

Why we should expect a much stronger recession in Germany in 2020 than widely believed

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Abstract

We examine the effects of the COVID-19 pandemic on the economic decline expected in Germany in 2020. The magnitude of the economic slump that will occur in 2020 depends on the extent of the slump during the shutdown, on the point in time, at which a significant easing of shutdown occurs, and on the length of adjustment process towards the structures that prevailed before the pandemic. We derive several scenarios and find that the shutdown will only remain in the single-digit percentage range if we apply very optimistic assumptions about the extent of the initial decline in GDP during the shutdown and the speed of adjustment after opening up of the economy. However, assuming that the economic crisis cannot end before the medical crisis ends, which medical experts project not to happen before the end of 2020, such optimistic assumptions do not appear realistic. Hence, we find it more likely that the percentage decline of GDP in Germany will be two-digit in 2020. Our findings are in contrast to the growth projections recently issued by the German Council of Economic Experts or by the Federal Ministry of Economic Affairs and Energy of Germany.

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1. Background

The COVID-19 pandemic is the world's most severe peacetime burden in 90 years, i.e., since the Great Depression of 1930/31. Never since then have people been so restricted in their freedom of movement and the borders been so closed. Never before have governments ordered the closure of so many sectors of the economy.

The current crisis is a triple crisis. It is

- a medical crisis,
- an economic crisis and
- a social crisis.

The crisis in the medical field began with a massive and rapid spread of the coronavirus throughout the world. However, the medical crisis did not only come first, it will probably also be the first of the three crises to be overcome. The economic crisis will last longer and includes the loss of production, income, employment, assets, consumption opportunities and education. The consequences of the economic crisis will be high costs and will be felt for many years. The social crisis is the most difficult to assess in its dimension, because it is linked to the changes in people's attitude, opinion, and behavior that result from the restrictions on life. Such changes will only be able to be assessed in terms of their extent and sustainability after a delay.

Regarding the economic crisis, the central question at present is how strong the slump in production and employment resulting from the COVID-19 pandemic, and how fast the subsequent recovery will be. The German Council of Economic Experts developed three different scenarios at the end of March 2020 and estimated the change in Germany's GDP to range from -3.1 percent to -5.5 percent. In April, the Federal Ministry for Economic Affairs and Energy projected the German growth rate to be -6.3 percent in 2020, slightly lower than the -7.0 percent estimate of the IMF two weeks earlier. All projections predict a relatively rapid recovery in 2021.

The above-mentioned forecasts on GDP changes for Germany appear to be more optimistic than the forecasts on the end of the medical crisis. While there is still no end in sight to the medical, although most experts date it to 2021, the GDP forecasts listed above imply a faster recovery. However, if it can be assumed that the economic crisis will not end before the end of the medical crisis, the GDP forecasts should pay more attention to a consistency between the developments of the medical and the economic crisis. The following calculations of various GDP scenarios serve precisely this purpose.

2. Fundamentals of our forecasts

To estimate the effects of the COVID-19 pandemic on economic growth in Germany, we assume the relatively broad breakdown of the production sectors in the national income accounts. More specifically, we use the distinction of ten economic sectors. Table 1 shows the contribution of these sectors to gross value added. The data show that the three largest sectors in Germany are manufacturing (excluding construction), public services including education and health, and trade, transport and hospitality. Together they account for approximately 60 percent of the total German gross value added. In contrast, the three smallest economic sectors (agriculture and forestry, financial and insurance services and other service providers) account for only nine percent.

Due to the state-ordered shutdown in mid-March, the aim of which was to contain or slow down the spread of the coronavirus, production in many economic sectors had to be reduced inevitably. To

estimate the resulting effects on overall production and to subsequently derive growth forecasts for Germany, three questions are of central importance:

- I. To what extent did the shutdown affect the production of the different economic sectors? From the answer to this question, we can estimate to what extent total production in Germany declined during the shutdown.
- II. How long will the extensive shutdown last, before the government allows a significant easing?
- III. How quickly will production return to the old structures?

We discuss these three questions in the following sections and, subsequently, derive forecasts on the changes of GDP in 2020 and 2021 resulting from the pandemic.

3. Decline in production during the shutdown

With regard to the first question mentioned in the previous section, Table 1 shows the assumptions underlying our subsequent forecasts regarding the impact of the shutdown on the various sectors of the economy. Specifically, we show the assumptions about the share of production during the shutdown compared to the time before in the respective economic sectors. According to our estimates, only the sectors of agriculture and forestry, telecommunications and public services, including education and health, were not at all or not significantly affected by the shutdown and were therefore able to maintain their original production levels.

According to the ifo Business Climate Index, the German economy was already anticipating the effects of the implemented restrictions at the end of March, which was reflected in poorer business expectations and a more pessimistic assessment of the business situation. In view of the economic surveys, the service sector and trade expected the sharpest drop in business. On this basis, we estimated the level of production received from business services and other services at 50 and 15 percent respectively, and that of trade, transport and hospitality at 50 to 70 percent and of manufacturing (excluding construction) at 50 to 80 percent each. In the construction sector, the survey results indicate only a moderate reduction in services. On this basis, we estimate the level of production maintained during the shutdown at 80 to 90 percent.

According to these estimates, the total level of production maintained during the maximum shutdown is between 65.5 and 78.3 percent. This is associated with a very different capacity utilization in the private sector and in the public sectors. Since the GDP shares of the public sector include the production of public goods and as these goods enter the national accounts with the production costs in the calculation of GDP, the contribution of the public sector to GDP is practically not affected by the shutdown. Its capacity utilization is 100 percent. There are no precise data on the production decline in the private sector; rather there is at best anecdotal evidence or initial surveys. From these we derive the capacity utilization rates of various sectors. In areas where there is greater uncertainty about capacity utilization, Table 1 shows that we work with a lower, i.e. rather pessimistic value (variant A) and a higher, i.e. rather optimistic value (variant B). The two variants do not differ in the utilization of capacity in agriculture and forestry, telecommunications, public services including education and health, business services and other services. For these areas, we assume that there is no significant impact of the crisis on the level of production, which also occurs during the shutdown. Overall, we estimate that the capacity utilization of the German economy during the shutdown will be between 65.5 and 78.3 percent.

Table 1: Capacity Utilization of Production during the Shutdown

Economic Sector	Contribution to Gross Value Added (in EUR billions)*	Share in Gross Value Added	Share of Production during the Shutdown (Variant A / Variant B)	Contribution to Gross Value Added Compared to the Situation before the Shutdown
Agriculture and Forestry	25.7	0.9%	100%	0.9%
Manufacturing (excluding Construction)	765.6	25.4%	50% / 80%	12.7% / 20.3%
Construction	152.8	5.1%	80% / 90%	4.1% / 4.6%
Trade, Transport and Hospitality	483.7	16.1%	50% / 70%	8.0% / 11.2%
Telecommunications	138.0	4.6%	100%	4.6%
Financial and Insurance Services	118.0	3.9%	70% / 80%	2.7% / 3.1%
Real Estate and Housing	315.9	10.5%	75% / 85%	7.9% / 8.9%
Business Services	346.4	11.5%	50%	5.7%
Public Services, Education, and Health	553.1	18.4%	100%	18.4%
Other Services	113.1	3.8%	15%	0.6%
Sum of the maintained capacity utilization during the shutdown:				65.5% / 78.3%

* Structure of 2018

Source: Statistisches Bundesamt and own calculations

4. Length of the shutdown and duration of the catch-up process

With regard to the question of how long the shutdown lasts before a first significant easing, we set the date for the start of the production decline at mid-March 2020. With regard to the duration of the shutdown, no statements can be made yet, so that, in the following, we use different scenarios. This also appears to make sense because it allows us to determine the sensitivity of the economic decline to the length of the maximum shutdown.

For the length of the shutdown introduced in March/April 2020 until a significant easing, we assume four alternative points in time. In the scenario of the shortest maximum shutdown, we assume a significant easing at the end of April 2020. Alternatively, we create scenarios for a significant easing of the shutdown at the end of May, the end of June and the end of July. The economy will then recover and the various sectors of the economy will be able to reduce underutilization. For simplicity uncertainty as to which sectors will be affected in which way in the long run, we are not going to pursue the argument, according to which consumption and production structures may be different once the pandemic has been overcome. Instead, we assume an adjustment to the structures of GDP on the production side, as they were before the pandemic began.

For the expected course of GDP, in addition to the timing of a significant easing, the decisive factor is how quickly the capacity utilization from the period before the start of the shutdown is restored. It would be unrealistic to assume that production will immediately return to the level that would have been observed without the shutdown when the shutdown in April 2020 ends.

There are several conceivable reasons, why it will take several months to adjust production to the course that is free from the influence of the pandemic. Of these reasons, the following four seem particularly important:

- a. The government will not fully lift the shutdown for all sectors of the economy at the same time, but will pursue a gradual opening up of the economy.
- b. Companies that have been particularly hard hit by the shutdown will not be able to start full production immediately. Rather, depending on the type of enterprise, preparatory work will be required.
- c. The restoration of interrupted supply chains will also take a certain amount of time. This appears to be particularly relevant for international supply chains, i.e. for the corresponding links with foreign countries.
- d. Consumers will presumably not immediately restore their previous consumption habits, but will only gradually adapt to their previous consumption patterns, e.g. because of fear of a further wave of infection.

At present, it is difficult to estimate how long the adjustment process from shutdown to complete adaptation to pre-corona structures will take. To quantify the economic consequences of the adaptation period and to simulate the course of alternative adaptation lengths, we use alternative assumptions. We assume two months as the shortest adaptation period. Alternatively, we use an adjustment period of four, eight, 12 and 16 months. For reasons of simplification, we assume that the adjustment to the expected pre-corona structures is linear.

5. Forecasts of the GDP slump in 2020 and the subsequent recovery

We now turn to the forecasts of GDP growth rates for 2020 and 2021. From the alternative assumptions about the end of the shutdown and the speed of the subsequent adjustment to the original production structure, we can derive the associated effects on economic growth. The different projections help to show the sensitivity of the results with respect to the various assumptions.

Table 2 shows the growth forecasts based on the more optimistic variant B described in section 3, i.e. assuming that a capacity utilization during the shutdown of 78.3 percent of what it was before the pandemic broke out. The projections show, under which assumptions Germany's GDP is likely to drop between 3 percent and close to 7 percent. This is the extent of the recession forecasted by the projection of the Council of Economic Experts in Germany and the Federal Ministry for Economic Affairs and Energy. A decline in this order of magnitude is only possible if a significant easing of the shutdown happens between the end of April and the end of June 2020 and the subsequent complete recovery to the pre-crisis structures takes only two to four months.

However, most projections about the medical crisis imply that the pandemic will last until the end of 2020 or even into 2021. Assuming that the end of the economic crisis will only occur after the invention, production and application of a vaccine, i.e. presumably not before the first half of 2021 at the earliest, the underlying assumptions for the relatively mild recession scenarios appear extremely optimistic. Consistency of the projections of the medical crisis and the assumptions for the economic projections suggest that a significant easing of the shutdown could well start later and the adjustment to pre-crisis structures may take much longer. Hence, using consistent assumptions between the medical and the economic crisis, the projections in Table 3 suggest a much stronger recession in Germany in 2020. For example, if the shutdown ends in May or June 2020 and the subsequent adjustment to the pre-crisis production levels take eight months, i.e., until early 2021, the slump in German's GDP can easily reach ten percent or more. Of course, if the shutdown ends later or the adjustment is slower, the recession will be even more severe.

Table 2 also shows the estimated growth rates for 2021, showing that in all scenarios the decline in production in 2020 is followed by a significant recovery in 2021. However, if the adjustment process is slow, offsetting the economic slump will last at least until the end of 2021.

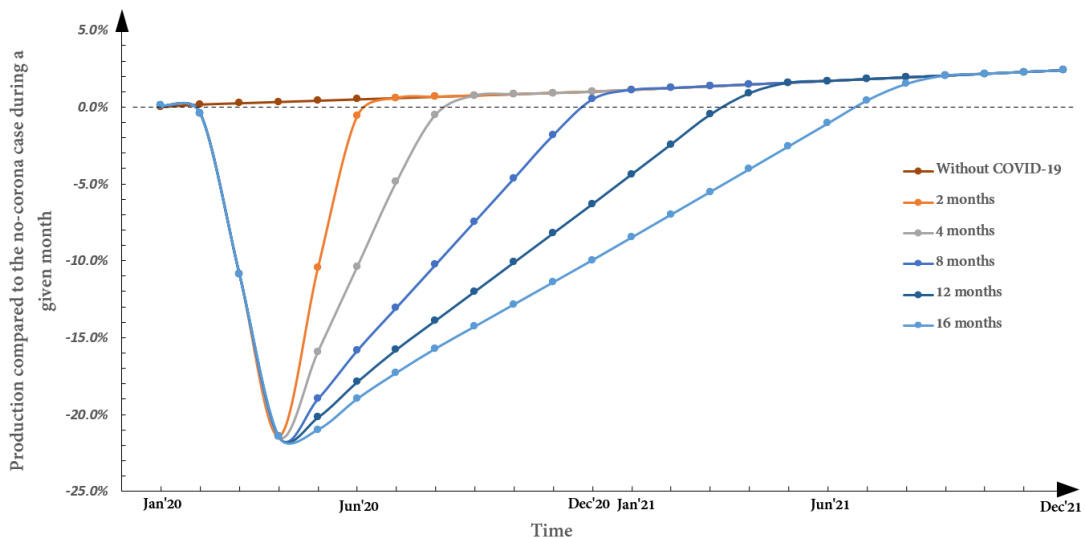
Table 2: Projected growth effects depending on the length of the shutdown and subsequent length of the adjustment process with a capacity utilization level of 78.3 percent during the shutdown

Assumption about the End of the Shutdown	Year	Adjustment to the Original Production Structure during ... Months				
		2	4	8	12	16
<u>Scenario 1:</u> End of April	2020	-3.1%	-4.9%	-8.6%	-11.3%	-12.7%
	2021	5.0%	7.0%	11.3%	13.7%	12.8%
<u>Scenario 2:</u> End of May	2020	-4.9%	-6.7%	-10.4%	-12.5%	-13.6%
	2021	7.0%	9.1%	13.5%	14.6%	13.0%
<u>Scenario 3:</u> End of June	2020	-6.7%	-8.6%	-12.0%	-13.6%	-14.4%
	2021	9.1%	11.3%	15.3%	15.1%	12.8%
<u>Scenario 4:</u> End of July	2020	-7.7%	-10.4%	-13.4%	-14.5%	-15.1%
	2021	11.3%	13.5%	16.6%	15.2%	12.4%

Source: own calculations

Using the forecasts shown in Table 2, Figure 1 illustrates the course of monthly production in the event of the end of the shutdown in April 2020 (scenario 1). In addition to the course of the economic slump and the subsequent recovery, the diagram includes the growth path that reflects economic growth as projected by the IMF for Germany before the COVID-19 pandemic occurred. Prior to the occurrence of the pandemic, the IMF had forecast growth for Germany of 1.1 percent for 2020 and 1.4 percent for 2021. Figure 1 shows that the pandemic will lead to a rapid collapse, but will also be followed by a rapid and strong recovery. Even if the adjustment takes longer after the government eases the shutdown, a V-recession would occur in each case.

Figure 1: Monthly economic output at shutdown until the end of April 2020*

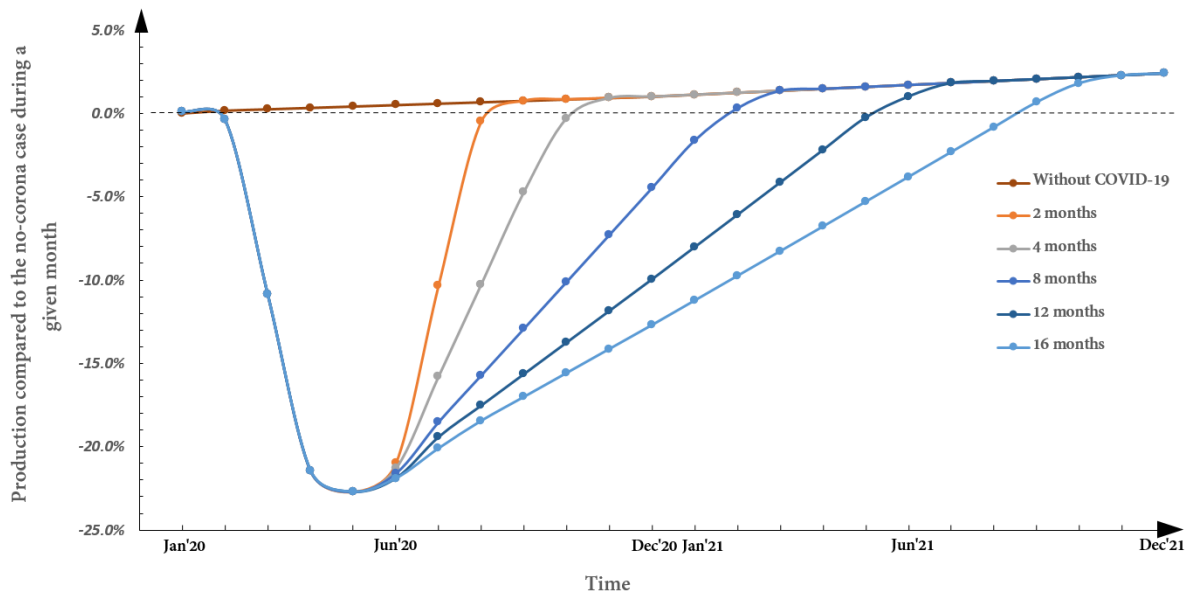


*The diagram is based on scenario 1 of Table 2.

Source: own calculations

Figure 2 illustrates the development of the monthly trend in the event that a significant lifting of the shutdown does not occur until the end of June 2020 (scenario 3 in Table 2). In contrast to the economic developments as shown in Figure 1, this scenario results in a U-recession in each case. The development path would be similar - but even more pronounced - if a significant lifting of the shutdown were to occur even later.

Figure 2: Monthly economic output at shutdown by the end of June 2020*



*The diagram is based on scenario 3 of Table 2.

Source: own calculations

If capacity utilization during the shutdown follows the more pessimistic variant A of Table 1 the recession in Germany will be even more severe. For this case, Table 3 shows the growth projections for Germany in 2020 and 2021. The projections highlight that there is hardly any scenario that would lead to as mild a recession as projected by the Council of Economic Experts or the Federal Ministry of Economic Affairs and Energy. According to our calculations, the change in GDP would be in the double-digit percentage range in nearly all scenarios. If the shutdown eases significantly only later, an even greater drop in GDP would have to be expected. In the most pessimistic cases of Table 3, GDP could even drop by 20 percent or more.

Overall, the estimates included in Tables 2 and 3 as well as the illustration of economic development in Figures 1 and 2 show that a much sharper decline in GDP in Germany can be expected if the length of the economic crisis is aligned with the predicted length of the medical crisis. In the diagrams, this is illustrated by the area between the line showing the monthly economic output and the growth path without COVID-19. A single-digit decline in GDP can only be expected under assumptions that appear over-optimistic. Therefore, the extent of the recession in Germany can most likely be expected to be greater than previously estimated, e.g. by the German Council of Economic Experts. The losses associated with the various scenarios are considerable, although they assume that there are no long-term effects of the crisis, which is certainly already an optimistic assumption.

Table 3: Projected growth effects graded according to the length of the shutdown and subsequent duration of the adjustment with a capacity utilization rate of 65 percent during the shutdown

Assumption about the End of the Shutdown	Year	Adjustment to the Original Production Structure during ...				
		Months				
		2	4	8	12	16
<u>Scenario 1:</u> End of April	2020	-5.3%	-8.3%	-14.1%	-18.5%	-20.8%
	2021	7.5%	10.9%	18.5%	23.1%	21.9%
<u>Scenario 2:</u> End of May	2020	-8.3%	-11.2%	-17.1%	-20.5%	-22.2%
	2021	1.,9%	14.6%	22.7%	24.9%	22.3%
<u>Scenario 3:</u> End of June	2020	-11.2%	-14.1%	-19.6%	-22.2%	-23.5%
	2021	14.6%	18.5%	26.2%	26.1%	22.1%
<u>Scenario 4:</u> End of July	2020	-12.7%	-17.1%	-21.9%	-23.7%	-24.6%
	2021	18.5%	22.7%	28.8%	26.6%	21.5%

Source: own calculations

6. Conclusions

The calculations presented in this article show that the economic slump caused by the COVID-19 pandemic in Germany will be much more severe than previously assumed. According to our forecasts, the upturn will then be rapid, but before that there will be a very severe recession in Germany. It cannot be ruled out that the percentage decline in GDP will be in double digits. This is particularly the case if the forecasts are consistent between the assumptions regarding the duration of the medical crisis and the persistence of the economic effects. The forecasts presented here imply that the forecasts published, e.g. by the German Council of Economic Experts or the Federal Ministry of Economic Affairs and Energy are too optimistic.

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