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Putting the economic shock of the coronavirus in context

(2) Why cash compensation for income
and business losses is needed

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Executive Summary



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- *In the first report in this series (“Overview using a macroeconomic model”, <https://www.nri.com/-/media/Corporate/en/Files/PDF/knowledge/publication/lakyara/2020/05/lakyaravol317.pdf>), I used a simple AS-AD model to show that the economic shock from the coronavirus is a supply shock caused by supply-side shutdowns, and that the kinds of measures taken during an ordinary recession to boost aggregate demand would have no effect.*
- *In this report, we discuss a paper presenting a model for a supply shock that elicits a drop in aggregate demand. The paper demonstrates that in a supply shock triggered by the shutdown of an industry, workers who lost their jobs and businesses that failed will consume less in other sectors. As such, a supply shock in one sector will ultimately reduce demand in other sectors.*
- *The paper also argues that effective tools for addressing such a shock include financial assistance to prevent corporate bankruptcies and direct cash handouts to workers in the industries that shut down. Without these measures the supply shock will trigger a further decline in aggregate demand, amplifying the initial shock.*
- *There is also the concern that if jobs are lost because businesses close their doors, it will take an extended period of time for productivity to rebound and for the broader economy to recover from the shock. The paper concludes that governments need to administer direct and immediate fiscal stimulus to support businesses and preserve jobs.*

What kind of policy package is needed?

The explosive spread of the novel coronavirus has led to restrictions on activities involving personal contact and has forced many sectors to shut down. This shutdown is threatening both the balance sheets of companies in the affected industries and the livelihoods of employees and independent contractors. National governments are in the process of implementing a policy response to this crisis, but many economists argue that this crisis must be dealt with differently than an ordinary recession.

A typical recession results when some kind of shock leads to a contraction of demand. The measures deployed to fight it are designed mainly to stimulate demand. They often consist of public works investment or other government expenditures, tax cuts, and subsidies (in the form of coupons, etc.) to encourage the purchase of goods.

However, the economic crisis triggered by the coronavirus is the result of a supply shock, not a demand shock. Consequently, measures designed to boost aggregate demand during an ordinary recession have no effect. Meanwhile, demand in the real world may already be shrinking, and policymakers have yet to agree on what constitutes an optimal response to the unfolding economic crisis.

The following questions need to be answered:

- 1) What sort of economic measures are needed to address a supply shock?
- 2) Will this supply shock lead to a contraction in demand?
- 3) What sort of time horizon should the policy package have?

Regarding the first question, the first report in this series drew on the AS-AD model presented by Prof. Paul Krugman to examine the kinds of policies needed to address a supply shock. In this report, I will present a paper that uses a macroeconomic model in an attempt to answer the second and third questions. Japan's government unveiled a JPY108 trillion economic package on April 6, and I hope this discussion is of help in determining whether it is an appropriate package in terms of the issues noted above.

Model describes how supply shocks can lead to reduction in aggregate demand

Here I will briefly discuss a paper published on April 2, 2020 by Veronica Guerrieri (University of Chicago), Guido Lorenzoni (Northwestern University), Ludwig Straub (Harvard University), and Iván Werning (MIT) and titled "Macroeconomic Implications of COVID-19: Can Negative Supply Shocks Cause Demand Shortages?" (<https://economics.mit.edu/files/19351>).

The authors argue that the model of a Keynesian supply shock, which is capable of producing a drop in aggregate demand that is larger than the reduction in supply, can also be applied to the shutdowns of specific sectors—and especially

the service sector and other industries reliant on personal contact—due to the coronavirus. Business failures and job losses triggered by a supply shock in specific sectors can amplify the initial supply shock and aggravate the resulting recession.

In short, this paper answers Question #2 above (“Will this supply shock lead to a contraction in demand?”) in the affirmative. Prof. Krugman also praised the paper, saying its analysis did a better job of incorporating subtle, long-term effects than his own simple analysis.

How do supply shocks affect aggregate demand?

The fundamental question this paper seeks to answer is whether the loss of jobs and incomes in a specific sector due to the pandemic will trigger a decline in aggregate demand (Question #2).

Given a virtual economy with only one sector, the paper shows that a supply shock in a specific sector will not lead to a further decline in aggregate demand.

Next, the authors demonstrate that in a more realistic, multi-sector economic model, a shutdown in a specific sector will have two effects. First, the loss of supply is equivalent to a rise in the price of goods produced by that sector. When consumers are unable to buy the goods they want, the impact is the same as if prices had risen. This increase in prices serves to reduce aggregate consumption. The other impact is the so-called substitution effect, whereby consumers shift their consumption from goods that are no longer being provided to other, similar goods. The balance of these two effects determines whether the supply shock in a shut-down sector affects employment in other sectors.

Let us consider a specific example. Assume that the coronavirus caused all taxis to stop operating. Under the first mechanism, this would have the same impact as if the price of taxis had increased so much that no one could afford to ride in them anymore. It would be equivalent to a surge in the cost of going out itself and could therefore depress related demand. But the substitution effect tells us that some people would replace taxis with other forms of transportation such as trains, buses, bicycles, and walking. That would increase use of trains and buses and boost demand for bicycles and walking shoes. The first mechanism simply lowers aggregate demand, while the second contains a certain amount of offsetting

demand. The ultimate impact will be determined by the balance between the two.

Supply shocks lower aggregate demand when substitution effect is weak

The paper shows that, in an economy with multiple sectors, the decline in employment or consumption in other sectors can be greater than the supply shock in the shut-down sector (i.e., aggregate demand can decline) under certain conditions. Specifically, this can happen when there are no close substitutes for the goods produced in the shutdown sector, e.g., when buses and trains cannot replace taxis. For instance, if there are no trains or buses running late at night, people will choose not to stay out late in the first place, with the resulting loss of related demand affecting restaurants, bars, and other businesses. In this way, a supply shock can adversely affect demand in other sectors.

The paper also demonstrates that the ensuing decline in aggregate demand cannot be resolved using ordinary demand-boosting measures. Even if the government unveils an economic package designed to stimulate aggregate demand, money cannot flow to sectors that have already shut down. If there were no more taxis on the road, people would use government handouts for taxi fare to pay for train or bus fare or to purchase shoes or bicycles, and none of it would go to the taxi industry. Under ordinary circumstances, the increase in demand resulting from government handouts to taxi drivers would eventually spill over into the taxi industry, but in our example the taxis themselves are not operating, so there would be no such effect (this sort of second-round growth in demand is referred to as a cross or multiplier effect). In other words, government measures to boost demand cannot have an impact on sectors that have shut down because of the coronavirus.

The only way to stop the supply shock in a shut-down sector from having a negative impact on aggregate demand (i.e., on the broader economy) is to provide cash handouts sufficient to compensate for the income lost by employees in that sector. (This also answers Question #1.)

Firm exit multiplier effect must be prevented

Finally, the paper also suggests the existence of another negative multiplier effect—the firm exit multiplier effect. When a restaurant closes, purchases of

foodstuffs also decline. In other words, the discontinuation of operations at that business leads to a new supply shock. This firm exit multiplier effect then spills over into other sectors. The resulting negative multiplier effect can be powerful enough to shut down the entire economy.

Policies designed to keep companies in business—such as compensation for losses incurred or income tax exemptions for employers—are therefore needed to stop the vicious cycle of corporate bankruptcies. The authors argue that a one-time cash distribution is meaningless because businesses must remain in operation for these measures to be effective. They also show that low-interest loans are an effective tool for keeping businesses afloat. These loans serve as a form of insurance that is secured by the future profits the business can be expected to generate if it continues to operate.

The authors also warn that one of the longer-term adverse impacts of layoffs is that they increase the time needed for a rebound in productivity and a recovery in the economy itself.

In summary, if we hope to stop the vicious economic cycle originating in sectors forced to shut down because of the coronavirus, government must provide assistance to help affected companies stay in business and must also distribute immediate cash handouts to affected employees and those who lost their jobs (Questions #1 and #2). In the next stage, the government should implement demand-boosting measures since a supply shock can also trigger a contraction in demand (Question #3).

The Japanese government therefore needs to provide immediate cash compensation for the loss of income, business losses, and cash-flow needs in sectors hit by the coronavirus.

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