Introduction

Infrastructure investment is widely recognized as a crucial driver of economic development, as addressed in the Group of 20 principles for quality infrastructure investment. However, the quality, quantity, and accessibility of economic infrastructure in developing countries are considerably lower than expected. Therefore, the scaling up of infrastructure investment is important for boosting global economic growth.

For developed nations such as Japan, the United States and those in Europe, maintenance of existing infrastructure is an imminent problem. Covid-19 will increase budget deficits in many advanced countries since huge budget spending is being made for medical care, SME support and unemployment support. Existing infrastructure will face difficulties in maintaining good quality due to lack of finance from governments. Revenues for infrastructure come mainly from user charges. Water supplies, electricity and commuter trains are necessary goods for the people, but it is not easy to raise tariffs for users of water and electricity. Covid-19 will make revenues for infrastructure operating companies lower due to slow economic growth that many people have suffered from. Infrastructure requires maintenance costs every year and huge budget deficits will make it difficult for infrastructure operators to receive enough funding to maintain their operations. Spillover tax returns which will be addressed in this article must be developed.

Many implementers of infrastructure projects fail to appropriately calculate the costs and economic benefits of the projects. The appraisal, selection, and construction of infrastructure projects are often initiated with under-estimated costs, over-estimated revenue, under-valued environmental and social impacts, or over-valued economic development or spillover effects in order to win project approval. Most infrastructure investments are either debt financing or tax financing by the government. Therefore, over-investing in unproductive projects results in the build-up of debt, instability in government budgets, and monetary expansion if the debt was purchased by central banks.

Among the many reasons for these failures, in addition to weak regulatory frameworks, are unconducive institutional environments and limited local capacity. One of the most prominent reasons, and potentially the simplest to resolve, is the low rate of return from infrastructure projects. Other challenges include huge costs paid for acquiring land and anticipating natural disasters that could stop the construction process.

Further shortages of financial resources for infrastructure are expected after the Covid-19 outbreak. Reallocating budgets for fiscal interventions to mitigate Covid-19’s negative impacts may lead to huge budget deficits in developing countries. In addition, sudden reversals in capital outflows could worsen the fiscal space. Nevertheless, infrastructure should not be set aside. After the Covid-19 pandemic, infrastructure will aid economic recovery by helping accelerate economic growth back to normal levels and even higher. Therefore, continuous financial support for infrastructure will definitely be needed. It will also help countries that have failed to regain confidence from the market by maintaining higher rates of return and lowering the risk associated with infrastructure, which will in turn bring in private sector finance and induce overseas investment.

It proposes new concepts for reducing risk in infrastructure financing, shortening the time in project preparation, and managing the mitigation and adaptation costs of natural disasters related to infrastructure projects. Furthermore, adapting to the current Covid-19 pandemic, this policy brief also provides some policy responses for infrastructure investment to be resilient in this difficult time.
Quality Infrastructure Investment in Response to Covid-19 Crisis

The Covid-19 outbreak will bring huge budget deficits and declines in infrastructure investment by governments. Existing infrastructure will be facing shortages of funding to support their maintenance, and lack of maintenance will cause accidents and malfunctioning of infrastructure such as water supplies, sewage, electricity, trains, and roads. The pandemic has forced many countries to shut down factories, restaurants, and many other businesses for long periods of time. Significant proportions of the manufacturing and services sectors are facing no income for several weeks or even months. These conditions are pushing governments to provide subsidies to those who are forced to close their businesses, leading to increases in government spending. Meanwhile, government revenues from tax collection will decline due to the halt of many business activities. Consequently, significant budget increases are unavoidable in the near future. Although many countries may issue government bonds to be purchased by central banks to finance their emergency spending, the budget deficits will still negatively affect infrastructure financing by governments for the next several years.

In response to these conditions, here we provide several policy recommendations by amplifying the concept of spillover tax revenues for infrastructure financing as explained above. The policy responses include enhancing private sector involvement, bringing back capital outflows, and financing for small and medium enterprises (SMEs).

Enhancing Private Sector Involvement

During many past economic contractions, private sector financing has recovered much faster than government budget deficits. Hence, preparing more attractive instruments for private financing is an effective solution for sustainable infrastructure. If countries rely only on conventional financing concepts, infrastructure construction will halt dramatically. In order to attract private finance into infrastructure investment, governments should prepare the way to ensure that the private sector can attain the higher expected rates of return in the future. This return could be taken from the increase in tax revenues from the positive impacts of infrastructure projects to surrounding regions. This policy action would be timely and attractive during the Covid-19 outbreak, considering that in the current situation tax revenues are at their lowest point and will achieve a new peak during the recovery period.

Water and electricity supplies will bring new residential areas and commercial businesses into regions. Property prices will rise and many new businesses start operations after the completion of water supplies and sewage services. Property tax, corporate income tax, sales tax and individual income tax will rise because of increases in new business and job opportunities. These tax increases will result from new supplies of water and electricity. Without investment in this infrastructure, regional economies will never develop. However, water and electricity operators rely on user charges as their main source of revenue. User charges are not enough to cover their operation and maintenance costs since water and electricity are necessary goods for everybody and prices for consumers have been kept low. Spillover tax revenues created by water and electricity supplies were all taken by the government and were not returned to infrastructure operating companies.

Difference in differences, an economic analytical method to determine the impact of a certain policy by comparing the economic performance before and after the policy implementation, can be applied to this case, namely it can identify how much tax revenue was induced by each infrastructure investment by comparison of the economic performance of a national economy before and after the implementation of infrastructure investment. In practice, sophisticated econometric methods might not be easy to use. The rule of thumb is to compare the increase in tax revenues resulting from new water and electricity supplies with tax revenues where there is no impact from new utilities. The difference between the two lines in Chart 1 can be called spillover tax revenues created by water and electricity supplies.

If 50% of these tax revenues were shared between government and infrastructure operators, infrastructure operators could receive user charges plus spillover tax revenues created by water and electricity supplies.

Maintenance costs can be collected by spillover tax revenues every year which will allow infrastructure operators to use them for repair and maintenance costs.

Governance Structure to Avoid Corruption

Infrastructure investment is often criticized for its lack of governance, so it is important that projects be partly financed by

| CHART 1 |
| Concept of subsidy based on additional flow of tax revenue due to infrastructure |

Source: Compiled by the authors
multilateral institutions, such as the Asian Development Bank, the World Bank, the African Development Bank, and the International Bank for Reconstruction and Development.

In many developing countries, corruption is associated with infrastructure investment. One of the difficulties in infrastructure investment is land acquisition, and in developing countries the local mafias become involved in the process of land acquisition by seeking to enforce high prices for landowners. They receive huge amounts of money from transactions between landowners and infrastructure companies. Establishing land trusts is the way to make such transactions smooth and transparent. Through them, landowners can keep their land as owners and lease it to infrastructure companies (Naoyuki Yoshino and Nicolás Galarza Sanchez, Japan SPOTLIGHT January/February 2020, https://www.jef.or.jp/journal/pdf/229th_EVGE.pdf).

**Financing Maintenance Costs**

Infrastructure also needs continuous maintenance. In some projects, operating companies cannot receive enough revenues from user charges. The lack of maintenance of railways, subways and roads will cause inefficiency and possible accidents. In order to secure maintenance costs, infrastructure operating companies have to be able to receive not only user charges but also spillover tax returns to finance their operations. Spillover tax returns will allow them to receive continuous revenue sources in addition to user charges.

**Attracting Overseas Capital**

As the Covid-19 crisis hits developing countries, overseas investors will seek to bring their investments back to their home countries. Consequently, infrastructure projects that receive financing from abroad will find it difficult to continue functioning. Not only infrastructure finance but also other capital investment from abroad will shrink drastically as the crisis impacts developing countries. In order to attract overseas investors to return to infrastructure investing, rates of return must be secured, and governments need to show the political will to ensure that projects will continue regardless of economic turbulence.

In these cases, the risks associated with infrastructure investment must be kept low. One factor that puts infrastructure projects at risk is the land acquisition process. In these difficult times, governments and project contractors will not have enough money to compensate for land acquisition, and this will prolong infrastructure construction delays and increase risks. With the land trust concept, this problem could be avoided, and landowners will also benefit from the economic recovery.

**Need for Long-Term Investors**

Infrastructure financing requires long-term duration. Insurance and pension funds are suitable for such infrastructure financing due to their long-term nature. However, developing nations are dominated by banks whose loans have a maturity of 1-5 years. Therefore, it is important to develop insurance markets and pension fund systems to prepare for those developing nations in particular facing aging populations where insurance and pension funds are urgently needed. Financial education at school will help students learn about the importance of insurance and pension systems.

**Easing Requirements & Innovative Financing for SMEs**

When financial institutions are hit by a crisis, they tend to withdraw risky lending and become reluctant to lend money to SMEs. Worldwide, small businesses have been among the most affected by Covid-19. Many small restaurants, for example, cannot open for long periods and need liquidity to finance their immediate costs, such as rent and overhead costs. Meanwhile, banks often take longer to make decisions on loans for SMEs compared to large businesses due to their risks.

In order to develop regions through new infrastructure, not only large firms but also SMEs must be able to start businesses at new stations and along new roads. If a small company can start a restaurant or shop at a station or on a new road, it could receive a constant income which might help reduce income inequality and create job opportunities for many SMEs. So SMEs play an important role in enhancing the rate of return for infrastructure investors. Helping SMEs to continue their business is one way of keeping regional development going.

Three policies are recommended for SME finance.

First, credit guarantees for SME lending (Chart 2). Loans to SMEs are needed to enable them to survive in these difficult times, as

![Credit guarantee mechanism](chart2.png)
liquidity on their balance sheets will help them cope with the economic downturn. But banks are reluctant to provide credit to SMEs due to their lack of credit history and SMEs being categorized as relatively high-risk businesses, especially during the economic turbulence of the Covid-19 outbreak. Credit guarantees for SME lending will make it easier for banks to make loans to SMEs. Governments can increase the credit guarantee ratio to support smooth lending from banks to SMEs (“Analysis of Credit Ratings for Small and Medium-Sized Enterprises: Evidence from Asia” by Naoyuki Yoshino and Farhad Taghizadeh-Hesary, 2015, Asian Development Review, 2015, Vol. 32, No. 2). If it remains difficult for SMEs to get loans from banks, then they will have to borrow from local money lenders or loan sharks at very high rates of interest, which could force them into bankruptcy.

But credit guarantees have to avoid the moral hazard problem. Private banks could have an incentive to get more credit guarantee support from the government by trying to have their very risky loans supported by credit guarantees, but this could mean the credit guarantee system accumulates large deficits. In order to avoid this moral hazard problem, two policies need to be introduced. One is a differentiated credit guarantee ratio (“Optimal Credit Guarantee Ratio for Small and Medium-Sized Enterprises’ Financing: Evidence from Asia” by Naoyuki Yoshino and Farhad Taghizadeh-Hesary, Economic Analysis and Policy (Elsevier) 62, 2019). If some banks take their very risky SME loans to a credit guarantee public corporation which turn into default losses, the credit guarantee ratio should be lowered to avoid an excessive burden for those corporations. In other words, the credit guarantee ratio can be differentiated by the probability of lower default losses and higher default losses. The other policy is to charge higher credit guarantee fees to those banks whose default losses are high (“Optimal Portfolio Selection for Environmental, Social, and Governance Investment”, Chapter 5, Environment, Social and Governance Investment: Opportunities and Risks for Asia, by Naoyuki Yoshino, Farhad Taghizadeh-Hesary and Miyu Otsuka, ADBI Press, 2020).

Secondly, direct loans to SMEs by government banks. The Bank of Japan provided emergency loans to SMEs at zero interest rates after the outbreak of Covid-19. In cases of crisis, SMEs are the first to be affected by the shortage of bank loans and liquidity, and central banks should provide immediate loans to those that are suffering temporarily. But SMEs that face structural problems and would not be able to recover their sales after Covid-19 should be given loans to restructure their businesses rather than temporary assistance loans. Government banks have to avoid crowding out private bank loans after Covid-19. When business returns to normal, emergency government bank loans should give way to private bank loans, as private banks can start their ordinary loan supply again after the economy picks up.

Thirdly, hometown crowd funding or hometown investment trust (HIT) funds (Chart 3). Covid-19 will increase business failures, especially for startups and SMEs, and this will make banks reluctant to lend money to them. In this situation, hometown crowd funding could offer an alternative source of financing. HIT funds collect money from individuals in a region to help local startups and SMEs. People in the region know each other and the lenders in the community can monitor whether the startups and SMEs are working seriously for their business or not. Investors in the community through hometown crowd funding are often buyers of products. Community-based hometown crowd funding has been developed in Peru, Cambodia, Vietnam and Japan, among many other countries. Companies that run hometown crowd funding can help startups and SMEs to sell their products by creating platforms for sales expansion. They can do this, for example, by facilitating the sale of products via the Internet or at local stations to help the SMEs and startups stabilize their businesses.

### Conclusion

Covid-19 will have a big impact on infrastructure investment and SME loans. Governments will have to cover medical expenses and provide emergency loans to SMEs. Huge budget deficits will be created in many countries. But returns on spillover tax revenues and land trusts will help both domestic investors and overseas investors regain confidence in infrastructure financing.

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**Note:**

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