of funds immediately

after the start of the PPP contributed to the expansion of unemployment in the May quarter, and that although the effects of the loans were particularly greater for the self-employed, low-wage earners, the less educated and small businesses, these firms did not receive the funds.

Moreover, Granja et al. (2022), by combining loan-level micro-data on all PPP loans with administrative employment data, pointed to the subscription of the intermediary function of banks in the delivery of assistance as a factor explaining why some PPP funds flowed to less pandemic-affected areas. It also confirms that the short- and medium-term employment impact of the programme was small relative to the size of the budget, and that many firms used the loans to pay for non-salary fixed costs and to augment their savings buffer.

III-2-2. Australia

(1) JobKeeper Payment Programme

The JobKeeper Payment wage subsidy scheme was announced on 30 March 2020 and initially scheduled to run for six months (later extended until the end of March 2021 with changes to the amount paid and eligibility). The JobKeeper scheme provides assistance to employees working for companies with total turnover of less than AUD 1 billion and a turnover decrease of at least 30% or total turnover of at least AUD 1 billion and an expected (but only forecast) turnover decrease of at least 50%. Wage subsidies are provided to employers or self-employed people if they are in full-time or part-time permanent or casual employment and have been working regularly for at least 12 months.

The amount of the subsidy is a flat wage supplement of $750 per week per employee ($1,500 bi-weekly), equivalent to the minimum wage for full-time employees in Australia, with the employer paying the difference if the worker's gross earnings exceed $750. Under Australian law, wages cannot be reduced during a pandemic, so companies must pay the difference if they want to maintain the employment relationship.

In the early period of the scheme, a quarter of the employed population in Australia received JobKeeper payments, and it is estimated that approximately half of employee compensation in the second quarter of 2020 was covered by the JobKeeper scheme, particularly in the worst affected industries such as food and beverage.

(2) Empirical analysis of JobKeeper Payment

An early empirical analysis of the employment retention effects of JobKeeper Payment was conducted by Bishop and Day (2020). Bishop and Day (2020) utilised the threshold of a 12-month employment requirement for entitlement to be imposed to estimate RD. Their analysis assessed the impact of JobKeeper Payment as having prevented 700,000 job losses between April and July 2020, after the scheme was launched. Black and Chow (2022) also assessed the contribution of JobKeeper to maintaining job mobility after the lockdown was lifted.

More recently, however, analyses have emerged, such as Borland and Hunt (2021), which even take into account the multifaceted effects of the system. Borland and Hunt

(2021) extended their analysis beyond the recessionary period of the COVID-19 crisis to the recovery period following the lifting of the lockdown. They found that only a few of the substantial layoff aids, JobKeeper, that were used led to reemployment, and noted that most of the increase in employment during this period was in new jobs, which should be kept in mind in terms of cost-effectiveness.

III-3. Evaluation on VAT policy

As discussed in Section II, although a number of countries manipulated the VAT rate as a fiscal policy in response to the COVID-19 crisis, only a few countries reduced the main rate or the general reduced rate. This section reviews the paper by analysing the macroeconomic impact in Germany, which reduced both the main VAT rate and the general reduced VAT rate by 2%.

III-3-1. Analysis of German VAT rate reductions

The change in the VAT rate in Germany was implemented as a time-limited measure, with a six-month change from 19% to 16% for the main rate and from 7% to 5% for the general reduced rate, effective from June 2020. There was a lot of critical discussion on this tax rate change, as common economic knowledge suggests that the tax rate reduction will have a limited effect on prices, and that the effect will be limited under the implementation of infection control measures such as lockdowns. However, there were also positive arguments, such as the fact that a reduction in the VAT rate can be expected to have a strong effect on durable goods consumption, and that it can be expected to be effective as a fiscal policy response rather than a monetary policy that cannot respond flexibly under a zero-interest-rate policy. In this context, there has been a great deal of interest in the effects of changes to VAT in Germany, and several empirical analyses have been published.

Clemens and Röger (2021) use a multi-sector DSGE model comprising sectors directly and indirectly affected by lockdown. Clemens and Röger (2021) further divide households into economically constrained and non-economically constrained household types, further decompose consumption into durable and non-durable goods and perform an analysis that takes into account the imperfect pass-through of VAT changes to consumer prices. Analysis by Clemens and Röger (2021) found that even with limited VAT pass-through, the impact of a rate change on consumption is very large, with a short-run multiplier of 1 for a VAT change, but decreasing in the medium term. They therefore conclude that a temporary reduction in VAT is an effective measure in the short term, but not efficient with regard to mid-term fiscal sustainability.

Funke and Terasa (2022) analyse the effects of a VAT reduction in Germany by introducing retailers who convert homogeneous final goods into differentiated retail goods into a DSGE model and analysing the effects of a VAT reduction by modelling different situations of VAT pass-through. Funke and Terasa (2022) estimated that non-traditional temporary reductions in VAT would increase German GDP by 0.3 percentage points in 2020, according

to a calibration analysis in Funke and Terasa (2022).

A different approach to the above-mentioned macro-model analysis of changes in VAT rates was taken by Bachmann et al. (2021). Assuming the Euler equation for consumption, when a zero-interest-rate policy is in place, an increase in future prices due to the non-traditional fiscal policy of a reduction in the value-added tax rate is equivalent to a decrease in the current real interest rate. A reduction in the value-added tax rate should therefore stimulate current consumption as much as the traditional monetary policy channel. Bachmann et al. (2021) therefore asked questions about the degree of awareness of a future schedule of VAT rate changes (a second increase in January 2021) and spending plans for durable goods consumption and non-durable goods, and analysed the scanner data matched to this, in order to estimate the effect of the VAT change. They estimated that the temporary reduction in the VAT rate, together with an increase in semi-durable and non-durable consumption, led to a 36% increase in durable consumption expenditure for individuals, who are more likely to feel the price pass-through, and increased total consumption expenditure in the economy as a whole by approximately EUR 34 billion.

IV. Conclusion: Implications for Japan

This paper summarises the overall scale and variations in the emergency fiscal measures implemented by countries around the world during the COVID-19 crisis that hit the world from the beginning of 2020, and surveys the empirical analysis in countries that implemented policies highly related to Japan's emergency fiscal response measures.

In particular, we surveyed analyses in the US, South Korea and Israel as countries that implemented direct transfers to households similar to the Special Cash Payments, and studies in the US and Australia as countries that implemented employment maintenance policies similar to Employment Adjustment Subsidies. We also surveyed analyses in Germany, which actually implemented a reduction in the value-added tax (consumption tax) rate, which was not implemented in Japan but was often the subject of debate.

The experiences and analyses of various countries provide some suggestions that may be relevant for Japan's policy evaluation. First, when faced with a sudden outbreak of a pandemic crisis, countries were not always able to take first-best measures due to constraints imposed by existing policy infrastructure and implementation experience. The reality that every country was forced to implement second-best measures in the face of certain trade-offs needs to be taken into account.

Whether direct transfer policies to households or employment retention policies such as PPPs and JobKeeper schemes, measures have been implemented on a very generous scale in terms of both quantity and scope, given the costs of benefit selection and the risk of overloading administrative processing capacity. In this sense, it may be said that the scale of the emergency fiscal response measures in Japan was also an unavoidable aspect of the crisis response.

However, what can be seen from the analysis of each country is that even when large-

scale measures are implemented for the above-mentioned unavoidable reasons, the room for improvement is clarified as quickly as possible through quantitative analysis, leading to the next policy debate. In some cases, the results of the analysis have been used to design additional support policy instruments during the COVID-19 crisis, which has lasted longer than initially expected, while in other cases the issues have been clarified as mid- to long-term challenges. Such a deepening of EBPM-oriented analysis and policy responses will be strongly required in Japan.

In addition, the importance of preparing and utilising data for analysis has become even clearer during the COVID-19 crisis. The rapid release of the results of analyses using alternative data, not limited to existing survey research and public surveys, has supported the policy debate over the past few years. It is particularly interesting to note the great variety of analyses produced in the USA, where the accumulation of such data use is well advanced. Naturally, there is no doubt that behind this is the existence of a well-layered research sector in the USA, but it would be desirable for Japan to build a system that is more robust against future crises by deepening cooperation with universities and research institutions and providing as much support as possible, including human resource development.

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