Recovering Infrastructure Public-Private Partnership Projects as Effective «Epinomic» Policy in Fighting the COVID-19 Pandemic

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Abstract. The emergency conditions caused by the coronavirus pandemic in 2020 made the national governments the last resort, which was forced to bear all the financial costs associated with the lockdown in the national economy, with social support of the population and fiscal and monetary help to private firms which business was blocked. Lockdowns, publicly declared in countries around the world to stop the exponential growth of coronavirus-infected patients, have brought unprecedented losses in both human lives and national welfare. As a result, the coronavirus pandemic left two fundamental priorities for the state: (1) to stabilize the epidemiological situation in the country and (2) to reopen the economy in time after the lockdown. On this basis, the term "epinomics" was introduced, which assumes the primary public task to ensure the life and health of citizens, and only under this condition allows the possibility of economic recovery. In this case, the expansion of the practice of implementing public infrastructure projects on the basis of public-private partnership realizes the essence of the state's epinomic strategy. Moreover, in the post-COVID-19 future, infrastructure projects can become an effective form of implementation of the UN “human-first” model, since they allow solving the immediate problems of ordinary citizens mostly affected in 2020. It is about the growth of employment, the provision of workforce wages, development of socially significant infrastructure, which contribution to the economic revival of countries can hardly be overestimated. At the same time, the government through public-private partnership gets the opportunity to directly broadcast to society the results of the effectiveness of its epinomic strategy in stabilizing the epidemiological situation and reopening the economy after the lockdown.

1. Introduction
Historically, there has been little connection between the studies of epidemiology and economics, as contemporary disease outbreaks have not had such disastrous economic consequences. However, the COVID-19 pandemic changed everything, since in most countries of the world public authorities were forced to introduce regimes of economic and social lockdowns as the only means to prevent the exponential growth of coronavirus infection. Protecting the health of citizens has become a real priority goal of national governments, subjugating all economic preferences. This allowed the experts of the Boston Consulting Group to link them in a single term of "epinomics". In these conditions, the issue of adaptation and improvement of the Virus-Monitoring System becomes the most important. To get better, faster information about changes in the virus’s local status means the possibility to reflect policy...
decisions (such as accompanying a choice to open schools with a surge in testing of students) in economics. In addition to the local nature of these decisions, there needs to be a central capability to learn from the distributed experiences and use that knowledge to adapt the distributed models. This would not shorten the COVID-19 pandemic fighting, but it might allow the governments to both save lives and to reopen the economy after the lockdown. Now there become evident three basic models for restarting social and economic life: the full reboot approach as pursued by New Zealand; an approach focused on maintaining restrictions for vulnerable populations; and the graduated approach taken by countries such as China. China was one of the first to adopt this strategy, and other countries can look to its experience as they navigate a similar path. But it is still the beginning, and China could see a rebound in COVID-19 cases that would complicate the economic restart. But as of mid-April there had not been a significant resurgence of local transmission of COVID-19, and a recent BCG survey shows that 60% of Chinese consumers now believe the worst is behind them.

Under the full reboot model, the government waits until new COVID-19 cases are at zero and then restarts social and economic activity with minimal restrictive measures but with limited (or no) international travel. This strategy requires a set of conditions that may not be feasible for most countries, including tight border controls, high volumes of testing and contact tracing, and the ability to enforce an initial lengthy lockdown period.

The second approach allows for the widespread restarting of social and economic activity but continued strict isolation for vulnerable populations such as the elderly. Such an approach may not be feasible in many countries, given the large numbers of people who would need to remain in isolation until a vaccine or cure is available. However, it may be the right strategy for restarting activity in the near term for low-income countries that are unable to rapidly build up health care and testing capacity without international assistance.

The third approach is likely to be the most widely adopted. Under this graduated model, governments lift restrictions in a deliberate, phased, and incremental manner based on the progression of the disease, the readiness of the public health system, and the preparedness of the public. This approach is in varying stages of introduction around the world, with countries in Asia and Europe leading the way.

Today local government officials and public health decision-makers will have to make decisions that balance the disease trajectory with policy choices—and understand the implications of these tradeoffs. In these conditions, the partnership of national states and private investors in the implementation of socially significant projects becomes not only possible, but even more necessary than before COVID-19. Besides, in crisis the importance of socially significant projects, especially in infrastructure, increases greatly due to reducing the period of economic recession. Under COVID-19, such importance of PPPs in public infrastructure should be interpreted in the context of the need to form and expand the organizational structures of partnerships (cooperation, cooperation) between the state and private business, which potential is huge and can be successfully used to unlock the economic “lockdown” at the national level. Under the current conditions, it would be very important to theoretically rethink the reasons that impeded the widespread practice of PPPs development before COVID-19, as well as the conditions that should be created for the rapid implementation of the diverse forms of such a partnership in the post-Covid-19 recovery phase [1].

The expansion of the uncertainty field in post-coronavirus reality causes an increase in demand for a theoretical justification of acceptable forms of PPP organization in public infrastructure. Their numerous modifications can serve as a basis for determining in the post-COVID-19 reality the certain forms of PPP taking into account their structural variability, the ability to “design” various partnership options depending on national characteristics, specific requirements of partners, priority sectors and areas of economic activity, and the effectiveness of risk reduction instruments in conditions of increased environmental uncertainty due to coronavirus pandemic [2].
2. Methodology

2.1. The first results in the fighting coronavirus infection

The modern world is in transition that implies progress with the risk of backsliding into successive waves of coronavirus disease, W-shaped recoveries, and further economic and human devastation [3]. According to BCG the process of fighting the COVID-19 pandemic could be divided into three phases: flatten, fight, and future. In the flatten phase countries lock down to flatten the virus’s exponential growth curve. In the fight phase national governments attempt to restart their economies while maintaining a low rate of infection, while still running the risk of having to implement further lockdowns. The future phase will begin only after a vaccine or highly effective treatment being developed and deployed [4].

In passing each of the above phases the national governments are making several policy alternatives comparing tradeoffs between health outcomes and economic and societal costs. In other words, any public strategy combines the two main functions of the state, predetermined by the COVID-19 shock: (1) epidemiological situation stabilising and (2) economic reopening. Based on these considerations, BCG experts called epinomic any public strategies in the fighting COVID-19 pandemic. However, depending on the specific forms of their embodiment, all the epinomic strategies can be reduced to three modifications: (1) crush and contain, (2) flatten and fight, and (3) sustain and support (Fig. 1).

![Figure 1](image.png)

**Figure 1.** Three specific epinomic strategies of national governments in beating the coronavirus

Source: The World Bank, Oxford COVID-19 Government Tracker, Wordometer, BCG analysis.

In different countries of the world, the spread of coronavirus infection had its own specifics, which determined the country-specific features of the implementation of an epinomic strategy to combat it (Fig. 2).
Figure 2. Specificity of the epinomic strategy to combat COVID-19 pandemic in some countries of the world. Source: The World Bank, Oxford COVID-19 Government Response Tracker, Wordometer, BCG analysis. Notes: The Oxford COVID-19 Government Response Tracker Stringency Index is a composite measure based on nine response indicators, including school closures, workplace closures, and travel bans.

The vast majority of countries—for example, most nations in Europe, South America, and North America, including the US—were unable to contain the initial coronavirus outbreak. Either conditions such as population density and the prevalence of multigenerational housing were too challenging or their restrictions were too late and too little to stop the spread. As a result, these countries pursued a broad strategy of flatten and fight. Faced with the exponential growth of case counts, these countries instituted society-wide social distancing and lockdowns to avoid a public health crisis. It is clear that once infections reach a certain level, a stringent lockdown and a dramatic expansion of virus-monitoring system capacity is the only way out of a flatten-and-fight strategy. Unfortunately, that option is not politically or economically possible in many countries or areas. Finding better epinomic strategies is an urgent research agenda for most of humanity.

The uncertainties about which strategy to pursue are manifold still learning the health, economic, and social costs of each. But the epinomics of flatten and fight are inherently expensive. This strategy will test the resolve of governments and society as both seek balance in health and economic outcomes.

In the wake of so much uncertainty, it is necessary to focus on framing potential scenarios and use them to develop a robust plan of action. Half a year into the COVID-19 crisis let the experts see patterns in its impact on countries, as well as in these areas’ responses [5].

2.2. Theoretical foundations of ‘failures’ of the state in fighting COVID-19 pandemic

The emergence of new terms, such as epinomics, denoting public strategies of the state, the theoretical foundations of which have already been created and approaches to interpretations are distinguished by serious conservatism, indicates that COVID-19 has raised new questions about the activity of the state. The first and most significant of them is related to the fact why the states of the countries of the world could not timely stop the exponential growth of the disease fatal to humans. It fits into the mainstream of numerous studies on the inefficiency of the state. Some researchers see the reasons for this in the peculiarities of national economic systems and national communities [6]. Other theorists associate the ineffectiveness of the state with its inadequate performance of the “redistributive function”. In this regard, R. Musgrave (1959) identified the three key functions of the state, which determine the share of a country's GDP redistributed to the budgets of national governments. These are the following functions of the state: (1) allocation of resources; (2) economic stabilization (subject to cost-effectiveness) and (3) (fair) redistribution of income. Following the logic of R. Musgrave, the reasons for the inefficiency of the state should be sought in the distribution of budget funds between three groups of budget expenditures in accordance with the key functions of the state [7].

The coronavirus pandemic has brought this problem to a new level, highlighting those areas in which the state has shown its complete social unsuitability. As a result, National Societies found themselves in
a situation of social and economic lockdowns, which led to an unprecedented crisis in human history. By April 2020, the unprecedented scale of the economic recession, called the “Great lockdown”, became apparent. As a result of the COVID-19 pandemic, the fall in global GDP in 2020–2021 (Fig. 3) tentatively estimated at $9 trillion, which is equivalent to the GDP of Japan and Germany combined. The global economy will suffer such losses if the coronavirus infection is defeated in the second half of 2020. Otherwise, the global GDP could drop by an additional 3% in 2020. If the COVID-19 pandemic persists in 2021, the global economy will lose another 8% of GDP compared to the IMF baseline scenario in April 2020.

Figure 3. The dynamics of global GDP in the conditions of "Great Self-isolation" in 2020 and of global financial crisis of 2018-2021. Source: IMF (2020). World Economic Outlook April 14.

For the first time since the Great Depression, the economic downturn will affect all groups of countries of the world: developed economies, with emerging market and developing countries (Fig. 4).

Figure 4. Economic recession in all countries of the world in 2020 in comparison with the global financial crisis of 2008-2009. Source: IMF(2020) World Economic Outlook April 14.

Such significant economic losses as a result of the COVID-19 pandemic are due to fundamental reasons. The point is that by 2020, capital-centric national systems that formed in the world have reached a certain marginal level in terms of the maximum “return” of this model of economic organization. The shock of COVID-19 pandemic demonstrates this marginal state, causing an extraordinary drop in global
GDP, not to mention the exponential increase in the number of infected COVID-19, of severe cases and of fatal cases in countries around the world.

In recent years, a focus on rising healthcare costs, especially in mature economies, has dominated the policy debate, whereas health as an investment in our societies has largely been ignored. The pandemic is an unwelcome reminder of just how much health matters for individuals, society, and the global economy. The experts of the Mckinsey Global Institute have analyzed almost 200 countries over two decades to 2040 to identify the different challenges and opportunities facing each, and aggregated findings at regional, income archetype, and global levels to provide a synthesis [8]. Three of them are logically interconnected below.

1. Better health could add $12 trillion to global GDP in 2040, an 8 percent boost that translates into 0.4 percent faster growth every year. About half of these annual economic benefits come from a larger and healthier workforce. The remainder come from expanding the capacity of older people, people with disabilities, and informal caregivers to work as well as from productivity gains as the burden of chronic health conditions is reduced.

2. The economic return could be $2 to $4 for each $1 invested in better health. In higher-income countries, implementation costs could be more than offset by productivity gains in healthcare delivery. Low-income countries continue to need more investment in basic health infrastructure.

3. Realizing the healthy growth opportunity would require a pivot to prevention both within healthcare systems and beyond. This will not be easy and requires all stakeholders to work together on four imperatives: make health a social and economic priority; keep health on everyone’s agenda; transform healthcare systems; and double down on innovation in therapeutics and beyond.

In other words, the epinomic strategy of states is a long-term phenomenon. In the post-COVID-19 reality the only once-in-a-generation opportunity should be connected with the urgent necessity to rethink the role of health in the future human prosperity. According to Mckinsey Global Institute, the economic and welfare benefits far exceed the implementation costs of achieving this level of health improvement, delivering a GDP uplift of $2 to $4 for each $1 invested over 20 years (Fig. 6).

Realizing the benefits would mean shifting spending to prevention. Prevention of diseases usually is less expensive than treatment and reduces the need for more expensive treatment later on, contributing to a high economic return. Prevention of diseases usually is less expensive than treatment and reduces the need for more expensive treatment later on, contributing to a high economic return.

![Figure 5](image_url) Global GDP could rise by about $12 trillion in 2040, an 8 percent increase, mainly from fewer health conditions and expanded participation in the labor force.
Source: Institute for Health Metrics and Evaluation; Oxford Economics; ILOSTAT; OECD; Eurostat; National Transfer Accounts project; McKinsey Global Institute analysis

Notes: Includes impact on older adults (only high- and upper-middle-income countries), informal caregivers (only in OECD), and people with disabilities (global).

Figure 6. For each $1 invested in improving health, an economic return of $2 to $4 is possible.
Source: Institute for Health Metrics and Evaluation; Oxford Economics; ILOSTAT; OECD, Updated Appendix 3 of the WHO global NCD action plan 2013–2020, April 2017; “Disease Control Priorities 3 (DCP-3): Economic evaluation for health,” University of Washington Department of Global Health, 2018; Tufts Cost-Effectiveness Analysis Registry; McKinsey Global Institute analysis.

A key question is what this transition would cost in different countries. The answer varies by region. Researchers find opportunities in all countries to reduce healthcare delivery costs by up to 22 percent from today’s levels through higher productivity. This includes standardizing operational processes in clinical and nonclinical areas, transitioning to lower-intensity settings of care where appropriate, addressing unnecessary duplication of services, reducing medical errors, avoiding clinically ineffective activity, and increasing levels of digitization [9].

Capturing the benefits of the healthcare necessitates change by governments and regional authorities, companies, innovators, and communities to shape environments and societies. It is about promotion of healthy lives and capture of the societal and economic benefits. It is hard to disagree with the experts of the Mckinsey Global Institute that the COVID-19 pandemic provides a unique opportunity to engage governments, companies, and communities around the world in this endeavor.

2.3. Infrastructure PPP projects as a real tool to realize the UN "human-first" model in the post-COVID-19 future

A true “black swan” event like the current coronavirus crisis has revealed how national governments have undermined the importance of resilience in their pursuit of rapid growth at any cost. But COVID-19 shock but the shock showed that it could cause crises in several spheres of the society at the same time and predetermine the priority of the catastrophes and predetermine the priority of the catastrophes catalyzed. As has happened today, health problems have come to the fore, dominating the issue of reopening the economy. In these conditions, the state is forced to make economic decisions taking into account the priorities of the public sphere of interest. In this regard, infrastructure projects implemented with the participation of the state and private business acquire special significance, since they relate to the sphere of public goods and benefit the entire society.

In the next six months or a year throughout the world there will become paramount projects aiming at creating and maintaining critical infrastructure in transport, energy, telecommunications, utilities and medical fields. One of the main criteria for their implementation should be the following parameters:
how important is the project of a new infrastructure facility from the point of view of life support and safety for a specific territory. In this case, both the authorities and private investors will use the forms of organization of the RRR primarily for the development of the so-called critical infrastructure that ensures the safety of people and the normal functioning of the economy. In public infrastructure, some projects in transport, telecommunications, utilities and energy, as well as almost all health initiatives will benefit most of all. The choice and implementation of these projects will strongly depend on whether these areas are in a "critical" state in a particular territory and whether they are sufficiently developed to withstand the unstable situations.

The power that infrastructure has to affect economies and societies, is enormous. Infrastructure undergirds commercial life, provides vital social services, and supports human interaction everywhere. Increasingly, however, decision-makers and experts are looking to infrastructure to shape the post-COVID-19 word. Leaders in the public and private sector are becoming ever more aware of the importance of building a more economically, socially and environmentally sustainable future. But the last cannot be built without the corresponding sustainable infrastructure.

The UN “people-first” model is aimed to be consistent with the Sustainable Development Goals (SDGs) and infrastructure PPP projects become of the prior importance to meet the needs of “people-first” in the process of epinomics strategies realization by national governments [10]. The World Economic Forum referred to sustainable infrastructure as projects that are planned, designed, constructed, operated and decommissioned in a manner to ensure economic and financial, social, environmental (including climate resilience) and institutional sustainability over the entire life cycle of the project [11]. (Fig. 7).

In post-COVID-19 reality spending in this system has been critical catalyzing appropriate healthcare system, driving economic growth, alleviating poverty and improving living standards. Demand for infrastructure investments is estimated at $6 trillion per year, with a projected financing gap of roughly half the required spending.

Poorly planned and uncoordinated expansion of human settlements not only impacts biodiversity but is also economically inefficient. Decisions made on infrastructure, including those that will be made as part of the stimulus packages for COVID-19 recovery, have long-lasting impacts and will play a crucial role in influencing the future of societies and their relationship with nature. Dimensions of sustainable infrastructure can help to develop the sustainable infrastructure and built environment system on a pathway to sustainable, nature-positive development. Together, the business opportunities associated with these opportunities could create over $3 trillion of additional annual revenues or cost savings and create 117 million jobs by 2030 [12].

![Figure 7. Dimensions of sustainable infrastructure.](image-url)
Source: Global Future Council on Infrastructure (2020). *Six Quality of Sustainable Infrastructure*. Community Paper. World Economic Forum. Switzerland: Geneva.

Businesses should explore potential public-private cooperation opportunities across sectors to create the critical mass of change agents required to tip markets and value chains towards nature-positive models. In some cases, these collaborations will bring together businesses and other stakeholders from sectors that currently rarely interact.

3. Results and discussion

Under the COVID-19 crisis the importance of the growth of sustainable public infrastructure increases greatly because of its ability to reopen the national and the global economy as soon as coronavirus pandemic ends. Capital-intensive, long-term infrastructure PPP-projects could largely provide an infrastructure breakthrough as the driver of inclusive development of the countries after the COVID-19. That is why it is very important to safeguard the necessary amount of capital flow into the PPP infrastructure projects. For example, bridging this gap over a five-year period will involve expenditure totalling approximately 9% of the EBRD region’s GDP in each of these five years. The cost of catching up with the levels expected on the basis of the experiences of advanced comparator economies accounts for 52% of that total, while improving infrastructure to safeguard post-coronavirus economic reopening accounts for 15%. The remaining 34% relates to replacement and maintenance requirements over that same time period. According to the World Bank [13], only to maintain the current level of global GDP, national governments need to spend at least 3.5% of global GDP ($ 3.2 trillion) per year on infrastructure, which together will total $ 57 trillion from 2015 to 2030.

Before coronavirus crisis the minimum need for infrastructure investments to support economic growth was 3.5% of world GDP or $ 57 trillion until 2030 ($ 3.2 trillion per year). However, in most countries of the world, infrastructure is underfunded by 20–40%. Public investment makes up about 65%, but the possibilities for their further growth are limited by high debt burden and a deficit of state budgets. And today it is necessary to take into account the negative trends associated with an absolute reduction in the growth rate of global GDP due to COVID-19 and a significant increase of the budgets’ deficit of national states. The role of private investment, which accounts for 35% of infrastructure investments, is significantly increasing. Governments of different countries are developing incentives to attract investors and find a reasonable balance between risk and profitability of infrastructure projects. The solution of the problem of large-scale construction and reorganization of the public infrastructure in the country in the post-coronavirus future is possible only within the framework of complementary long-term financing of a system, including the resources of the power structures, institutional and private investors. In other words, subject to consolidation of budget funds, the state should change the structure of the financial market institutionalizing the emergence of debt financing segment oriented on public infrastructure PPP projects financing [14].

As a result the strong economic recovery will benefit everyone if it depends on improved social safety nets and adequate forms of PPPs organization [15]. In this case, it is necessary to be aware of serious fundamental problems that can only be solved on the basis of broad-based fiscal partnership. This includes mixed public-private investment in health care, infrastructure, and climate change [16].

Policymakers should realize epinomic strategies taking into account the following: to choose how to invest for the future in a fiscally prudent way, to adopt well-planned discretionary policies to stimulate demand and to enhance social safety nets and unemployment benefits [17]. It is necessary to choose an adequate form of PPP organization for implementing socially significant projects in the infrastructure according to dimensions of sustainable infrastructure and other UN SDG. Dealing with all the basic types of PPP organization: quasi-market, hierarchical and hybrid, as well as all numerous set of their mixed forms [18]. Each individual basic type of PPP organization (its institutional matrix) contains many potential sub-options for its reproduction.

4. Conclusion

So, the solution to the problems of the economic crisis caused by COVID-19 largely depends on the
effectiveness of the state, which directly depends on the restoration of interaction and mutual trust between the state and society. The latter is most feasible on the example of the accelerated development of PPPs in those areas of the state’s activity that has been most affected by the COVID-19 pandemic. It is about the sphere of public goods, which until COVID-19 were a priority area of partnership between the state and private business. After COVID-19, the state is forced to consider budgetary constraints and make informed choices among possible forms of “alliances” between the state and private investors. In this case, both the traditional goals of minimizing transaction costs and increasing the efficiency of transactions with public goods, and the time parameters for obtaining socially significant results should be taken into account. The basic forms of PPPs allow the state and private business to optimize the sharing of risks and the burden of expenses as the capabilities of the public segment expand, as well as in the process of creating optimal “rules of the game”, conditions and effective incentives to maximize the potential of the national economy. The success of PPPs at the stage of economic revival after COVID-19 largely depends on how much the technology of attracting private investment to the implementation of capital-intensive long-term projects works, the state is not able to provide full budget financing for. Investments in infrastructure give a quick result in the economy recovering from the crisis, as jobs are immediately created in construction and industry, and employment growth helps support consumer demand. But most importantly, short-term increase in demand is followed by long-term multiplier effects. In order to achieve these goals everything should be done to create a trust driven recovery environment that is collaborative and partner and stakeholder friendly. National governments should review infrastructure PPP projects in the sectors most affected by the crisis - airports, ports, roads, transport, and energy - to understand demand- and supply-side impacts. The primary problems that need to be resolved as soon as possible include obtaining an adequate assessment by states of the effectiveness of contractual provisions on PPP projects, expert consideration of restructuring and coordination of sources of contract financing, review of contracts and problem asset management tools [19]. This should be done in discussion of the governments and their private partners and other relevant stakeholders such as financiers and regulators.

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