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Mizuho Economic Outlook & Analysis

January 28, 2019

Economic impact of building national resilience and the supplementary budget

Expectations and risks of mitigating the reactionary downturn

< Summary >

- ◆ The Japanese government made the cabinet decision on its “Three-year Emergency Response Plan for Disaster Prevention, Disaster Mitigation, and Building National Resilience” and the draft second supplementary budget for FY2018 in December 2018. The second supplementary budget includes additional expenditure exceeding 3 trillion yen, funded by large-than-expected tax revenues and issuance of government bonds.
- ◆ According to our estimate based on currently available information, the second supplementary budget will push up nominal GDP for FY2019 by around 0.3-0.4% (0.5-0.6% on a cumulative basis including FY2020), driven mainly by growth in public investment.
- ◆ The Three-year Emergency Plan is expected to raise GDP by about 1% in cumulative terms up to FY2020 (including the effect of the second supplementary budget for FY2018). Although the plan is expected to mitigate the reactionary economic slowdown caused by the termination of economic support measures in mid-FY2020, we need to be alert to the supply constraint factor.

Mizuho Research Institute Ltd.

Saisuke Sakai, Senior Economist, Economic Research Department

saisuke.sakai@mizuho-ri.co.jp

Naoki Hattori, Senior Economist, Economic Research Department

naoki.hattori@mizuho-ri.co.jp

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1. Cabinet approval of the Three-year Emergency Plan and the second supplementary draft budget for FY2018

After a series of natural disasters in 2018, the Japanese government made the cabinet decision to introduce the *Three-year Emergency Response Plan for Disaster Prevention, Disaster Mitigation, and Building National Resilience* (referred to below as the “*Three-year Emergency Plan*”) in December 2018. From the standpoint of “maintaining important infrastructure functions for disaster prevention and supporting the national economy and public life,” the plan stipulates various urgently required measures to be set in place over a three-year period from FY2018 to FY2020. The government estimates the size of the projects will amount to about 7 trillion yen in total, including the burden to be shouldered by the private sector and fiscal investment and loan programs (**Charts 1 and 2**).

Chart 1: Outline of the Three-year Emergency Plan

Project size (trillion yen)	
I. Maintenance of important infrastructure functions, etc., for disaster prevention	3.6
• Prevent and minimize damage caused by large-scale flooding, landslide disasters, earthquakes, tsunamis, etc.	3.0
• Secure the capabilities to respond to disasters through rescue/first aid/medical activities	0.4
• Obtain necessary information, etc. to facilitate evacuations	0.2
II. Maintenance of important infrastructure functions, etc., to support the national economy and public life	3.4
• Secure energy supplies such as electricity	0.3
• Secure food supplies, lifelines, and supply chains, etc.	1.0
• Secure land, sea, and air transportation networks	2.0
• Secure the information communication functions/information services necessary in daily life, etc.	0.0
Total project size	About 7 trillion yen

Source: Made by MHRI based on the *Three-year Emergency Response Plan for Disaster Prevention, Disaster Mitigation, and Building National Resilience* (cabinet decision made on December 14, 2018).

Chart 2: Breakdown of the Three-year Emergency Plan (image)

Project size (trillion yen)	
	3.6
Central government	[Status of budget] (First supplementary budget for FY2018) 0.3 (Second supplementary budget for FY2018) 1.1 (Initial budget for FY2019) 1.3
Municipalities	2.5
Fiscal investment and loan programs	0.6
Private sector	0.3

Note: The data above are based on information available at the time of writing this report. Since the burden shouldered by municipalities is not disclosed, we used figures estimated by MHRI.

Source: Made by MHRI based on materials released by the Ministry of Finance and various media reports.

In light of the above decision, the second supplementary draft budget for FY2018 was approved by the Cabinet in the same month of December, covering the expenditure of 1.1 trillion yen to be used for projects to prevent and reduce disasters and to build national resilience that need launching immediately (**Chart 3**). The amount of additional expenditures totaling 3 trillion yen will be used to strengthen the agricultural, forestry and fishery industries to prepare for the early enactment of the TPP agreement as well as support for small and medium-sized enterprises and respond to other urgent issues. The

sources of these funds mainly consist of a tax revenue increase above initial expectations of 0.8 trillion yen, a budget surplus of 0.7 trillion yen carried over from the previous fiscal year, and the issuance of government bonds totaling 1.0 trillion yen.

The second supplementary budget is not only meant to be an emergency response to natural disasters, but it is also positioned as an economic support measure to tackle the upcoming consumption tax hike in October 2019, as will be explained in detail in later sections. The initial budget for FY2019 also includes 1.3 trillion yen earmarked for “temporal and special measures,” for the purpose of preventing and reducing disasters and building national resilience. Together with the second supplementary budget for FY2018, a total of 2.4 trillion yen will be invested in the *Three-year Emergency Plan*. Because of this, while public works-related expenditures in FY2018 remains unchanged on a year-on-year (“y-o-y”) basis in the initial budget, the supplementary budget increased by 0.6 trillion yen y-o-y,¹ and the initial budget for FY2019 increased 0.9 trillion yen y-o-y (**Chart 4**). Public works funded by the second supplementary budget in FY2018 and the initial budget in FY2019 are expected to push up GDP in FY2019 through growth in public investment.

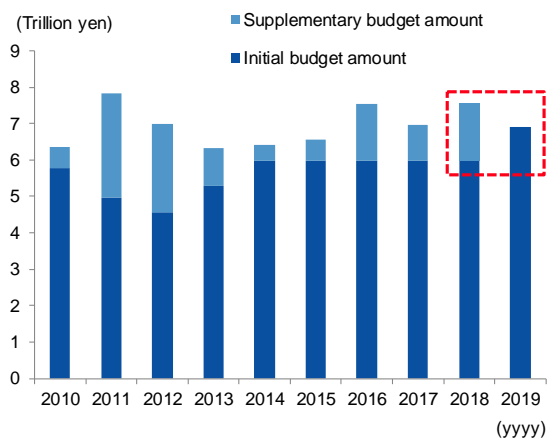
In this report, we discuss the economic impact of the *Three-year Emergency Plan* and the second supplementary budget.

Chart 3: Outline of the second supplementary budget in FY2018 (additional expenditures)

National expenditures (100 million yen)	
I. Prevention and reduction of disasters and building national resilience (measures to be launched immediately in line with the "Three-year Emergency Plan")	10,723
• Prevent and reduce disasters in rivers, sand control, and roads, etc.	6,183
• Promote earthquake resistance for school buildings	611
II. Strengthening the agricultural, forestry and fishing industries to prepare for early enactment of the TPP trade accord	3,256
• Enlarge the blocks of farmland, etc.	902
• Assist with capital investment to enhance the profitability of stockbreeding and dairy farming	560
III. Support for small and midsize enterprises and small businesses	2,068
• Provide subsidies for manufacturing, implementing and sustaining IT	1,100
• Support the introduction of cash registers that can handle reduced tax rates	561
IV. Response to other urgent issues	14,304
(1) Secure safety and assurance in national life	7,512
• Secure the operational effectiveness of the Self-Defense Forces and improve the operation environment by constructing new barracks	3,867
• Develop nurseries, etc.	420
(2) Restoration after disasters, etc.	2,136
• Implement disaster recovery projects to restore public works facilities, etc.	1,374
(3) Other expenses	4,656
Total additional expenditure	30,351

Source: Made by MHRI based on data from the Ministry of Finance.

Chart 4: Public works-related expenditures



Source: Made by MHRI based on data from the Ministry of Finance.

¹ In FY2018, public works expenditure of about 0.4 trillion yen was added in the first supplementary budget and around 1.1 trillion yen in the second supplementary budget.

2. Estimate of the economic impact of the second supplementary budget – lifting the nominal GDP in FY2019 by 0.3-0.4%

Based on currently available information, we estimated the short-term economic effects of the second supplementary budget using the same method employed by Sakai and Arita (2018a) and Sakai and Arita (2018b).

Looking closer at the components of demand, public investment is the main driver of GDP growth. We estimate the increase in public investment to be about 2 trillion yen, calculated from the total project size including the burden to municipalities centered on public works-related expenditures to be used to prevent and reduce disasters related to rivers, sand erosion, and roads, and to build national resilience and recover from disasters.² Considering the time lag that emerged with the progress of past public works projects, the economic impact of the latest round of public works will likely surface from the second half of FY2019. (This is based upon the assumption that the second supplementary budget will be approved in February-March together with the FY2019 initial budget in the ordinary session of the Diet in 2019, that contracts will be signed within a period of a few months, and that actual work will make progress after an additional few months' time.³)

Other than this, expenditures to secure the operation framework of the Self-Defense Forces are expected to push up government spending, and subsidies for small and medium-sized enterprises are also predicted to increase capital investment. Considering the time lag in the progress of public and capital investments, we estimate the nominal GDP to rise by 0.3-0.4% in FY2019 and by 0.5-0.6% in cumulative terms including FY2020.⁴

It should be noted that if progress is made in rehabilitation of infrastructure thanks to public works related to disaster recovery, we anticipate it will have a positive impact externally on the economic activities of the private sector, albeit this is not factored in the above calculation. For example, Kotera and Sakai (2018) points out that an increase in

² For government spending, we accumulated public works-related expenditures and various expenses that are expected to push up public investment (recovery cost of school facilities and so forth). In addition, for public works-related expenditures and public investment that does not correspond to public works-related expenditures, we assumed that two-thirds is covered by the national government and one-third by municipalities to estimate the project size. It should be noted that since the public projects to be included in this time's supplementary budget will mainly comprise repair and reconstruction work, we believe there will be more projects with a low ratio of land acquisition cost that is not included in GDP.

³ For example, the second supplementary budget for FY2016 approved in October 2016 pushed up public investment significantly for the April to June period in 2017.

⁴ Concerning the increase in capital investment, we assumed that subsidies granted to companies will increase their cash flow, and we estimated using the multiplier of the macro model employed by Mizuho Research Institute. However, our estimate is a rough calculation using currently available information, and since the actual degree of economic effect depends heavily on the progress, etc. of public works projects, the estimate result needs to be interpreted with sufficient latitude.

public investment will raise private sector productivity through the accumulation of public capital and have a positive effect on the economy in the long term, based on estimates using the DSGE model.⁵

3. Economic impact of the *Three-year Emergency Plan* – mitigating the repercussions following the expiration of economic support measures in mid-2020

Next, we discuss on economic effect of the *Three-year Emergency Plan* up until FY2020. If the total project size is assumed to be 7 trillion yen as expected by the government (the project also includes works that do not fall under the category of public works), our rough calculation reveals that GDP would expand by approximately 1% by FY2020 (of which about 0.2% growth is expected to surface in the second supplementary budget for FY2018).

Although public works projects covered by the second supplementary budget for FY2018 and the initial budget for FY2019 totaling about 2.4 trillion yen are expected to progress from FY2019 onward, they will likely begin making full-fledged progress from around the second half of FY2019, or after the consumption tax hike in October 2019, as mentioned earlier. As Hattori et al. (2018) pointed out, while the government introduced various measures to support households through cashless point rewards to consumers, vouchers with premiums, and so forth, an increase in public investment will also likely serve as a driver of Japan's economy in the second half of FY2019.

Furthermore, according to media coverage, of the 7 trillion yen project, approximately 3.6 trillion yen will be funded by national expenditures. Therefore, national expenditures covered in the FY2020 initial budget (or FY2019 supplementary budget) are expected to be about 1 trillion yen, an amount derived by deducting the foregoing 2.4 trillion yen (**Chart 5**). Our estimate reveals this would boost GDP in FY2020 by around 0.2%, and by about 0.3% if we include public works projects to be shouldered by municipalities. Considering the time lag between budget inclusion and actual kick-off, full-fledged progress will likely be seen in the second half of FY2020.

The projected progress in the second half of FY2020 marks an important factor in forecasting the course of the economy in FY2020. This is because a series of government economic stimulus measures, including cashless point rewards and vouchers with premiums, will expire in the middle of FY2020 (**Chart 6**). In particular, the

⁵ Kotera and Sakai (2018) estimates that if the tax revenue increase driven by the consumption tax hike (1% increase against GDP assuming that consumption tax revenue is steady) is spent as additional public investment, it will boost personal spending by around 0.36% and GDP by about 0.67% in the long term.

termination of the cashless point reward system in July 2020 may prompt a backlash upon personal consumption, since it is equivalent to a 5% price increase in real terms from consumers' viewpoint (2% in the case of franchise chain stores under mass merchandisers) (**Chart 7**). In addition, as Miyajima (2018) has indicated, 2020 will not only see the end of the Tokyo 2020 Olympics, but will also face such external risk factors as an economic slowdown in the US, intensification of trade tensions between the US and China, and an excess supply of semiconductors. If the public works projects in the Three-year Emergency Plan progresses in the second half of FY2020, it may serve to ease the impact stemming from these negative factors upon the economy.

Chart 5: Image of progress of the Three-year Emergency Plan (covered by national expenditures)

Budget (Covered by national expenditures)	Project size (trillion yen)	GDP raised by (%)	Timing to make progress
First supplementary budget for FY2018	0.3	0.1	FY2018 year-end to first half of FY2019
Second supplementary budget for FY2018	1.1	0.2	Latter half of FY2019 to first half of FY2020
Initial budget for FY2019	1.3	0.2	Latter half of FY2019 to first half of FY2020
Initial budget for FY2020 (Supplementary budget for FY2019)	0.9	0.2	Latter half of FY2020

Notes: 1. The size of projects in the chart depicts the portion covered by national expenditures; other parts are covered by fiscal investment and loans, the private sector and municipalities.
2. The figures above are rough calculations based on information available at the time of writing this report, and therefore should be interpreted with sufficient latitude.

Source: Made by MHRI based on various media coverage.

Chart 6: Implementation schedule of measures related to the consumption tax increase

	(¥100)	2019				2020				2021				2022
		1-3	4-6	7-9	10-12	1-3	4-6	7-9	10-12	1-3	4-6	7-9	10-12	1-3
Permanent measures	Reduction in tax rates													
	Free early childhood education													
	Free high school education													
	Support benefits for pensioners													
	Tax reduction for car owners													
Temporary measures	Cashless point rewards													
	Premium vouchers													
	Extension of the housing loan tax reduction period													
	Enhancement of "sumai-kyufu" housing cash payments													
	Next-generation housing points system													
	Taxation based on environmental performance													

Notes: 1. The first payment of support benefit for pensioners is December 2019.
2. Tax reduction for car owners is only applicable for cars newly registered after October 2019.
3. The home loan tax reduction and "sumai-kyufu" housing cash payments will expire at the end of 2021.
4. The next-generation housing points system is applicable to houses whose contract-based construction work started during the period from April 2019 to March 2020 and delivered after October 2019.

Source: Made by MHRI.

4. Risk of delaying the progress of public works – supply restraint due to the labor shortage is a source of concern

We considered how effective the *Three-year Emergency Plan* and the second supplementary budget for FY2018 are in the previous sections. Although the plan leaves room for discussion from the standpoint of fiscal consolidation since it involves a swelling of public works expenditures,⁶ we believe it will generate a positive effect from

⁶ Inclusion of the "temporary and special measures" to deal with the consumption tax hike, including expenditures to build national

the perspective of supporting the economy.

However, the actual economic effect will depend on the extent to which progress is made by the public works projects. A major concern involves the supply restraint due to the labor shortage as pointed out by Sakai and Arita (2018a).

According to the *Survey on Supply and Demand of Construction Labor* of the Ministry of Land, Infrastructure, Transport and Tourism, the supply and demand situation of skilled construction workers continues to be tight on the back of expanding public works under the Abe administration (**Chart 8**). In particular, the ratio of worker shortage in the civil engineering field with a higher weight of public works rose significantly in 2013 and 2014, when progress was made on a large-scale economic package (*Emergency Economic Measures for the Revitalization of the Japanese Economy* covered in the FY2012 supplementary budget in which the budget supplementation for public works-related expenditures amounts to 2.4 trillion yen).⁷ Although in recent years the shortage ratio has not been as high as in 2013 and 2014, considering the number of large-scale public works projects to be undertaken from FY2019 through FY2020, there is a risk that the labor shortage will intensify and cause delays in these projects.

Looking at construction cost, civil engineering cost gradually rose after 2017 (**Chart 9**). While raw material cost remained high affected by the trends of foreign exchange rates and crude oil prices, personnel cost also continued to rise sharply from the second half of 2018 when restoration projects after natural disasters were launched on a full-fledged basis^{8 9} (**Chart 10**).

A delay in the progress of public works projects caused by supply restraints due to labor shortage or surge of personnel costs for the same reasons may reduce the stimulus effect of public investment to a level lower than anticipated in the previous section. It may even weaken the mitigation effect on the reactionary drop in consumption as discussed in the previous section. As Sakai and Arita (2018a) points out, as the unused portion of public works expenditures (amount carried over to the next fiscal year + unspent amount) increases, budget allocation becomes less efficient.

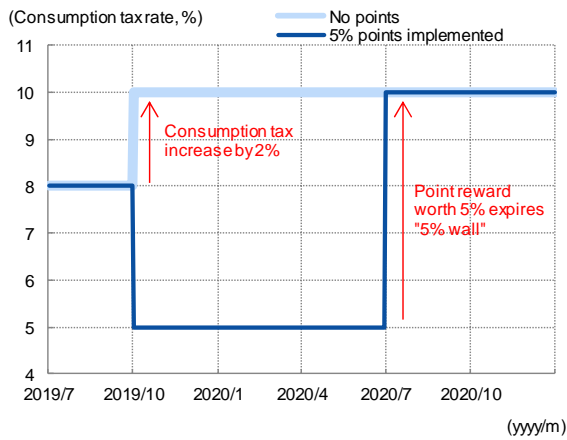
resilience in the initial budget, is desirable from the standpoint of finance governance, considering that such measures have always been part of the supplementary budget to circumvent an increase in budget spending. But there is no change in the situation where public works-related expenses will greatly expand in the name of measures to tackle the consumption tax hike and where tax revenue growth to improve financial consolidation will be reduced.

⁷ Concerning public works-related expenditures, while 3.8 trillion yen was carried forward to the next fiscal year in FY2012, 2.2 trillion yen of unused expense (amount carried forward to the next fiscal year + unspent amount) emerged in FY2013, or twice the supplementary budget amount in the same year, and the budget was not implemented.

⁸ In the construction cost deflator based in 2011, the weight of wage, salary and social insurance premium (paid by employer) was about 40%, and the rise in personnel cost was thought to have triggered a hike in construction cost.

⁹ We use data of the Monthly Labour Survey for personnel cost, and in light of the recent scandal involving inappropriate sampling practices by the Ministry of Health, Labour and Welfare, evaluation of the year-on-year comparison requires closer scrutiny.

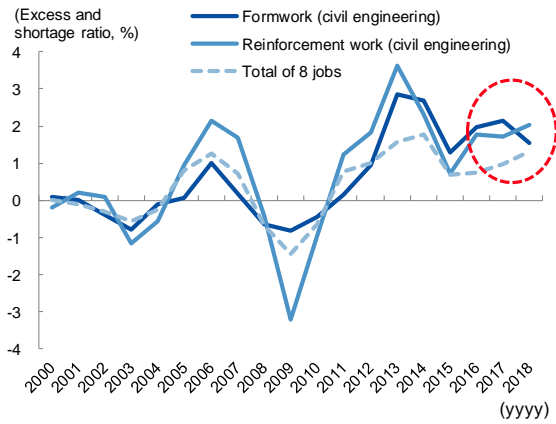
Chart 7: “5% wall” in July 2020 after termination of the point reward system



Note: The target of the point reward system is cashless settlement in small to medium-sized retail stores, among others. The point reward rate for franchise chain stores of major merchandisers is set to be 2%. Medical costs, education costs, coupons, automobiles, housing, among others, are not subject to this system.

Source: Made by MHRI.

Chart 8: Shortage ratio of civil engineering workers (yearly average)



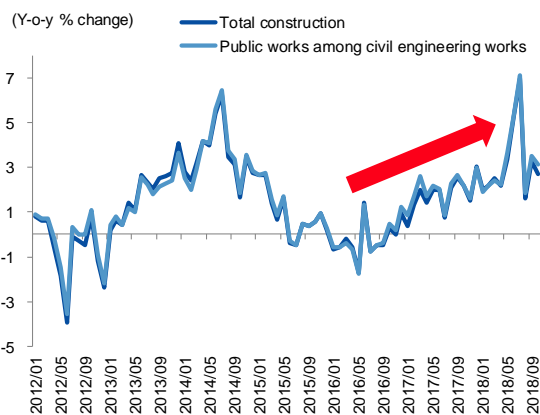
Note: The “excess and shortage ratio” is derived by “(number of workers not obtained despite the intention to obtain - number of excess workers as a result of obtaining workers) / (number of workers obtained + number of workers not obtained despite the intention to obtain) × 100.”

Source: Made by MHRI based on the Ministry of Land, Infrastructure, Transport and Tourism, *Survey on Supply and Demand of Construction Labor*.

From the perspective of easing supply restraints, it is essential to enhance the efficiency of public works through the use of ICT and to acquire human resources by improving the working environment through better control of excessive working hours. For example, a senior engineer working at a construction site might use a drone to check the site and give instructions remotely, or even control construction machinery by remote control. This sort of mobile work in a broad sense will improve work efficiency and lead to fewer working hours by reducing the travel time to construction sites. As the Ministry of Land, Infrastructure, Transport and Tourism is studying these issues based on the *Construction Industry Work Style Reform Acceleration Program* (March 2018), it may be necessary to implement various policy measures, for example, reducing the burden to prepare and submit construction work-related documents and rationalizing the conditions for allocating engineers in construction sites.

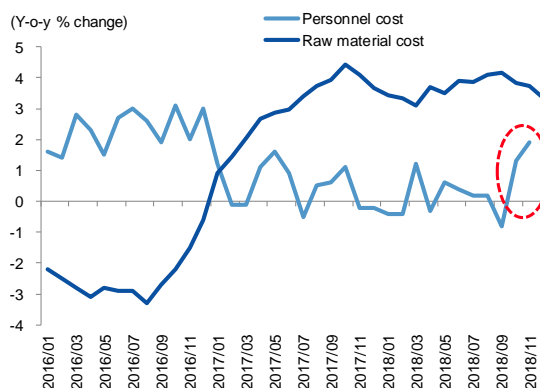
With a view to enhancing the policy effects of the *Three-year Emergency Plan*, it is imperative to promote work-style reform in the construction industry.

Chart 9: Construction cost deflator



Source: Made by MHRI based on the Ministry of Land, Infrastructure, Transport and Tourism, *Construction Cost Deflator*.

Chart 10: Personnel and raw material costs in the construction industry



Note: For personnel cost we used recounted data (common office base [more than five people], fixed wage) of the Monthly Labour Survey released by the Ministry of Health, Labour and Welfare on January 23.

Source: Made by MHRI based on the Bank of Japan, *Corporate Goods Price Index*, and the Ministry of Health, Labour and Welfare, *Monthly Labour Survey*.

Refer to the original Japanese report by clicking the URL below for the reference material and Addendum

<http://www.mizuho-ri.co.jp/publication/research/pdf/insight/jp190128.pdf>