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COVID-19 and the Growth Potential

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JEL-Klassifikation:

I 15: Gesundheit und wirtschaftliche Entwicklung

E 23: Makroökonomische Produktion

E 24: Beschäftigung, Arbeitslosigkeit, Humankapital, Produktivität

F 20: Internationale Faktorwanderungen und Internationalisierung

Summary

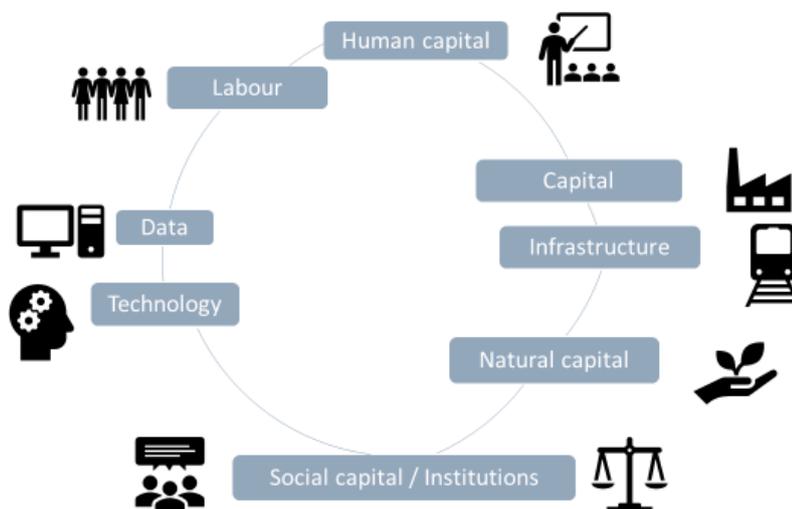
The lasting economic impact of the COVID-19 pandemic will become apparent in the development of the macroeconomic factors of production – labour, capital, human capital as well as the stock of technical knowledge. Changes in behaviour such as a greater acceptance of technology can strengthen potential output permanently. By contrast, negative effects may arise from growing protectionist attitudes or long-lasting uncertainties and “scarring effects”. In any case, the crisis has induced a technology push. This may be intensified if digitisation gains additional support from investments in infrastructure or if the pandemic heralds a renaissance in the natural sciences – with a corresponding impact on human capital and physical capital as well as on technical knowledge. For the time being, it is unclear what the effects of restructuring and secular structural change will be on potential output. However, dangers are lurking in the acceleration of geopolitical tensions, a misunderstanding of technological sovereignty and increasing government interventions, which as a whole could hamper innovation and investment.

1 Historical economic collapse

The COVID-19 pandemic turned into a historical social and economic challenge. The health policy measures and the diverse economic impacts on the economies affected around the world impeded economic life more than any event in the last seven decades. The global economy in 2020 will experience its sharpest decline during this timeframe. Only under the assumption that there is no new lockdown, as in spring 2020, will it be possible to return to the pre-crisis macroeconomic level toward the end of 2021. The extensive fiscal and monetary policy measures will also contribute to the recovery.

In addition to this historic economic slump caused by the pandemic, the question arises as to what lasting effects seem possible. In the following article, some conceivable implications for advanced economies will be discussed (see also Grömling, 2020a, for a previous orientation). Primarily, the focus will be on the effects the pandemic might have on macroeconomic potential output. Besides this, the COVID-19 crisis will also affect public finances and the distribution of income and wealth. In this context, the question arises of how inclusive the structural change – possibly triggered by the pandemic – can be for the various socio-economic groups in a society (Grömling/Klös, 2019; Grömling, 2020d). These issues will not be addressed here.

Figure: Production factors as a reference framework for the COVID-19 shock



Source: own illustration

The production potential can be described in terms of the endowment of an economy with labour, physical capital (including infrastructure and intangible assets), human capital, natural capital and the diverse stock of technical knowledge (see figure). This factor endowment determines the overall economic productivity level, which in turn determines to a large extent the (material) standard of living in a country. The propensity to invest in all these factors is ultimately governed by the institutional and geopolitical framework.

2 Positive and negative behavioural effects

The COVID-19 pandemic hit economies more quickly, more intensively and above all more broadly than previous crises. With the abrupt, in part even complete discontinuation of normal business operations in the second quarter of 2020, new technical and organizational alternatives were quickly adopted – such as working or studying from home. Earlier technological resistance has obviously been overcome, and a long-term effect may be a greater openness for innovations in business and social life. Macroeconomically, these changes in behaviour can permanently increase both human capital and the stock of technological knowledge and possibly also stimulate higher economic growth in the future. Last but not least, this can also be reinforced if the educational decisions and risk awareness of young people are influenced in a positive way. It is conceivable, for example, that they might have a greater affinity for careers in technical fields and the natural sciences.

By contrast, however, there could also be changes in behaviour that over the long term hamper a country's progress with regard to the factors of production. If limited options for learning, studying and working give rise to pandemic-induced frustration among young people, this can cause protracted damages to potential output – in terms of reduced labour market integration or lower incentives for building up human capital. According to the so-called “scarring effect”, the CVs and associated life earnings of young people who will be unemployed as a result of the recession or will have a more difficult start to their career are impaired in the long run (Möller/Umkehrer, 2015; Hutter/Weber, 2020).

Kozłowski et al. (2020) show how a tail risk – here with reference to the COVID-19 pandemic – can change long-term behaviour, which will then have a negative impact on economic development. Such tail events lead to the already mentioned “scarring effects” – in the version from Kozłowski et al. (2020) for investors. The occurrence of the COVID-19 pandemic – even if it can be fought by a vaccine – will be taken into account by companies in the future when they make investment decisions. If the pandemic leads to lower returns on capital in the short term, future returns on capital are also being estimated against the backdrop of this tail event. This “scarring of beliefs” would then dampen the propensity to invest over the long term and thus the development of potential output.

Another conceivable possibility for long-term potential damage due to the pandemic is that it will intensify the geopolitical risks and protectionist attitudes existing prior to the crisis. This can inhibit the cross-border allocation of labour and the international transfer of knowledge – for example by limiting options and reducing incentives for training and work experience abroad. If the pandemic and a less open global economy lead to a general reduction in the migration of skilled labour over the long term, there will be a lower production potential due to the expected demographic development – i.e. the shrinking and aging of populations in advanced economies. Finally, a growing anti-market attitude as a result of the pandemic would also adversely affect economic life and structural change (see below).

3 Boost for technological progress

The potential positive effects on human capital and the stock of technology have already been discussed in the context of the outlined behavioural changes. The digitisation of the economy should enjoy another long-term boost as a result of the pandemic (Klös, 2020). To compensate for the restrictions on labour input from the lockdown, companies and private households have invested in technical equipment. This capital stock and in particular the intangible components such as organisational capital continue to be available in the future (see Grömling, 2020b). To some extent, specific measures of the comprehensive economic stimulus packages passed by many governments also promote technological progress. Experiences from the financial market crisis in 2008/2009 indicate that a portion of the crisis-related underemployed research staff at that time used their working hours to improve the existing production and organisation processes (Rammer, 2011). This has increased intangible assets and the level of technical knowledge.

Beyond the short-term necessities, this pandemic-related technology push may be intensified if further and continuous technological improvements are now made in public infrastructure. Last but not least the crisis has revealed the great potential – for example in schools, the health care system or public administration – for the digitisation of the services and production processes. The current crisis can accentuate previously existing needs for public investment (Hüther/Bardt, 2020) and stimulate a corresponding accumulation of capital.

The dependencies that arose in areas of the economy – for example, through a lack of foreign or domestic intermediates in both the manufacturing and the service sector (Grömling, 2020c) – have increased the pressure to search for alternatives. Over the long term, this should also strengthen the resilience of companies. A restructuring of production processes, such as the relocation of value-added components, can raise production costs of companies on the one hand and create corresponding incentives for an increasing capital formation, for example through additional automation, on the other.

Finally, the great importance of the natural sciences has been revived, not only due to the current crisis. The potentials for the corresponding development of human, physical and technological capital have already been mentioned before with regard to the major global megatrends – such as the growth of the global population, the scarcity of resources and climate change (Grömling, 2019). In all the natural sciences – a specific example being research on antibiotics – the current pandemic can boost an advance in technology and increase investment.

Over the long term it is conceivable that the pandemic will have positive effects on macroeconomic output due to an increase in technical knowledge. However, companies' financing situation for such investments must also be taken into account. For epidemic reasons, the crisis is currently connected with uncertainties that are difficult to assess, for example, the recovery prospects for the global economy. The world economy and global growth prospects are of great significance for economies, which are highly integrated into the international division of labour and global trade – for example, German manufacturing firms generate roughly half of their turnover from foreign customers. High levels of uncertainty in this regard will dampen the

propensity to invest. The financing options for companies are also impaired by the tense economic situation. This applies to both raising equity capital and financing with debt (Demary/Hüther, 2020). Declining turnover and profit are putting a strain on the companies' equity base. Increasing risks of insolvency curb the granting of loans by banks and make investment costs more expensive through higher risk premia. However, most government's stimulus packages as well include measures that should stabilise corporate financing. After all, technical progress also depends on the establishment of new companies. The COVID-19 pandemic has made this very clear, for example, in the area of biotechnology. To develop this production potentials, venture capital financing becomes more important.

4 Restructurings and structural change

When the COVID-19 epidemic began in China, worries about production-side restrictions quickly arose due to the loss of intermediates from other countries. This concern did abate in Germany over the course of time (Grömling, 2020c). But supply-side dependencies became noticeable and may give rise to the restructuring of supply and production processes along the very stretched-out international value-added chains. On the one hand, this can lead to a multi-supplier strategy that is used to eliminate dependencies on individual suppliers and to re-diversify risks. On the other hand, the existing geopolitical risks may also lead to a regional reorientation. Higher costs resulting from relocations, a higher level of in-house production or a broader-based inventory management can themselves drive automation and technological progress.

Ultimately, the advantages of the previous specialisations within the framework of the existing value-added chains will be compared with the benefits of a restructuring and a new risk diversification. It should always be borne in mind that the previous internationalization in the form of transnational value-added chains has increased the productivity and competitiveness of companies as a whole and as well reduced previously existing risks and dependencies. The impact that a restructuring of international production networks will have on the stocks of human capital, capital and technology is not yet clear. It is also unclear what impact a reorganization of suppliers will have on the international and mutual transfer of knowledge and technology and the respective factors of production in the previously involved and potentially new partner countries. It is conceivable that technological sovereignty could be defined in the context of the European Union and that this could be seen as a reference framework for the national competencies and for the access to the resources, competencies and inputs of partners (Edler et al., 2020).

Furthermore, it is also possible that the COVID-19 pandemic will accelerate the secular structural change (Hüther/Bardt, 2020; Hutter/Weber, 2020). Consideration should be given to the effects of digitisation, decarbonization and demographic change. There are very diverse explanations for secular structural changes and all social, political and economic influences are reflected in the economic structure (Grömling, 2011; 2020d). Changes in consumption and the underlying shifts in preferences in a society can be mentioned as a central driver for this secular structural change in production. The increasing complexity of modern societies stimulates the demand for knowledge-intensive services. Changes in production processes and the inter-

sectoral and intra-sectoral division of labour can cause companies to concentrate on their core business and to offer hybrid products at the same time.

The COVID-19 pandemic has raised the question of which trends of the secular structural change will be reinforced and what impact this can have on the factors of production and the macroeconomic potential output. In regard to social costs, it is also crucial whether the current structural changes will lead to adjustment burdens on the labour market, i.e. structural unemployment (Grömling, 2020d). High unemployment ultimately means that two central factors of production – labour and human capital – are not used adequately and thus opportunities for growth are wasted. Employees with specific qualifications are no longer used in certain areas due to changes in preferences or technology, raising the question of whether these qualifications are applicable in other economic activities. If this is not the case, then the employee's flexibility in terms of qualifications and the training opportunities are crucial. If the gap between the qualifications of the laid-off labour force and the requirements at companies widens over the long term and if this "mismatch" cannot be remedied through training, the risk of structural unemployment and the wasting of human resources will increase. The social system can in turn influence the incentives for education and the search for jobs. Furthermore, the flexibility of the wage system determines the extent and persistence of structural unemployment (Klös, 1990; Walwei, 2020).

5 Reorientation of market and state

The COVID-19 crisis has not only raised the need for rapidly effective stabilization policies but has also strengthened the call for industrial policy. While stabilization policy is primarily aimed at returning the utilization of the existing production potential to its normal level in the best case, industrial or structural policy measures aim at a change in the level and structure of the production potential (Grömling, 2020d). Structural and industrial policy interventions are also called for in order to cope with the structural changes addressed in the previous section and possibly forced by the COVID-19 pandemic. The aim is to actively shape the sectoral structure of the economy and to increase the chances of companies in certain industries to survive. Given the speed and severity of the current crisis it is necessary to consider the consequences that a pronounced wave of insolvencies could have for labour and human capital. Unemployment – and particularly structural unemployment – can be accompanied by a permanent devaluation of human capital or at least by pronounced mismatch problems on the labour market.

If certain branches (e.g., coal, steel, shipyards, automotive industry) in certain regions are dominant for employment and prosperity, then structural policy should prevent these regions from lagging behind or becoming impoverished as a result of a structural shock in a specific sector (Hüther et al., 2019). Sectoral structural policy is also justified by allocative market failure: Basic research – for example, on antibiotics or a COVID-19 vaccine – can be regarded as a public good. Accordingly, private economy research has positive external effects for other companies, and thus public research funding prevents a shortage of supply by the market. Furthermore, the design of the structure in terms of supporting "future industries" through research support is brought forward as a justification for industrial policy.

Security policy arguments are also put forward to stabilize an existing economic structure. In strategic areas (e.g., military, health) and critical infrastructures (e.g., communication networks, energy supply) economic dependencies on other countries – and possibly on their state monopolies – should be prevented. In this context, the COVID-19 pandemic has also intensified the demands for national technological sovereignty and thus raised the question of how independent countries must and can be with regard to so-called critical technologies. This should prevent political dependencies and ensure state sovereignty. Edler et al. (2020) argue that comprehensive technological autocracy is not purposive. Rather, technological sovereignty is about preserving options by building up and preserving one's own competencies and avoiding one-sided dependencies. This is what opens the door to sovereignty in innovation and independent economic development. At any rate, this not-new topic of the appropriate degree of technological sovereignty – particularly in an environment characterized by geopolitical uncertainties – will probably be intensively discussed as a result of the virus pandemic.

The list of arguments against governmental structural and industrial policy is also long (Bardt/Lichtblau, 2020; Grömling 2020d; SVR 2009). A subsidising of certain industries in order to improve their production conditions always discriminates the domestic sectors not benefiting from the policy. Moreover, it distorts competition internationally, which may provoke reactions (tariffs or import quotas) from other countries and can hurt prosperity overall as a result of rising transaction costs. An efficient sectoral structural policy requires asymmetries in information: The state must have better knowledge of the supply of goods desired by society than private companies. The current discussion on automotive technologies of the future can serve as a good example. The long-term impact of industrial or structural policy on the factors of production of a country ultimately depends on whether the economic structures promoted with these policies are competitive and sustainable over the long term. In any case, industrial policy intervention always gives rise to the risk of structural conservation, which can in turn slow innovation and structural change.

Using the example of industrial and structural policy it can be seen that as a result of this serious economic crisis the basic understanding of market and state is being put to the test. The protectionism that has emerged since the global financial market crisis and the trade conflicts of recent years have already restricted the mechanisms of a market-based coordination. The long-term effects on innovation and investment are likely to be negative. In any case, the former domestic market programs and world trade rounds are credited with having been advantageous in terms of the development of production factors and productivity. Accordingly, increased state intervention and protectionism are likely to have the opposite effect in the long term.

Increased government intervention as a result of the COVID-19 pandemic could lead to constraints on competition and a concentration of power. This is the case when state-owned enterprises and state funds gain increasing influence on economic activity in their own countries and as well in other economies. This can have long-term effects on factor accumulation and the secular development of economies (Matthes, 2020). The COVID-19 crisis intensifies the political and economic conflict between the United States and China. Both are pushing ahead with industrial and structural policy projects that ultimately bring about a reorientation of market and state and force other countries to take action – also institutionally, for example with regard to

market access or corporate investments. At the end of the day, this is likely to have a negative impact on production potentials, productivity growth and prosperity that goes with it.

An increasing concentration of power can also occur in the wake of platform companies. The constraints resulting from the COVID-19 pandemic, for example in the area of stationary retail trade, have already strengthened existing alternatives and their business models. These platform companies also enjoyed a higher valuation on capital markets during the crisis. This can create significant financial advantages, especially if the adjustment burdens are drawn out over a longer period of time (Pagano et al., 2020). This might trigger a lasting reallocation of labour, capital, human capital and the stock of technological knowledge.

6 Concluding remarks

The COVID-19 pandemic has caused an unprecedented global economic bust. At the same time, it is likely to accelerate structural changes, which in turn are driven by digitization, the energy revolution, decarbonization and demographic changes. The table summarizes some of the possible positive and negative effects of the pandemic. In this article, some thought-provoking exercises have been conducted to identify the possible changes in production potential – here with a focus on the factors of production and production processes. Ultimately, the institutional framework conditions determine whether and how much is invested in the specific production factors. The international design of those institutions is central to the long-term effects of the COVID-19 pandemic.

Table: Positive and negative long-term effects of the COVID-19 pandemic

Positive	Negative
Openness to innovation	Scarring effects: education, labour market, investments
Push for digitization	Protectionism / geopolitical tensions
Human capital promotion	Structural unemployment
Impulses for public infrastructure	De-globalization: knowledge transfer / migration
Stability of value-added chains	Growing state influence / market criticism
Technological sovereignty	Market concentration
Risk diversification	
Start-up of new companies	

Source: own illustration

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