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REFERENCE MACROECONOMIC SCENARIOS

FOR THE SPANISH ECONOMY AFTER COVID-19

ABSTRACT

COVID-19 has spread globally, and most countries have adopted extraordinary measures to mitigate its effects on public health. These include bringing part of economic activity to a standstill and the confinement of the population, and they are exerting a most severe contractionary effect on GDP and employment worldwide. While the resolute action of national and supranational authorities will contribute to alleviating these effects, their magnitude remains, for the moment, highly uncertain.

This article develops a set of scenarios for the Spanish economy that consider various alternative assumptions about the duration of the confinement and the persistence of the shock the economy has undergone. In this connection, two different methodologies are used. The first rests on an assessment of sectoral output losses as a result of the epidemic containment measures; the second is based on simulations of the main transmission channels of the economic effects of the pandemic, using the Banco de España Quarterly Model (MTBE). The results of the different scenarios point to reductions in Spanish GDP in 2020 unprecedented in recent history. That said, the scale of the reductions is highly sensitive to the starting assumptions, over whose plausibility there is much uncertainty. Once the height of the crisis is behind us in the short term, activity should begin to recover at a rate which will in any event depend on how the health risk is perceived in the coming months and on the capacity for recovery of that part of the productive system most damaged by the current shutdown. With a view to 2021, foreseeably the Spanish economy will substantially - but not fully – recoup the course of activity and employment expected before the pandemic.

It is necessary to highlight, in any case, the provisional nature of these calculations. They must be subjected in the coming months to ongoing revision as new information progressively becomes available.

Keywords: macroeconomic outlook, scenario, simulation, COVID-19, pandemic, recession, shock, sectoral analysis.

JEL classification: E1, E17, E20, E27, E60, C53, C67, I1.

1   Summary and conclusions

The global spread of the COVID-19 disease, caused by a coronavirus, and, above all, the measures taken to reduce the loss of human lives have led most economies to shut down significant areas of activity and, therefore, to a large, abrupt fall in GDP. The global health crisis has thus given rise to a global economic crisis. Given the size of the problem, the economic authorities have reacted by taking measures across the board to mitigate the severe health, social and economic effects of the crisis.

This has also been the case in Spain, where, in order to contain the spread of the disease, the authorities have ordered confinement of the population to their homes and the closure of entire sectors of economic activity. These include, in particular, some of the most labour intensive service industries, such as accommodation and food service activities and a significant part of retail trade.. The rapid increase in the number of cases caused the government to declare a state of alert on 14 March for a period of two weeks, which has since been extended by two 15-day periods to 26 April. The mobility restrictions were tightened between 30 March and 9 April, with the suspension of all non-essential economic activity.[1]

The impact of the decline in productive activity has been especially apparent in the labour market. In the days immediately prior to the declaration of the state of alert on 31 March, social security registrations declined by almost 900,000 (4.6% of the total). Furthermore, a very large number of workers have been affected by temporary layoffs (ERTEs), so that although they remain registered for social security they are not currently working.

The activity shock and job losses have led to a pronounced contraction of domestic demand. This has been compounded by the shock from abroad, in so far as similar developments in other countries have given rise to severely weakened demand for goods and services from the rest of the world and disruption to global value chains, along with the cessation of tourist flows.

The authorities have responded to these developments, at national, European and global level, by deploying a whole range of measures. In the various geographical areas, including Spain, some of the measures with a direct budget impact have been

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1   Moreover, on 18 April the Prime Minister announced the motion for a third extension of the lockdown for two weeks longer, until 9 May. He also outlined the first steps of a confinement exit strategy, which include the possibility of the lifting of the measures not taking place simultaneously in all the country's regions, depending on how the epidemic is evolving in each region.

designed to increase the resources available to the health system in order to mitigate the public health consequences of the disease. Also in the area of fiscal policy, the shutting down of numerous economic activities has led to the adoption of measures designed to alleviate the loss of incomes for the most vulnerable households and to ensure that firms have sufficient liquidity, through public guarantee schemes for bank loans and tax deferrals, to meet their payment obligations.

In the monetary policy realm, in the specific case of the euro area, the Eurosystem has approved large-scale financial asset purchases, to allow euro area private agents and fiscal authorities to benefit from low financing costs, and has adopted various measures to boost bank lending. Turning to prudential supervision policy, the Single Supervisory Mechanism has decided to allow credit institutions to operate temporarily with certain capital and liquidity ratios below the required levels. Also, the Banco de España and relevant international agencies in particular the European Banking Authority and the Basel Committee on Banking Supervision have provided clarification on how the impact of the health crisis should be reflected in the institutions' financial information, in order to avoid undesired procyclical effects.

In the short term, the main objective of the action taken is to guarantee a flow of income for agents whose income sources have been most directly affected by the epidemic. Moreover, in the medium term, these measures should, by limiting the risk that the transitory shock may give rise to a durable – and even permanent – reduction, contribute to boosting the economic recovery, once the health emergency has been contained and the extraordinary measures to restrict population movement begin to be rolled back.

This notwithstanding, the economic outlook is currently surrounded by a high degree of uncertainty. The first important source of uncertainty relates to the duration of the period of confinement. Five weeks after the declaration of the state of alert in Spain, the latest figures on the spread of the disease, particularly in terms of number of deaths, show how the restriction of population movement is proving effective in containing the epidemic. That said, the observed course of COVID-19 in other countries where the disease spread earlier than in Spain suggests that the state of alert may be extended up to the end, on 9 May, of the new extension envisaged following the Government's motion, or for even longer. Based on these prior experiences, the scenarios presented in this article envisage a hypothetical duration of eight weeks, in the case considered most likely, and, in an alternative case, 12 weeks.

There is also uncertainty as regards the scope of the measures that may be needed, when the state of alert has been lifted, to avoid new cases and to contain those that do arise. Moreover, the absence of any similar historical precedent with which to compare the current global crisis makes analysis of the impact on the economy and the financial sector of the measures adopted by the various authorities - the scope and extent of which are also unprecedented - especially complicated.

These sources of uncertainty make it difficult to prepare macroeconomic projections using the standard methodologies. This is why the decision was taken to prepare a number of alternative scenarios for this article, using different types of analytical tool. When the Quarterly report on the Spanish economy was published on 25 March, there were still no monthly indicators available to assess the extent of the shock which was, in any case, presumed to be very large.[2] The information that has become available during the two weeks since then, in particular in relation to the behaviour of employment, provides at least an initial basis for formulating these scenarios. In any event, the results of the scenarios are highly tentative and should be understood as merely indicative of the order of magnitude of the potential economic effects of the pandemic.

Two alternative approaches have been used to construct the scenarios, one from the standpoint of supply and the other from that of demand, each of which emphasises different aspects of shock transmission mechanisms. It should therefore be emphasised that the quantitative results obtained under these two approaches are not directly comparable, on the same analytical basis. In this respect, these two approaches should be understood as complementing each other and not as two sides of the same coin.

The supply-side approach starts by calibrating the magnitude of the fall in output in the various sectors of the economy as an immediate consequence of the measures taken to contain the epidemic over the period in which it is estimated they will remain in force. Thus, under a set of assumptions that includes, in particular, that the state of alert will last for a total of eight weeks, the decline in GDP in 2020 is estimated to range from 6.6% to 8.7%, depending on the degree of persistence of the shock beyond the end of the current state of confinement (in particular, in those sectors of the economy in which social interaction plays an important role, such as hotels, restaurants and leisure, which are also those most exposed to tourism), which could partially approximate the risk of fresh outbreaks of the epidemic. In a scenario that combines a duration for the state of alert of 12 weeks with a greater persistence of the effects when confinement ends, it is estimated that GDP could fall by as much as 13.6% in 2020. Specifically, scenario 1 envisages the virtually complete normalisation of activity as from Q3. Scenario 3, meantime, assumes that the sectors affected will not attain their end-2019 level of output until 2020 Q4 (except in accommodation and food service activities and leisure, for which a slower recovery is projected). Scenario 2 is at an intermediate point between the two.

This supply-based methodology, with its markedly accounting nature, is useful to obtain a clear estimate of the initial magnitude of the shock. However, it does not provide a description of subsequent developments, beyond the short term, since it does not include any explicit modelling of the relationships between the economic aggregates.

2 See Banco de España (2020), Quarterly report on the Spanish economy, *Economic Bulletin* 1/2020.

DIFFERENT GDP GROWTH SCENARIOS FOR SPAIN IN 2020 AND 2021, BASED ON DIFFERENT METHODOLOGIES AND ASSUMPTIONS

As in the case of other countries, the shock to the Spanish economy is notable in its severity. There is, however, much uncertainty over the specific impact it will have on GDP growth in 2020, which depends on factors such as the duration of the confinement, the characteristics of the transition back to normality and the success of economic policies in restricting the persistence of the effects on activity and employment. In any event, a rebound is expected as from the second half of the year, paving the way to a notable recovery in 2021.

	Average annual rates		Confinement duration (in weeks)	Other key assumptions
	2020	2021		
Supply-side approach				
Scenario 1	-6.6	—	8	Almost complete normalisation after confinement
Scenario 2	-8.7	—	8	Almost complete normalisation in Q4 after confinement
Scenario 3	-13.6	—	12	Incomplete normalisation at end-year (particularly in sectors linked to accommodation and food service acvtivities and leisure)
Simulations with the MTBE				
Scenario 1	-6.8	5.5	8	The measures prevent lasting job losses and company closures
Scenario 2	-9.5	6.1	8	A certain proportion of firms do not manage to prevent liquidity problems from becoming solvency ones
Scenario 3	-12.4	8.5	12	A certain proportion (bigger than in scenario 2) of firms do not manage to prevent liquidity problems from becoming solvency ones

SOURCE: Banco de España.

The second approach, based on simulations of different scenarios obtained using the Quarterly Macroeconometric Model of the Banco de España (MTBE), the model normally used to make macroeconomic projections, partly addresses this shortcoming. The MTBE amounts to a schematic description of the main relationships of the Spanish economy, which sheds light on the most important shock transmission channels. Also, this tool allows us to incorporate alternative assessments of the expected impact of economic policy measures implemented to counter the effects of the epidemic containment measures.

The scenarios constructed using the MTBE incorporate a set of shocks approximating the effects of the pandemic. The first of these shocks reflects the fact that the restrictions established in other countries on economic activity and population movement have caused a drastic decline in the demand for Spanish goods and services from the rest of the world, especially in the area of tourism. In Spain, the loss of household and corporate incomes leads to a reduction in current spending, which is alleviated in the short term by credit moratoria and guarantees. However, these give rise to future payment commitments and therefore reduce the ability of households and firms to engage in consumption and investment in the medium term. Moreover, the uncertainty surrounding the future (in particular, due to the perception of the risk of fresh outbreaks of the disease) leads agents to postpone spending decisions. This combination of shocks gives rise to a fall in GDP in 2020 in the three scenarios constructed, of -6.8%, -9.5% and -12.4%, depending on the whether the

duration of confinement is eight weeks (scenarios 1 and 2) or 12 weeks (scenario 3) and whether the liquidity problems of private agents lead to solvency difficulties in the coming months (scenarios 2 and 3) or do not (scenario 1).

A comparison of the results of these three scenarios shows that the consequences of the shock for activity and employment this year, although very severe, will be somewhat reduced by the measures to provide liquidity and income flows in the short term. Specifically, in each of the three scenarios the end-2020 level of GDP will be lower by 8.5, 10.4 and 12.5 pp than that foreseen in the December 2019 projections (see Chart 5.1). However, the economic policy measures not only permit the depth of the recession to be reduced in the short term; they should also be conducive to the achievement of a higher level of GDP and employment over a longer time horizon. The exercises performed consider a horizon extending to the end of 2021, when it is estimated that the level of GDP will be approximately 3% lower than in the absence of COVID-19 in the first scenario, as against 5% lower in the other two.

In any event, the various scenarios constructed show that the cost to the budget of the recession caused by COVID-19 will be very high, both as a consequence of the measures adopted and, especially, the action of automatic stabilisers. According to the various scenarios considered, in 2020 the budget deficit will be within the range of approximately -7% to -11% of GDP, while public debt will stand between approximately 110% and 120% of GDP.

The exercises carried out for this article, under the two approaches used, should be understood as preliminary. Thus, they will be subject to revision, as and when new information reduces the current high level of uncertainty, particularly as regards the duration of the state of alert, the possible need for additional containment measures in future and the estimated effectiveness of the measures taken to encourage the resumption of the employment and commercial relationships that existed prior to the emergence of the virus between businesses and their employees and customers when the state of alert is lifted.

2   Relevant aspects of the epidemic for the construction of the scenarios
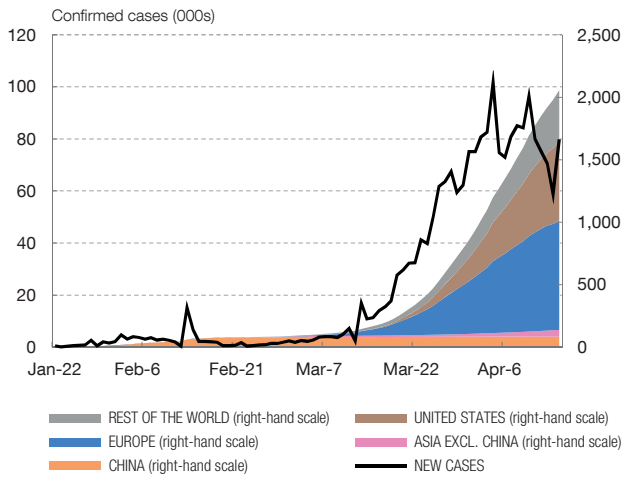
COVID-19 is a disease caused by the SARS-CoV-2 coronavirus. It emerged in China in late December 2019 and spread rapidly to an increasing number of countries during the early months of 2020, before being officially declared a pandemic by the World Health Organisation on 11 March. As at 19 April almost 165,000 people worldwide have lost their lives to the disease, with just under 2.4 million people infected (see Chart 1.1). The rapid spread of the disease has overwhelmed healthcare systems in numerous countries and has led to strict restrictions on personal interaction, aiming to curb the rate of contagion and the number of fatalities. The measures taken have severely limited economic activity, with the consequent
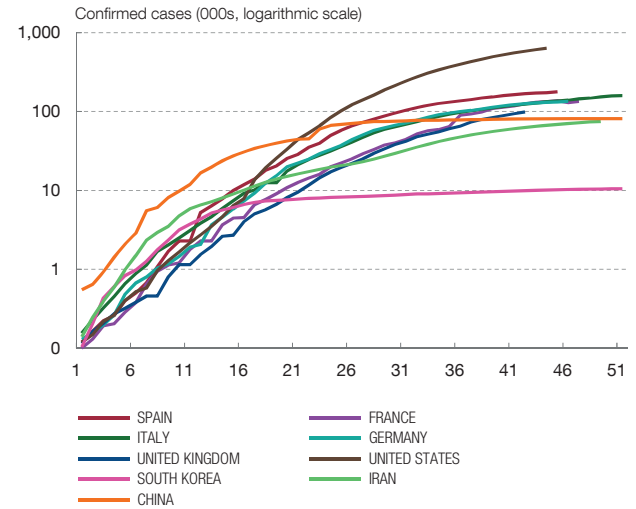
Chart 1
COVID-19 EPIDEMIC (a)

The number of new cases continues to grow rapidly in Europe and in the United States, while it remains relatively contained in Asia. In Spain, one of the countries most affected, the epidemic is beginning to be under control, with decreases in the numbers of deaths.
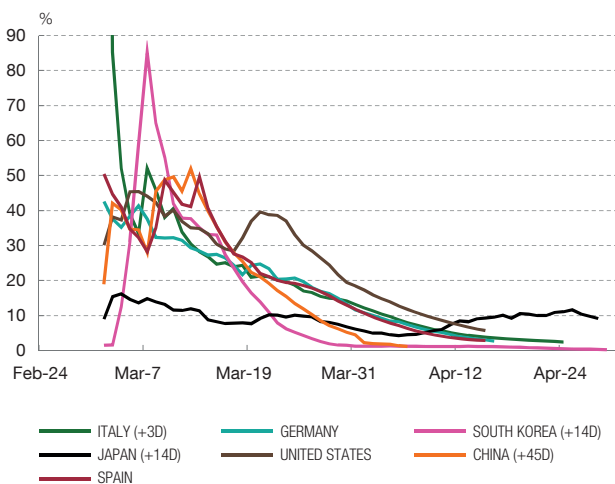
1 COVID-19: WORLDWIDE INFECTIONS AND NEW CASES

Confirmed cases (000s)

REST OF THE WORLD (right-hand scale)
EUROPE (right-hand scale)
CHINA (right-hand scale)
UNITED STATES (right-hand scale)
ASIA EXCL. CHINA (right-hand scale)
NEW CASES

2 EPIDEMIC TRAJECTORY: INFECTIONS

Confirmed cases (000s, logarithmic scale)

SPAIN
ITALY
UNITED KINGDOM
SOUTH KOREA
CHINA
FRANCE
GERMANY
UNITED STATES
IRAN

3 DAILY INCREASE (%) IN THE NUMBER OF DIAGNOSED CASES
(7-DAY MOVING AVERAGE) (b)

%

ITALY (+3D)
JAPAN (+14D)
SPAIN
GERMANY
UNITED STATES
SOUTH KOREA (+14D)
CHINA (+45D)

4 DAILY NUMBER OF DEATHS DUE TO COVID-19 (RESCALED)
(T = 0 AT TIME OF FIRST CONFINEMENT IN COUNTRY) (c)

CHINA (MAX. = 149)
ITALY (MAX. = 969)
SPAIN (MAX. = 950)
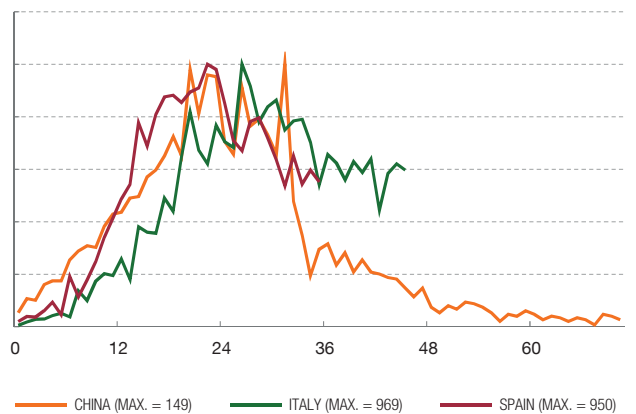
SOURCES: Banco de España and Johns Hopkins CSSE.

a The charts have been prepared with data to April 15.
b The lines of some countries are lagged by the number of days indicated in the legend, depending on when the epidemic commenced.
c The figures in brackets after the name of each country are the maximum daily number of deaths recorded. These figures have been rescaled to make them coincide on the Y-axis for all the countries (although at different points in time). The X-axis shows the number of days elapsed since the first confinement was ordered in each country.

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collateral damage in the shape of a marked contraction in GDP in the different economies in the first half of the year.

In any event, the confinement measures are proving effective in limiting the spread of the disease. In China, which was the first country affected by COVID-19 and, therefore,

the first to impose restrictions on mobility and activity, there appears to have been a dramatic reduction in new infections (see Chart 1.2). In Italy, where the number of infections rose sharply in the last ten days of February and the first half of March, the daily number of new cases has tended to decline since then, although it remains high. By contrast, in other countries, such as the United States and the United Kingdom, at the cut-off date for this article the rate of growth of new cases is still very high.

Spain is one of the countries that has been hardest hit by COVID-19. As at 19 April, the total number of infections was almost 196,000, and the number of deaths was close to 20,500. As in other countries, the increase in infections in the first half of March led the authorities to adopt various measures to contain the epidemic and, on 14 March, to declare the state of alert. The measures in place entail the stoppage of all face-to-face educational activity, restrictions on movement within the country, the suspension of much retail and industrial activity and, ultimately, confinement of the population.

In consequence, as in other countries, the rate of new infections has dropped significantly since early April (see Chart 1.3) while, as was the case in China and in Italy, the number of daily deaths began to decline just over 20 days after the confinement measures were imposed (see Chart 1.4).

Clearly, then the confinement measures adopted in Spain and in many other countries are proving effective in containing the COVID-19 health emergency. Yet questions remain regarding how long such severe measures will have to remain in place. In addition, more recently, in view of the severe impact these measures are having on activity and employment, the debate has revolved around the conditions required to ensure that the lifting of the confinement measures and a gradual return to normal economic activity are compatible with minimising the risks of the emergence of new outbreaks of the epidemic.

Regarding the duration of the confinement period, confirmation that the course of the epidemic in Spain is roughly following the pattern observed earlier in China (just under 50 days behind) takes away some of the uncertainty. In Wuhan, the initial epicentre of COVID-19, eight weeks elapsed between the confinement order and the absence of new infections, and 11 weeks passed before the restrictions were fully lifted. The experience in Wuhan, and subsequently in Italy, where the disease also appeared earlier than in Spain, forms the basis for the two alternative assumptions used in this article, according to which the confinement period could last either eight or 12 weeks.

That said, although confinement is proving to be an effective method of controlling the disease, there are more uncertainties regarding the scenario that will emerge when the confinement measures are lifted. On the one hand, it is highly unlikely that the pandemic may be eradicated completely in the short term. This opens up the

possibility of new outbreaks of the epidemic arising from undetected cases. On the other hand, even if there are no new cases of infection in Spain, opening up our external borders could let in persons who are carrying the infection but are still in the incubation period. These possible scenarios, the probability of which is still extremely difficult to estimate, could lead to confinement measures being reintroduced.

In consequence, it seems unlikely, from the standpoint of economic activity, that the current standstill of a significant portion of that activity will be followed by a rapid and complete return to normal. This is something that may foreseeably only be possible when a vaccine or an effective new anti-virus treatment becomes available. In the meantime, a number of strategies have begun to be outlined, aiming to make public health concerns compatible with containing the costs in terms of economic activity and employment. These strategies cover a very broad range of non-mutually exclusive aspects, such as gradually permitting economic activities where infection can be prevented by means of safety protocols (including, for example, maximising hygiene measures or guaranteeing minimal interpersonal distancing), using identification technologies to detect persons who have been in contact with infected persons, segmenting confinement measures according to the degree of vulnerability to the disease of the different population groups, or mass testing to detect the presence both of the disease and of antibodies.

The simulations presented here do not explicitly capture the effects on activity of a partial return to normality when the state of alert ends, nor the emergence of new outbreaks of the epidemic. However, as described below, they do include a channel whereby private agents' spending decisions do not completely return to normal after confinement, which is equatable to their perception of the risk of the disease continuing beyond the initial lifting of the confinement measures.

3   Short-term information

In the period since confinement began, relatively detailed information has become available on the initial adverse impact on the labour market. These effects are manifest in the daily series of Social Security registrations and registered unemployment to end-March, revealing a reduction in numbers registered of almost 900,000 people (4.6% of the total) in the second half of the month (see Chart 2.1). By sector, the decline was particularly pronounced - when comparing the figures for the final days of February and March - in activities relating to accommodation and food services and to leisure, those most affected by the announcement of the state of alert, and also in construction (see Chart 2.2). In terms of type of contract, job destruction was concentrated among temporary workers, while the decline in registrations among those with a permanent contract was small, a development that powerfully highlights the marked disparity in the degree of protection afforded to both groups of employees.

Chart 2
IMPACT OF CONFINEMENT ON EMPLOYMENT

In the second half of March, following the declaration of the state of alert, there were very large falls in Social Security regisrations, especially in accommodation and food service activities, leisure and construction.

1 CUMULATIVE CHANGE IN SOCIAL SECURITY REGISTRATIONS
  WITH RESPECT TO 28 FEBRUARY
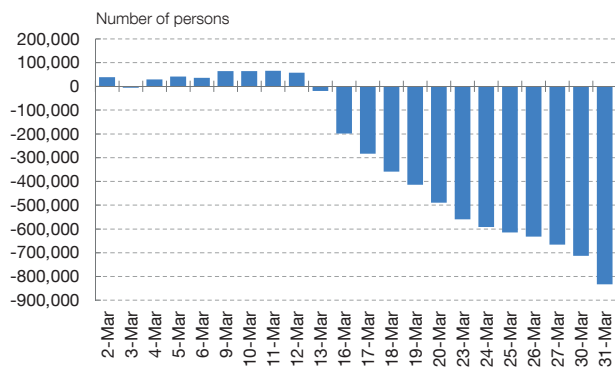
2 CUMULATIVE RATE OF CHANGE IN SOCIAL SECURITY REGISTRATIONS
  BETWEEN 28 FEBRUARY AND 31 MARCH BY SECTOR OF ACTIVITY
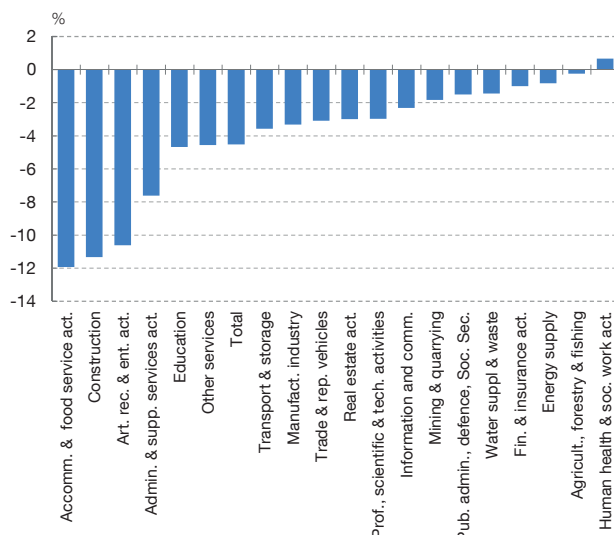
SOURCES: Ministerio de Inclusión, Seguridad Social y Migraciones.

In any event, these indicators only provide a partial view of the effects on the labour market of the restrictions imposed on activity. Specifically, an even greater portion of the adjustment to employment has come about through short-time work arrangements (ERTEs by their Spanish acronym), a mechanism that does not entail the breaking of the employee/employer relationship or deregistration for Social Security purposes. It does however involve an interruption of labour activity. In the employment figures, these persons continued to feature as employed; nonetheless, this is not actually the case in an economic sense.
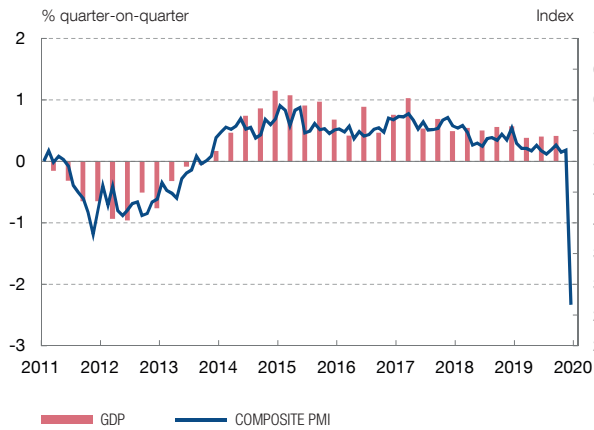
Both this labour market information and that from other indicators points to a collapse in economic activity in the second fortnight of March and at the start of Q2. The collapse is expected to have abruptly halted a period of uninterrupted growth for the Spanish economy that has run for over six years. One indicator that draws together these developments is the composite PMI. In March it posted the most pronounced decline in its time series, falling by more than 25 points to a level of 26.7, the lowest level reached to date (see Chart 3.1). The course of this indicator in the other euro area economies was similar. Chiefly behind this unprecedented decline was the services component, while the reduction in the manufacturing index was more moderate (see Chart 3.2). In the services indicator, the activity-restricting measures introduced to curb the expansion of the epidemic gave rise to particularly marked

Chart 3

THE EFFECTS ON ACTIVITY ARE PROVING SEVERE

The activities most directly affected by the confinement are certain services sectors. On the demand side, the impact on tourism is most pronounced, but so too is it on the other demand components.
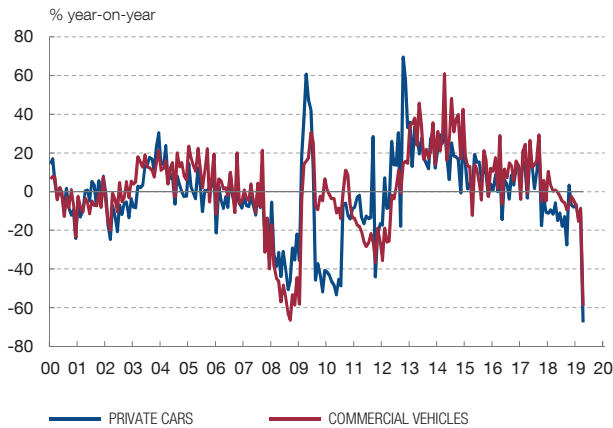
1 COMPOSITE PMI AND GDP

% quarter-on-quarter   Index

GDP   COMPOSITE PMI

2 PURCHASING MANAGERS' INDICES

Points

PMI MANUFACTURING
PMI SERVICES
COMPOSITE PMI
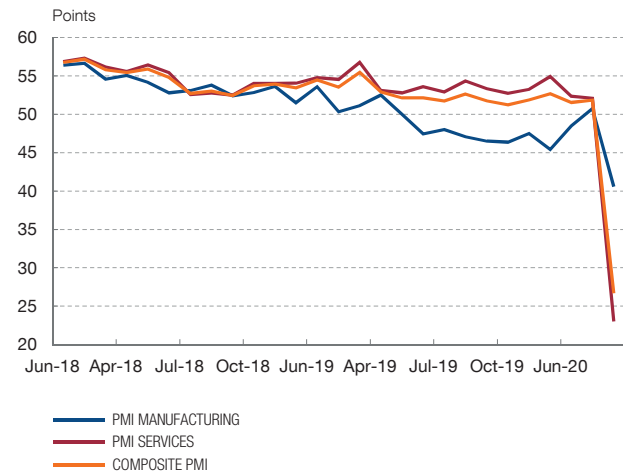
3 PRIVATE CAR AND COMMERCIAL VEHICLE REGISTRATIONS

% year-on-year

PRIVATE CARS   COMMERCIAL VEHICLES

4 AIR TRAFFIC IN SPANISH AIRPORTS

% year-on-year

DAILY DATE

SOURCES: INE, European Commission, Markit Economics, ANFAC, DGT, European Organization for the Safety of Air Navigation and Banco de España.

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contractions in the indices of activity and new orders, especially as regards the accommodation and food service activities sector.

The availability of quantitative indicators that measure the impact of the restrictions introduced under the state of alert on the various demand components is, so far, very limited. Among the few indicators at hand are those relating to new private car registrations and commercial vehicles in March, which respectively proxy durable goods consumption and investment in transport equipment. In both cases, the year-on-year declines stood at around 60% (see Chart 3.3), and they were moreover

concentrated in the second half of the month, as was to be expected. The restrictions set in place have acutely affected tourist flows, as reflected in the daily series of air traffic in Spanish airports (see Chart 3.4).

All this information provides an initial starting point for analysing short-term developments in the Spanish economy and for formulating scenarios for its medium-term outlook. However, as the following section sets out, this evidence is incomplete and not to be taken as reliable in order to estimate quarter-on-quarter GDP growth in Q1 and, especially, in Q2.

4 The supply-side standpoint

The standard procedure followed by the Banco de España to estimate the path of activity in the short term (the current and the next quarter) is based on the use of statistical models that interpret, on the basis of empirical regularities observed in the past, the behaviour of monthly indicators, translating it into estimates of quarter-on-quarter GDP growth rates. These estimates are updated as new information becomes available.[3]

On this occasion, however, this conventional methodology may not adequately capture the exceptional events that have taken place since the middle of March. Consequently, an alternative approach has been used to estimate the behaviour of output in each week of the period of confinement. This consists in estimating the level of activity in the various productive sectors of the economy in the light of the restrictions introduced in each of them by Royal Decree 463/2020 (and by Royal Decree-Law 10/2020 during the two weeks of prohibition of non-essential activities).[4]

Specifically, productive activity has been broken down into a total of ten sectors, whose respective weights in GDP are set out in Chart 4.1. The decline in value added as a consequence of the state of alert has been estimated for each of these sectors, both directly and indirectly as a result of the declines in the other sectors, in accordance with input-output tables. Aggregating the activity levels obtained for each sector, using their relative weights in GDP, gives an estimate of the level of GDP during the confinement, on the basis of which quarter-on-quarter rates of change are obtained for this aggregate.[5]

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3 For the current quarter, the various short-term models provide updates with each new indicator up until publication by the INE of its preliminary National Accounts estimate (which, in the case of 2020 Q1, is due on 30 April).

4 More precisely, the estimation of the level of sectoral activity in each of the weeks in which the state of alert is in force is based on three elements. The most important one is direct interpretation of the content of these two decrees. Secondly, the granular information of the Banco de España Central Balance Sheet Date Office (CBBE) is used to help approximate the proportion of activity affected in each sector. Finally, the calculations have been supplemented by interpretation of the results of a survey conducted by the Banco de España on a sample of Central Balance Sheet Data Office companies (see Box 1).

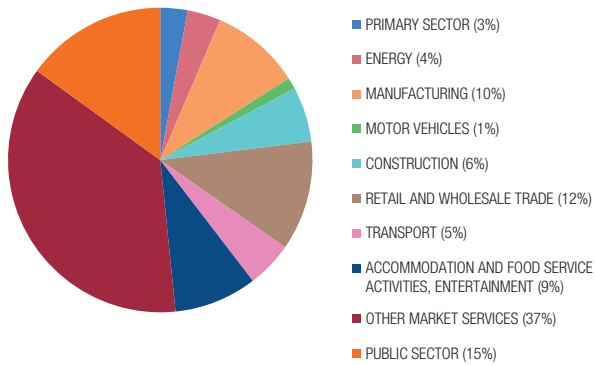5 To simplify the analysis, the fact that, in any particular industry, output in each week of the year may, in normal circumstances, vary considerably is not taken into account. For example, the level of output of automobiles is usually much higher in the last week of January than in the first week of August, while in the case of accommodation and food service activities precisely the reverse is the case.
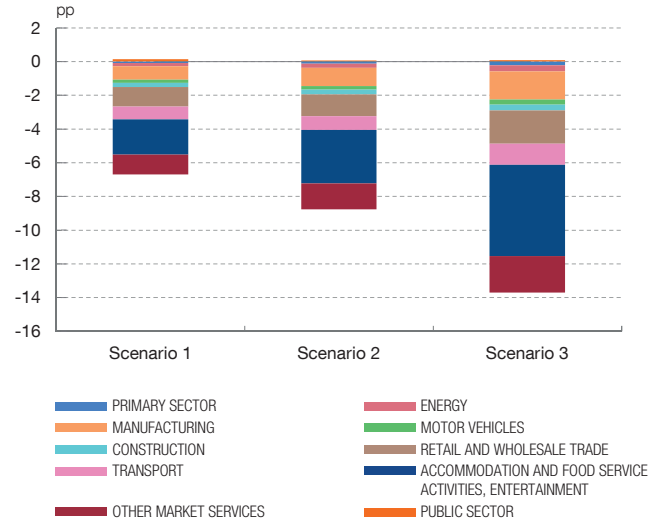
Chart 4

THE EFFECT OF THE COVID-19 CRISIS ON GDP GROWTH IN 2020: A SUPPLY-SIDE APPROACH

The services sectors most directly affected by the shutdown (accommodation and food service activities, leisure, retail trade and transport) account for one-quarter of GDP. The impact on GDP growth in 2020 is all the greater the more necessary it is to lengthen confinement and the longer it takes to restore normality after confinement.

1 WEIGHT OF EACH SECTOR IN GDP (YEAR 2015)

2 CONTRIBUTION BY SECTOR TO GDP GROWTH IN 2020

PRIMARY SECTOR (3%)
ENERGY (4%)
MANUFACTURING (10%)
MOTOR VEHICLES (1%)
CONSTRUCTION (6%)
RETAIL AND WHOLESALE TRADE (12%)
TRANSPORT (5%)
ACCOMMODATION AND FOOD SERVICE ACTIVITIES, ENTERTAINMENT (9%)
OTHER MARKET SERVICES (37%)
PUBLIC SECTOR (15%)

PRIMARY SECTOR
MANUFACTURING
CONSTRUCTION
TRANSPORT
OTHER MARKET SERVICES
ENERGY
MOTOR VEHICLES
RETAIL AND WHOLESALE TRADE
ACCOMMODATION AND FOOD SERVICE ACTIVITIES, ENTERTAINMENT
PUBLIC SECTOR

SOURCES: INE and own calculations.

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In particular, the entry into force of the state of alert has entailed very significant declines in activity in three of the services subsectors. In the case of accommodation and food service activities and leisure the reduction in output in each of the weeks of confinement is assumed to be 100%, in view of the compulsory closure of establishments of this nature.[6] In the case of retail and wholesale trade a decline in activity of somewhat less than 50% is assumed, since that is the proportion which, according to Banco de España Central Balance Sheet Data Office (CBBE) data, is not linked to the distribution of essential products (inter alia, food and health products) which, under Royal Decree 463/2020, are permitted to operate as normal. Finally, in the transport sector it is estimated that the state of alert is consistent with a 60% lower level of activity than normal, on the assumption that almost all passenger transport and about half of goods transport (that part relating to the distribution of non-essential products) has been lost. In other market services sectors, the hypothesis made is that there is no direct closure of activity.[7]

As regards industry, the loss of activity is assumed to be complete in the case of manufacture of motor vehicles, while in other manufacturing industries it is assumed

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6 This assumption may be somewhat extreme, in so far as Royal Decree 463/2020 permits home deliveries.

7 There is, however, a modest decline in output as a consequence of spillover effects.

to be somewhat less than 30% as a consequence of the spillover effects from other industries.[8] Construction is assumed to be operating as normal (except during the two weeks of complete cessation of non-essential economic activities). Finally, given their essential activity status, it is assumed that there is no loss of activity in the primary and energy sectors (along with a certain increase in activity in non-market services).

These assumptions entail a decline in output of approximately 30% during each of the weeks in which the state of alert has been in force, which would automatically deduct 0.6 pp from the average annual GDP growth rate.[9, 10] Having defined the magnitude of the decrease in weekly activity during the period of confinement in each industry, three scenarios have been considered that differ in two respects: the hypotheses made regarding the duration of the state of alert and the speed of recovery following its termination. In the first two scenarios, the duration of the state of alert is assumed to be eight weeks, while in the third it is assumed to be 12. As regards the speed of recovery, scenario 1 envisages an almost complete normalisation of activity as from Q3, while scenario 3 assumes that all sectors will have the same level of output in Q4 as in the same period of 2019 (except accommodation and food service activities and leisure), with scenario 2 lying between scenarios 1 and 3.

According to the results of these exercises, in the first quarter of 2020 Q1, only the last 15 days of which were subject to the state of alert, GDP is estimated to have decreased by 4.7%. This figure, which does not depend on the scenario considered, should be interpreted with considerable caution, since it depends crucially on the assumptions made regarding the proportionate decline in activity in each industry, which are subject to a high degree of uncertainty.

The increase in the number of weeks of confinement in Q2 leads to an increase in the quarter-on-quarter rate of decline in GDP in this period, which is greater in the second scenario than in the first and in the third scenario than in the second, in line with the assumptions made. Naturally, the level of precision of these estimates, diminishes as the horizon they refer to is extended, in accordance with the uncertainty as to the duration of the state of alert, the speed and form of the recovery and the rather mechanical nature of this methodology, which ignores the relationships between the main macroeconomic aggregates. Subject to these caveats, under the assumptions

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8 This fall will be almost three times as large, having taken into account the spillover effects, during the two weeks in which non-essential economic activity was suspended.

9 As the decline in output is estimated to have been 60% during the weeks in which non-essential economic activity was prohibited, the decrease in the average annual GDP growth rate would in that case be 1.2 pp.

10 Two additional dimensions of interest are the regional one and comparison with other European countries. In the first case, taking into account the heterogeneity of the productive structures across regions, the impact of the crisis will be greater in those in which tourism activity is most important and in those in which motor vehicle manufacturing has a higher weight (both directly, due to plant closures, and through spillover effects on other sectors). As regards the comparison with Europe, the Spanish economy is moderately more vulnerable than the three largest euro area economies owing to its greater dependence on sectors directly affected by the confinement.

of each of the three scenarios considered, the fall in average GDP for the current year is estimated to be –6.6%, –8.7% and –13.6%, respectively (see Chart 4.2).

5 Reference macroeconomic scenarios constructed using the MTBE

The second procedure used to assess the potential impact of the pandemic on the economy is the formulation of scenarios using the MTBE, the model normally used by the Banco de España to prepare its macroeconomic projections.[11] In the current extraordinary circumstances, these alternative exercises are less appropriate than those presented in the previous section as a description of short-term developments (which can be identified with the first half of the year), but they are more robust at longer time horizons. In any event, the scenarios presented below should be understood as stylised descriptions of the developments to be expected in accordance with a number of starting assumptions, on the basis of which it is only possible to formulate hypotheses with a limited degree of precision. For this reason, the effects obtained as a result of these simulations are subject to an unusually high degree of uncertainty and, therefore, are preliminary in nature.

5.1 The description of the scenarios

As in the exercises in the previous section, a total of three scenarios have been considered, which also differ from one another, partly according to the period during which the population confinement measures and economic activity restrictions are maintained, and partly according to the persistence, beyond the period of compulsory interruption of activity, of the consequences of the health shock. In the first of these (scenario 1) it is assumed that the duration of the period of confinement will be eight weeks and that it will be followed by a rise in economic activity, in a setting in which the health crisis is overcome relatively rapidly. On one hand, the eight week duration approximately replicates the developments observed in China. As indicated in the second section of this article, this assumption is based on the fact that the epidemic in Spain, over the five weeks that have elapsed since the declaration of the state of alert, has followed a comparable trajectory to that observed previously in China over a similar period. On the other hand, a relatively rapid rise in activity seems to be consistent with China's experience following the end of confinement, in so far as the indicators available suggest that in recent weeks an incipient dynamic recovery has been under way in this Asian economy.[12] An important hypothesis underlying this

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11 See A. Arencibia, S. Hurtado, M. de Luis and E. Ortega, (2017), New version of the Quarterly Model of Banco de España (MTBE), Banco de España, Documentos Ocasionales 17/09. The MTBE is a medium scale macroeconomic model composed of error correction equations in which the dynamics of the economy are essentially determined by the demand side. It is normally used not only to prepare projections for the Spanish economy, but also to develop simulations of various scenarios, as in this article.

12 See Box 2 regarding the assumptions about the duration of the confinement in the different regions and the intensity of the subsequent rebound.

early recovery in economic activity following the period of confinement is that public measures to provide funds to households and businesses are effective in terms of limiting lasting job losses and business closures.

In scenario 2, while the assumption that the duration of the period of confinement will be eight weeks is maintained, the degree of effectiveness of the measures taken by the authorities to reduce the persistence of the effects of the pandemic is assumed to be more limited than in the previous case. In order to calibrate the magnitude of these effects, individual company data from the Banco de España Central Balance Sheet Date Office are used to assess, given a number of assumptions, the proportion of non-financial corporations that, having experienced liquidity problems as a consequence of the crisis, may suffer solvency difficulties.[13]

Lastly, in scenario 3, the possibility of the current state of alert being maintained for up to 12 weeks is assumed. In addition, similarly to scenario 2, it is assumed that the economic and financial difficulties in the productive sector will last for longer. This is consistent with the view that the negative effects of COVID-19 on activity will tend to be more persistent if it is necessary to extend the containment measures for longer or to reintroduce certain measures at some point to suppress any new outbreak of the epidemic. In consequence, in this last scenario the rate of economic growth is slower.

These scenarios, whose main variables are presented, in this case, for the period 2020-21, are built on a combination of several shocks that aim to proxy the effects of the pandemic, and on certain assumptions relating to a set of variables that are described below.

5.1.1 COVID-19 shocks

A first channel of transmission of the effects of the pandemic on the Spanish economy is the impact of the disease on the global economy. Box 2 presents the details of several quantitative exercises that calibrate the shocks felt in the different geographical areas and simulate the corresponding impacts. Specifically, the box sets out three scenarios for the world economy, constructed using similar assumptions to those used to prepare the scenarios for Spain. These would give rise to sharp declines in GDP among Spain's trading partners in 2020, varying in severity

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13   As the starting point for the calibration, hypotheses are made regarding the behaviour of the costs and income of companies during the crisis period, taking into account the varying degree of limitations on activity in each sector and the possibility of making use of ERTEs. On this basis it is possible to determine the weight in the value-added of each sector of the firms that would experience liquidity shortages that cannot be covered by resorting to liquid assets, pre-existing credit lines or the new credit line obtained through the public guarantee programme, so that it is assumed that temporarily they will not be able to make any new investment. It is further assumed that where the shortfall exceeds 20% of a company's capital, it will be obliged to suspend its activity, leading to the loss of its employment.

according to the scenario used. In all three scenarios, the drop in external demand for Spanish exports would be greater than that seen during the crisis that broke out in 2008. The severity of these declines gives rise to a very significant contraction in Spanish exports. The impact is particularly pronounced in the case of tourism services, where receipts disappear completely during confinement and are subsequently gradually restored, returning in the summer of 2021 to the level they would have reached before the shock.

In the case of domestic demand, the confinement measures have reduced or brought to a complete standstill the activity of numerous productive sectors. This has resulted in a significant loss of income for households and firms. The public programmes introduced to alleviate these income losses partially mitigate the negative effects on spending. But although the deferrals and loans offered to firms and the moratoria on loan repayments and rentals for vulnerable households serve to mitigate their liquidity constraints, the fact that the corresponding payments will have to be made once the confinement measures are lifted has an adverse impact on expected income and, therefore, on current and future spending.

The effects of the shutdown of the service industries affected by the state of alert have been introduced into the simulations via reductions in the various items of private consumption that are directly affected. Also, together with the direct effects on spending resulting from the healthcare crisis and the measures adopted to contain infection, the simulations include a channel of heightened uncertainty, associated in particular with the possibility of new outbreaks of COVID-19 that may make it necessary to adopt new containment measures.[14] The heightened uncertainty for households is reflected in an increase in precautionary saving as a proportion of their income. For firms, uncertainty hinders cost-benefit analysis of investment projects, which leads to this spending component being curtailed and employment decisions being put on hold. In the simulations, this effect has been calibrated based on the recent increase observed in an economic uncertainty indicator designed by the Banco de España and its historical relationship with GDP, consumption and investment.[15] Lastly, the simulations include the fall observed in stock prices, to approximate the deterioration in the equity markets.[16]

5.1.2 Scenario assumptions

The technical assumptions refer to the expected path of exchange rates, interest rates and oil prices. The paths of these variables have been drawn using the

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14 In the global scenarios, the channel of heightened uncertainty has been introduced via an increase in the investment risk premium, which is not included in the MTBE.

15 See C. Ghirelli, M. Gil, J. Pérez and A. Urtasun (2019), Measuring economic and economic policy uncertainty and their macroeconomic effects: the case of Spain, Banco de España Working Paper 1905.

16 A channel that is missing from the simulations, given the difficulties involved in its calibration, is the possibility that the healthcare crisis and the containment measures may have given rise to a temporary decrease in the labour supply, through sickness leave or the need to assume childcare responsibilities as a result of the shutdown of schools (effects which, in some cases, will have been partially offset by the increase in teleworking).

methods commonly employed in the projection exercises. Essentially, these consist of considering the most recent developments in the spot (exchange rates) and futures (interest rates and oil prices) markets. Since the outbreak of the pandemic, the exchange rate has been markedly stable, despite the scale of the shocks to the global economy. In turn, the absence of the significant tightening that has been a recent feature of the interest rate curve in the euro area largely reflects the impact of the decisive monetary policy measures adopted in March. Lastly, oil prices have fallen sharply as a result of the drop in global demand. This fall has been exacerbated by the difficulties observed for agreement to be reached between the producer countries on adapting their supply to the new market conditions.

The scenarios also include the raft of discretionary fiscal policy measures approved by the Government since 12 March to cushion the effects of the crisis.[17] These measures focus on three areas: strengthening the healthcare system, protecting employment and supporting vulnerable households, and providing liquidity to firms. Of these, the only area with a well-defined budgetary cost is the increase in government consumption related to the increase in healthcare expenditure, which encompasses budget items amounting to €4.4 billion (0.4% of 2019 GDP).[18, 19]

The other measures envisaged will have a potentially significant – but as yet unquantifiable – impact on the budget deficit in 2020. The support measures for employment and for income in the case of vulnerable households include greater flexibility in layoffs and short-time work arrangements and a waiver of the corresponding Social Security contributions, a special unemployment subsidy for temporary workers and domestic help and, lastly, easier access to benefits for cessation of activity by the self-employed.[20] Most of these measures will remain in place until the state of alert ends, which means that the cost will be 50% higher in scenario 3 (a 12-week confinement period) than in scenarios 1 and 2 (eight weeks).[21] In addition, the cost will depend on the number of persons within each of the groups affected who take up the measures. Specifically, the simulations assume that the layoffs and short-time work arrangements will affect 3.1 million workers, the benefits for cessation of activity by the self-employed 0.9 million and the unemployment benefits for temporary workers 0.6 million, with a total cost of €6 billion (70% owing

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17   The measures approved are set out in three Royal Decree Laws: RDL 7/2020, RDL 8/2020 and RDL 11/2020.

18   The calculation is based on nominal 2019 GDP. The figure would be higher if the sharp decline expected in real GDP in 2020 as a result of the three scenarios considered were included (the greater the decline considered, the higher the figure).

19   This figure includes €2.8 billion for the regional governments, €1 billion managed by the Ministry of Health, €30 million for research into a vaccine against the coronavirus, and €600 million for the regional and local governments to ensure the provision of healthcare services to the most vulnerable population groups.

20   Not included here are those measures announced, but not yet approved or precisely defined, as is the case of the planned minimum living income.

21   These calculations might be conservative in nature, in that some of the measures might, perhaps under a different form, remain in place longer than the state of alert.

to higher unemployment subsidies and 30% to lower Social Security contributions), assuming that the state of alert lasts for eight weeks.[22]

The third key group of measures approved aim to supply liquidity to potentially viable firms. These measures include providing public guarantees for loans to private firms, for up to €102.4 billion, equivalent to 8.2% of 2019 GDP.[23] A moratorium on tax debts has also been approved for a six-month period for SMEs and the self-employed, for up to €22.8 billion, in addition to the deferral of all firms' tax payments until 20 May, for €3.5 billion.[24]

Lastly, in the construction of the scenarios, it has been considered, based on the experience of the last downturn, that revenue elasticities to the behaviour of their respective tax bases may be expected to increase significantly in light of a contraction in activity as sharp as that which is expected in 2020. Specifically, in the period 2008-09, the decline in VAT and corporate income tax revenue exceeded that which was to be expected on the basis of historical elasticities by more than 50%.[25]

5.2   The results of the simulations

The combination of the set of factors described would give rise to a significant decline in the Spanish economy's GDP in 2020. This ranges from -6.8% in scenario 1 (limited duration of the confinement period and absence of any assistance feedback loop between real and financial shocks) to -12.4% in scenario 3 (prolongation of the suspension of economic activity and financial difficulties for a portion of firms), with a figure of -9.5% in scenario 2 (which combines the short duration of confinement in scenario 1 with the relatively persistent financial shock of scenario 3) (see Table 2).

Whichever the scenario, the decline in GDP would be concentrated in the first half of the year and would be followed by recovery in the second. The pick-up will partly

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22 For the purposes of the impact of these measures on the budget deficit and on households' disposable income, it is important to consider that a very significant portion of these amounts would be linked to the normal functioning of the automatic stabilisers (specifically, the unemployment benefits for workers affected by layoffs and short-time work arrangements would also have been received had the job losses been permanent rather than temporary ones).

23 This figure is obtained by adding together the figures corresponding to the public loans and guarantee lines for loans to non-financial corporations (€100 billion), for export firms and SMEs (€2 billion) and Official Credit Institute ("ICO" by its Spanish acronym) loans for the tourism industry (€400 million). The final cost of this measure for the public purse is subject to considerable uncertainty. Specifically, it will depend on the scale of the decline in activity and its impact on firms' capacity to repay their loans (which will most likely vary considerably across sectors). Given the difficulties in calibrating this cost, it is not included explicitly in the simulations.

24 These measures will not affect the deficit for the whole of 2020 as they will conclude within the year.

25 For 2021, the forecasts are based on the usual technical assumptions. Specifically, it is assumed that the budget items subject to greater discretionality – including most notably, on account of their size, purchases and government investment –will behave in line with nominal potential growth. It is also assumed that the trajectory of the remaining items of the general government accounts will be governed, in the absence of additional measures, by their usual determinants. This implies, in particular, a return to growth in tax revenue in line with the respective tax bases.

MACROECONOMIC SCENARIOS FOR THE SPANISH ECONOMY (MTBE) AFTER COVID-19 CRISIS

Several scenarios have been prepared in terms of the duration of the confinement and of the possible persistence of the economic slowdown arising from the downturn in private agents' financial position to which the crisis may give rise. With all the caveats that the scenarios require, GDP is estimated to fall, under confinement lasting 8 weeks, by −6.8% if there were no additional financial tightening and by −9.5% if there were. If the state of alert were to last 4 weeks longer, in the presence of business solvency problems the fall in GDP could steepen to −12.4%.

Year-on-year	2020				2021			
	Proj. Dec-19	Sce. 1	Sce. 2	Sce. 3	Proj. Dec-19	Sce. 1	Sce. 2	Sce. 3
GDP	1.7	-6.8	-9.5	-12.4	1.6	5.5	6.1	8.5
Private consumption	1.5	-6.8	-9.3	-11.9	1.4	3.9	3.4	5.2
Investment: equipment	2.2	-33.3	-44.2	-57.4	2.3	4.9	20.5	42.6
Investment: housing	2.3	-6.9	-10.1	-13.0	2.2	3.8	4.3	6.3
Exports of goods and services	2.6	-13.2	-16.4	-19.0	3.1	19.0	18.7	22.2
Imports of goods and services	2.1	-14.5	-18.4	-22.4	3.2	12.7	12.1	15.5
Unemployment rate (% annual average) (a)	13.7	18.3	20.6	21.7	13.2	17.5	19.1	19.9
Gen. Gvt. net lending/borrowing (% of GDP)	-2.2	-7.2	-8.9	-11.0	-1.9	-5.2	-6.5	-7.4
Gen. Gvt. debt (% of annual GDP)	96.0	109.9	115.3	122.3	95.2	109.4	114.5	120.3

SOURCE: Own calculations.

a Under the EPA (Labour Force Survey) definition, dependent employees affected by ERTEs (layoff) and the self-employed under stand-down arrangements continue to be considered, for the purposes of the unemployment definition, as employed (though strictly, from the standpoint of their contribution to output, they are not while they remain in this situation).

reflect the effective taking of consumption and investment decisions that households and firms are postponing during the confinement period. However, in none of the three cases will the rise in activity be sufficiently sharp as to prevent, at end-2020, there being a considerable gap with the level of GDP foreseen in the Banco de España projections last December (see Chart 5.1). Specifically, that level would be approximately 8.5 pp, 10.5 pp and 12.5 pp lower, respectively, in scenarios 1, 2 and 3. Even on the end-2021 horizon, GDP would, in scenario 1, still be around 3 pp below the level implied in the December 2019 projections, and almost 5 pp down in scenarios 2 and 3.
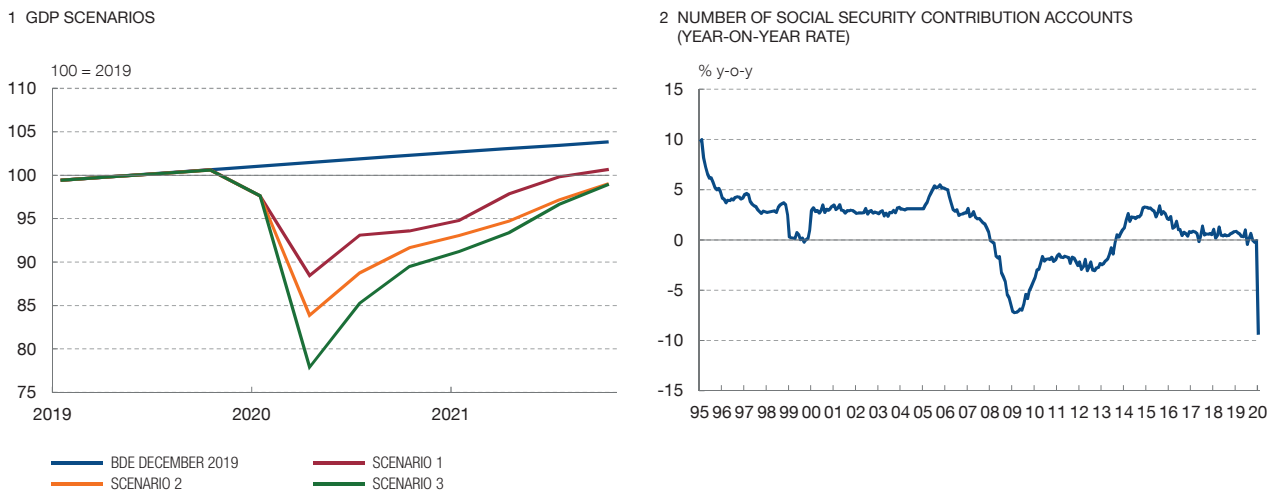
Regarding the respective contributions of the different shocks to the losses in GDP in 2020 in relation to a counterfactual scenario in which the epidemic has not arisen, the direct effects of confinement in Spain would exert the biggest contribution, taking as an example scenario 2, through the channel of both national and tourist services demand.

Turning to the behaviour of the different demand components, private consumption would, in all scenarios, fall markedly this year. That would be as a result of the adverse impact of the decline in employment on labour income (which will in part be

Chart 5
REFERENCE SCENARIOS: BANCO DE ESPAÑA QUARTERLY MODEL (MTBE)

The duration of the confinement and the possibility that private agents' liquidity difficulties may become solvency problems will not only determine the depth of the recession but also the level of output in the medium term, owing to the effects on the productive system.

1 GDP SCENARIOS

2 NUMBER OF SOCIAL SECURITY CONTRIBUTION ACCOUNTS (YEAR-ON-YEAR RATE)

BDE DECEMBER 2019
SCENARIO 1
SCENARIO 2
SCENARIO 3

SOURCES: Own calculations and Ministerio de Inclusión, Seguridad Social y Migraciones.

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alleviated in terms of household disposable income by public transfers) and the increase in precautionary saving. The reduction in consumption will be particularly pronounced as regards durable goods and, in the confinement period, accommodation and food service activities.

Gross fixed capital formation will decline very sharply, particularly in respect of the capital goods component. This will be in step with the heavy fall in final demand, the worsening financial position of firms and the heightening of uncertainty over how long it will be necessary to retain the containment measures and the form any roll-back of confinement takes.

Lastly, with regard to the national demand components, a quickening in government consumption is expected in 2020. Chiefly behind this will be the announced increases in health spending (around 0.4% of GDP) to meet the treatment needs of the population affected by the epidemic.

The marked reduction in external demand will translate into a severe fall-off in goods and services exports. The effect will be particularly pronounced in terms of the tourism and transport services components. These will be directly affected during the confinement period by the restrictions on movement, which include a highly significant reduction in international flight figures and a virtually complete closure of land borders. The assumptions made incorporate a progressive pick-up in tourist flows from the summer this year; however, in the scenario that includes more

prolonged effects over time, this would not play fully through until mid-2021. One factor acting against a swift recovery in tourist inflows is the fact that the epidemic containment measures have not been adopted simultaneously in all countries and, in particular, that many of these measures have been applied at a later date than in Spain.

The contraction in imports in 2020 will also be most pronounced. This is due not only to the severe decline in final demand, but also to the fact that the decline is concentrated in the spending components with a higher import content, as is the case of investment in equipment and exports. Further, as on the export front, the confinement period entails no Spanish tourist flows to the rest of the world.

The sharp fall in economic activity will have severe consequences for the labour market. The decline in employment will be tempered, at least in the short term, by the extensive resort to short-time working arrangements (ERTEs by their Spanish acronym). In the opposite direction, as in previous recessionary phases in the Spanish economy, the pronounced duality in the Spanish labour market between those on permanent and those on temporary contracts is translating into a rapid concentration of job losses among temporary employees. Indeed, exacerbating this latter aspect is the substantial influence of the current crisis on tourist activities (which are labour-intensive and with a strong temporary-hire component) and the fact it is coinciding in time with the start of the season.

Depending on the scenario considered, the unemployment rate could rise in 2020, in annual average terms, to 18.2%, 20.6% and 21.7 % of the labour force. In step with the definitions used in the Spanish Labour Force Survey (EPA), the unemployment rates consider as employed those wage-earners that have availed themselves of ERTEs and also the self-employed that have stood down under the related arrangements for this group (yet while both sets of workers remain in this situation, they might strictly and from a purely economic standpoint be considered not to be employed).[26] The rise in economic activity would translate into a partial reversal of the fall in unemployment in 2021 which, however, would still remain at notably higher levels than those projected before the outbreak of the health crisis.

In whichever scenario, the crisis will have a considerably adverse impact on public finances, as a result both of the operation of the automatic stabilisers and of the discretionary measures adopted (as detailed in Section 5.1.2). Specifically, the budget deficit is expected to stand in 2020 at -7.2, -8.9 and -11% of GDP in each of the three scenarios. Public debt is estimated to stand at around 110%, 115% and 122% of GDP, respectively, compared with 95.5% at end-2019. These increases in the debt ratio reflect both the widening of the deficits and the decline in nominal GDP, whose

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26   For the purposes of the simulations, a figure for dependent employees on ERTEs and self-employed persons on stand-down totalling 4,000,000 (for eight weeks in scenarios 1 and 2, and for 12 weeks in scenario 3).

contribution to these increases in public debt as a percentage of GDP would, in each of the three scenarios, be approximately 7, 10.5 and 15.5 pp, respectively. In any event, it should be stressed that the level of uncertainty surrounding these projections of the fiscal variables is much greater than usual. Indeed, given the uncertain duration of the confinement, and the depth and degree of persistence of the decline in income many households and firms will undergo, the changing nature of the situation means that budgetary policy must remain sufficiently flexible; only thus may temporary additional measures be adopted to alleviate the intensity and duration of the recession and, therefore, the social and economic costs of the pandemic.

The epidemic is a global shock which, nonetheless, affects different economies in different ways, depending on their structural characteristics and their vulnerabilities. Specifically, the high weight of tourism in GDP and employment in Spain,[27] in a setting in which these sectors are suffering disproportionately from the consequences of the pandemic, contributes to the outlook for the Spanish economy having been particularly affected. In addition to the high weight in GDP and employment, the tourism balance plays a key role in upholding the Spanish economy's external surplus, which is necessary to correct the still-high negative net international investment position.[28]

An additional factor making the Spanish economy more vulnerable to the consequences of COVID-19, compared with the main euro area countries, stems from certain idiosyncratic characteristics of households and firms in Spain. In the case of households, the capacity of the various measures announced to cushion the income shock through public transfers is hampered by the high incidence of temporary employment. This is because many workers on a temporary contract can scarcely avail themselves of the measures approved. Moreover, many workers who would normally join the job market from an unemployed status at this time of year are seeing their employment options - and therefore their income - significantly diminish.[29] As regards firms, the comparatively greater weight of SMEs, which will foreseeably experience greater difficulties in access to financing than larger corporations, raises the risk of companies disappearing as a consequence of the crisis. And there is thus also a higher risk that the economy's level of potential output may be harmed as a result.

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27 Specifically, the contribution of tourism to GDP and to employment in Spain would, respectively, be 11.8% and 13.5% in 2018, the highest among the OECD countries in the case of GDP, and the second-highest, behind Iceland, in that of employment. See OECD (2020), OECD Tourism Trends and Policies 2020, OECD Publishing, Paris.

28 In 2019, the Spanish economy's tourism surplus was 2% of GDP. Set against the downturn in the balance on tourist services as a result of the pandemic, the energy balance is expected to improve substantially as a consequence of the improved terms of trade resulting from the fall in oil prices.

29 The daily registrations figures for the second half of March 2020 show that more than half of the deterioration in registrations, compared with the same period a year earlier, is due to the abrupt decline (55%) of new registrations. Further, the survey of a sample of firms, whose results are set out in Box 1, indicates how half these companies have decided to freeze their plans for new hires (a proportion that exceeds that of those firms that have decided to make staff cuts).

As scenarios 2 and, above all, 3 show, one key aspect for preventing the recovery from slowing excessively is the degree of effectiveness of the mechanisms set in train to ensure firms' liquidity. The aim is to forestall a situation whereby a specific proportion of such firms, including those most indebted and those that are least profitable, should not manage to survive the shutdown, which would give rise to more persistent effects on investment and employment. In this respect, the data available show a steep decline of 8.2% in the number of firms with Social Security contributory accounts (i.e. with employees on their payroll) in March (see Chart 5.2). The deregistrations in this statistic do not necessarily mean the permanent disappearance of the firms, since it cannot be ruled out that they may resume their activity in the future. However, the longer the crisis goes on, the greater the probability of these companies that currently do not have employees registered ultimately closing for good.

It is highly likely that inflation, measured by the rate of change of the HICP, will undergo a pronounced decline this year as a result of the strongly negative contribution of the energy component, in turn the outcome of the fall in oil prices both on spot and futures markets. As to the CPI excluding fresh food and energy prices, the combination of shocks associated with COVID-19 entails a series of supply- and demand-side elements that exert opposing pressures on the trajectory of prices. The force of the demand-side elements is so great that disinflationary forces may be expected to prevail. In any event, the expected downward trajectory of the aggregate indicator of core inflation is compatible with the possibility of significant changes arising in relative prices. Specifically, the shutdown in accommodation and food service activities and the foreseeably slow recovery in tourist activities might give rise to an easing in the rate of change of the prices of these services. Conversely, in a setting in which the emergence of isolated food supply difficulties cannot be ruled out, some food prices might rise to some extent.

In sum, the macroeconomic scenarios for the Spanish economy set out here suggest, with a very high degree of probability, that the epidemic caused by the SARS-CoV-2 coronavirus will entail very severe economic consequences; the contraction in GDP in 2020 will far exceed that witnessed in any of the years of the global financial crisis. In any event, the scenarios are preliminary in nature and subject to what may be potentially significant subsequent revisions, depending on how developments unfold.

20.4.2020.

In the current circumstances, in which the statistical information available has barely begun to reflect the consequences of the measures taken to control the pandemic, direct contacts with economic agents are a very valuable source of information. Given this situation, the Banco de España has participated in two initiatives consisting in the conduct of surveys to collect information on the impact of COVID-19 on the business sector. The first one was carried out in collaboration with the *Instituto de Empresa Familiar* (Institute of Family-owned Businesses, IEF) and its regional associations, and was addressed to 455 family-owned businesses throughout Spain. The second was a survey designed exclusively by the Banco de España, which enables responses to be segmented in accordance with the characteristics of the firms, such as their size and sector of activity, the main conclusions of which are the subject of this box. The results of these two surveys broadly coincide.

The survey conducted by the Banco de España on its own, like the one conducted in collaboration with the IEF, provides highly useful qualitative information on various aspects of interest, such as the effects of the health crisis and the pandemic containment measures on the activity of the various sectors of the economy, the strategies that firms have implemented in response, their future expectations and their perception of the effectiveness of the economic policy measures taken. A short survey was designed to shed light on these issues. On 3 April it was sent to 133 businesses that regularly report data to the Banco de España's Central Balance Sheet Date Office, for whose participation we are grateful. The information presented in this box is based on the valid 88 responses that had been received by 8 April. Although the small size of the sample limits its statistical representativeness, the businesses were selected so as to include companies of different sizes and sectors in order to give the most accurate picture possible of the impact of the crisis on Spanish businesses. The average size of the firms included in the final sample is relatively large, with a median of 241 employees, although 10.3% of the firms have fewer than 50 workers and 42.5% between 50 and 249. In terms of its sectoral composition, 4.6% of the businesses belong to the primary sector, 43.7% to industry (including manufacturing (23%), energy and water supply (18.4%) and construction (2.3%)), while the

remaining 51.7% are in the services sector (trade (13.8%), transport and accommodation and food service activities (8%), information and communications and real estate activities (6.9%), professional, scientific and technical activities (14.9%) and other services (8%)).

The information obtained from the sample shows the strength of the impact of the shock. Almost 80% of the firms surveyed report a reduction in their activity as a consequence of the health crisis, while somewhat more than 9% reported an increase (see Chart 1). Among the companies that report having seen a fall in turnover, the reductions are very large, exceeding 60% in almost four of every ten responses received. The decline in activity is broad-based across sectors and firm sizes, although it is more marked in the case of firms in the services sector, which is consistent with the fact that the consequences of the restrictions on activity associated with the declaration of the state of alert have been especially severe in many of these industries.[1]

When businesses are asked to give the reasons for the decline in activity, the fall in demand proves to be the main cause (see Chart 2). Specifically, more than half of the non-financial corporations surveyed report that this factor has had a major or very major impact on their activity, this proportion being relatively higher in the case of services firms. Among other reasons, the compulsory stoppage of the activities of some industries as a result of the declaration of the state of alert plays a similarly important role to the fall in demand. In addition, around one fifth of the firms surveyed report having been affected by difficulties in obtaining supplies from their usual suppliers, and a similar proportion mention obstacles to obtaining payment from customers. In the case of the supply difficulties, the impact is comparatively greater among industrial firms, reflecting the disruption to production chains, at home and abroad, partly as a result of closures and transport problems. Finally, the obstacles to raising financing and lack of liquidity are cited by a relatively small proportion of firms, although the smallest firms do report particular concern in this area, reflecting their greater vulnerability to these factors.

The survey also asks firms about the different strategies adopted to address the crisis (see Chart 3). The use of telework appears to be the main plank of firms'

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1 The magnitude of the crisis appears to be smaller in the case of the firms surveyed that belong to the primary sector. However, it was decided not to carry out a detailed analysis of the results for this industry, given that the size of the sample is very small in this case.

Box 1

BUSINESS SURVEY ON THE IMPACT OF THE COVID-19 CRISIS (cont'd)

Chart 1
IMPACT OF THE CRISIS ON FIRMS' ACTIVITY

% firms   % firms

MAGNITUDE OF THE DECLINE IN ACTIVITY (right-hand scale)

Chart 2
FACTORS RESPONSIBLE FOR THE DECLINE IN ACTIVITY
% of firms considering each factor to have had a strong or very strong impact
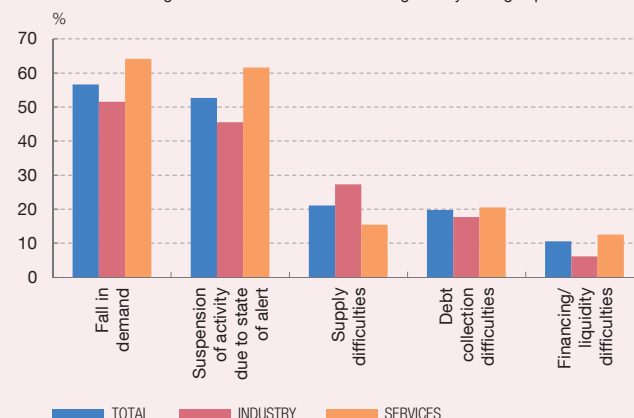
%

TOTAL   INDUSTRY   SERVICES

Chart 3
STRATEGIES TO ADDRESS THE CRISIS: ACCORDING TO BEHAVIOUR
OF FIRMS' ACTIVITY
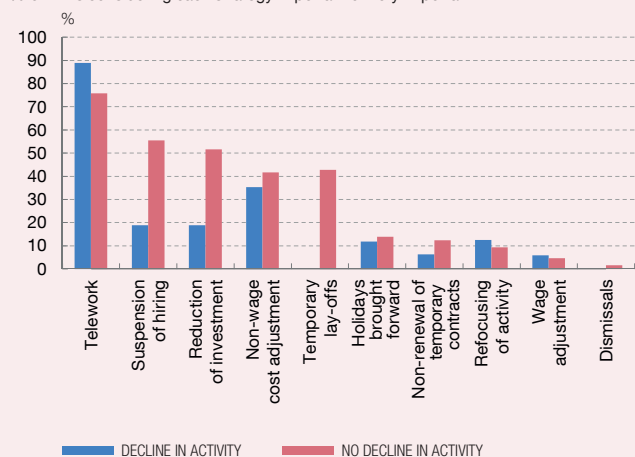% of firms considering each strategy important or very important

%

DECLINE IN ACTIVITY   NO DECLINE IN ACTIVITY

Chart 4
MOST IMPORTANT STRATEGIES TO ADDRESS THE CRISIS
% of firms considering each strategy important or very important

%

INDUSTRY   SERVICES
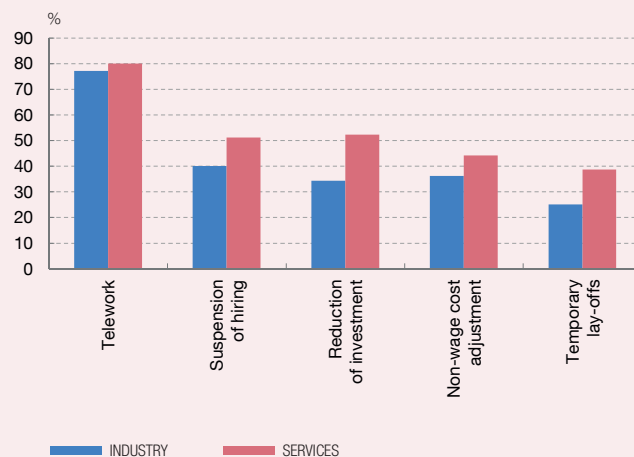
Chart 5
USEFULNESS OF ECONOMIC POLICY MEASURES
% of firms considering them important or very important
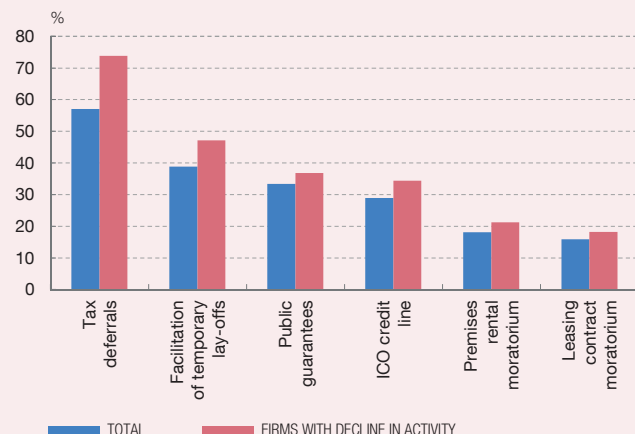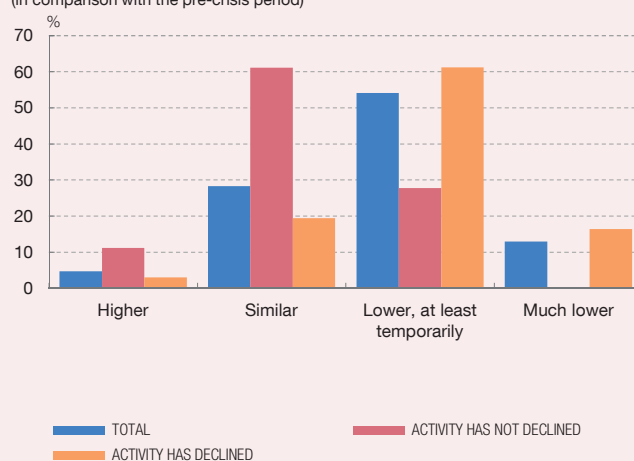
%

TOTAL   FIRMS WITH DECLINE IN ACTIVITY

Chart 6
PERCEPTION OF THE FIRM'S LEVEL OF ACTIVITY AFTER
THE LIFTING OF MOBILITY RESTRICTIONS
(in comparison with the pre-crisis period)

%

TOTAL   ACTIVITY HAS NOT DECLINED
ACTIVITY HAS DECLINED

SOURCE: Banco de España survey on the impact of Covid-19.

Box 1

BUSINESS SURVEY ON THE IMPACT OF THE COVID-19 CRISIS (cont'd)

response to the mobility restrictions affecting their workforces and to their concern for the health of their employees. Specifically, 80% of the non-financial corporations surveyed state that this tool has been important or very important in their reaction to the crisis, irrespective of whether or not their activity has been adversely affected by the latter. This extensive use of telework has probably avoided an even larger decline in business activity.

In contrast, production cost adjustment strategies have been used especially by firms whose activity has been hit by the crisis. Specifically, these companies have tended to contain their labour costs by means of temporary layoffs *(Expedientes de Regulación Temporal de Empleo,* ERTEs) and the suspension of new hiring. The latter, along with the low level of dismissals, is generally consistent with the behaviour of Social Security registrations in the second half of March. However, firms whose activity has been reduced by the crisis report having made hardly any use of non-renewal of temporary contracts, in contrast to the major destruction of temporary employment observed in the registrations statistic. Also, little use appears to have been made of wage adjustment. Moreover, adaptation to the crisis has included the suspension of investments already planned and the reduction of other non-labour costs, these strategies being cited by 50% and 40%, respectively, of those firms that have seen a fall in activity.

By industry, the relative importance of the various channels for addressing the crisis is similar, although

services firms report greater use of the channels for reducing their labour and non-labour costs, which would be consistent with the greater extent of the reported fall in their activity (see Chart 4).[2]

An additional section of the survey requests information on firms' perception of the degree of usefulness of the economic policy measures already adopted and of others that may be approved shortly (see Chart 5). More than half of the firms surveyed consider that the tax deferral measures are important or very important. As is to be expected, this percentage is higher (exceeding 70%) among firms whose activity has fallen in this period, given their greater need for liquidity. Also, a high proportion of firms believes that the measures facilitating ERTEs (almost 50%), granting public guarantees for loans, and ICO credit facilities (around one third in both cases) are useful. In terms of firm size, the smallest, who report greater liquidity concerns, perceive the ICO's guarantee and loan instruments to be more useful than large companies do.

Finally, the participating businesses expressed their concern regarding the lasting impact that the crisis may have on their activity when the mobility restrictions are lifted. Specifically, around two-thirds of the firms surveyed expect their level of activity to be lower than before the epidemic reached Spain (see Chart 6). These expectations are directly related to perceptions of the current impact of the crisis; for firms that have already experienced a decline in activity this percentage exceeded 75%, while for those reporting that they have been unaffected it is less than 30%.

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2   This chart includes all the firms of each industry, whether or not they have reduced their activity.

Box 2

GLOBAL ECONOMIC EFFECTS OF THE HEALTH CRISIS

The health crisis caused by COVID-19 and the measures to contain its spread are severely disrupting global economic activity. This box illustrates the potential adverse effects on the main global economic areas by means of several simulation scenarios. These assume that the direct impact of the health crisis is confined essentially to the first half of this year, for the reasons set out in the second section of the main body of the text.

For China, the first country affected, there is evidence that consumption, industry and services were severely struck at the peak of the health crisis: industrial production, retail sales and investment fell by close to 20% year-on-year in the January-February period. As from March, the progressive lifting of the containment measures, alongside resolute stimulus measures, is estimated to be paving the way for an incipient recovery in activity, according to the partial data available.

In the rest of the economies affected by the pandemic, evidence on the scale of the negative shock is still scant (see Chart 1), since infections began to escalate in late February and the harshest containment measures were introduced in March. In any event, as observed previously in China, the impact of COVID-19 is becoming manifest in a highly pronounced downturn in consumption and tourism – in terms of demand components – and in passenger transport, leisure activities and other related services, in respect of productive sectors. The overall weight of these sectors in activity is high (see Chart 2). The consequences of the health crisis have also markedly affected the financial and commodities markets. The initial impact on commodities (oil and industrial metals) prices of the contraction in Chinese demand has progressively increased as the epidemic has spread to other economies that consume these goods (see Chart 3). Moreover, the consequences of the epidemic are prompting a very sharp increase in risk aversion on international financial markets, with heavy falls on stock markets, higher risk premia and a flight to safe-haven assets (see Chart 4).

What the ultimate extent of the disruption caused by this episode may be is highly uncertain at present, in a setting in which several different economic shocks are simultaneously in play. First, the standstill imposed on production is bearing down negatively on supply. Amplifying this phenomenon is the high degree of integration of the manufacturing sector globally, and this may exert persistent effects on potential output. Second, reflecting the sharp contraction in demand are lower household consumption and a fall-off in business investment. Third, the global financial shock may also ultimately impact consumption and investment decisions, in particular through its adverse effects on financing conditions and on agents' wealth. Fourth, the decline in commodities prices harms the countries producing these goods. Lastly, uncertainty over the outlook may reduce consumer and investment spending beyond the health crisis horizon, leading to the destruction of firms and jobs, to an increase in defaults and to the tightening of financing conditions for certain agents. That may prompt a vicious circle or "doom loop", and embed the crisis more deeply.

To illustrate what possible scale of influence the pandemic may exert and how the containment measures could affect economic activity, the results of a set of simulations made using NiGEM, a global macroeconometric model[1], are set out below. These international scenarios do not solely share the main assumptions considered in the scenarios for the Spanish economy described in Section 5 of this article; they also provide the external demand ingredient that is used in these exercises.[2] NiGEM has a simplified framework that captures mainly the channels operating through domestic demand, tourism, the effects of financial variables and commodities prices; however, it also incorporates in a partial fashion some supply-side effects. As regards economic policies, these are assumed in the simulations to react in accordance with the habitual historical patterns.[3]

Three hypothetical scenarios, dubbed "limited", "persistent" and "prolonged confinement", are considered.

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1 The documentation for the model, whose owner is the National Institute of Economic and Social Research, is available at https://nimodel.niesr.ac.uk/.

2 The NiGEM and the MTBE model used to simulate the scenarios for the Spanish economy in the main body of the text are semi-structural models with many elements in common. But they also show some differences, linked to the different purposes for which both tools have been developed. Whereas the first model prioritises interrelations between the different economies, in light of its global nature, the second is geared to capturing in much greater detail the macroeconomic relationships of the Spanish economy. However, the results with both models for the Spanish GDP growth path shown relatively small differences in whichever of the three scenarios are taken.

3 Specifically, monetary policy is considered to be endogenous in accordance with a "Taylor rule" (and the non-conventional measures make up for the negative nominal rates constraint), and fiscal policy acts as an automatic stabiliser (maintaining, at the same time, a medium-term budget balance target).

Box 2

GLOBAL ECONOMIC EFFECTS OF THE HEALTH CRISIS (cont'd)
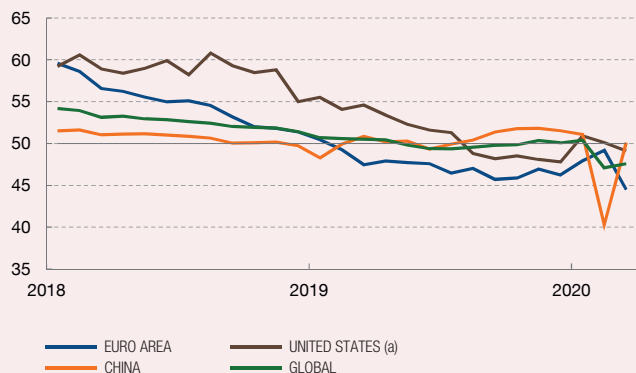
Chart 1
MANUFACTURING PMI

2018   2019   2020

EURO AREA   UNITED STATES (a)
CHINA   GLOBAL

Chart 2
TOURISM, LEISURE, CULTURE, ACCOMMODATION AND FOOD SERVICE ACTIVITIES:
IMPORTANCE BY COUNTRY

% of GDP, % of domestic value added

United States   China   Japan   Germany   France   Italy   Spain   United Kingdom

TOURISM EXPORTS AS A PERCENTAGE OF GDP
DOMESTIC VALUE ADDED: LEISURE AND CULTURE (2015)
DOMESTIC VALUE ADDED: ACCOMMODATION AND FOOD SERVICE ACTIVITIES (2015)
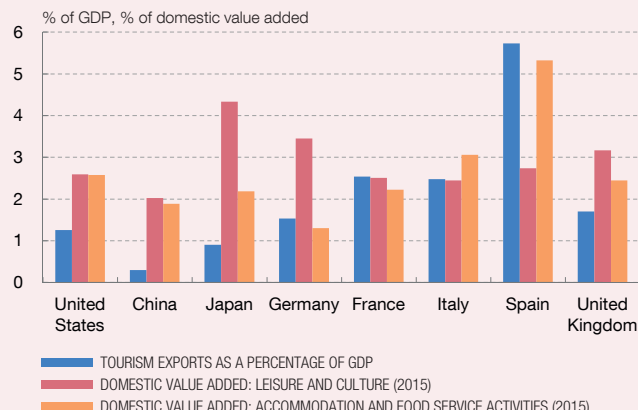
Chart 3
COMMODITIES PRICES

31.12.2019 = 100

31 Dec: China reports
epidemic to WHO

20-Dec   30-Dec   9-Jan   19-Jan   29-Jan   8-Feb   18-Feb   28-Feb   9-Mar   19-Mar   29-Mar   8-Apr

OIL   AGRICULTURAL PRODUCTS
INDUSTRIAL METALS   GOLD
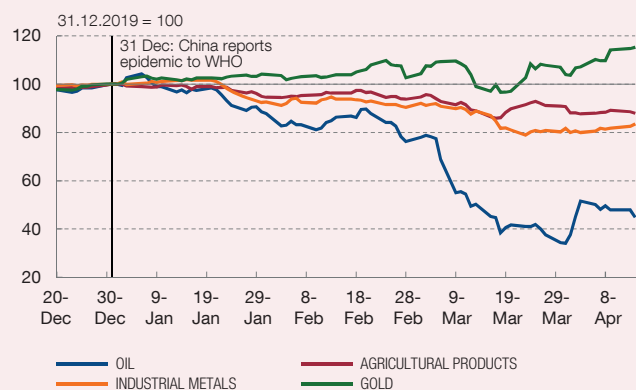
Chart 4
FINANCIAL MARKET REACTION

31.12.2019 = 100   Index

31 Dec: China reports
epidemic to WHO

20-Dec   30-Dec   9-Jan   19-Jan   29-Jan   8-Feb   18-Feb   28-Feb   9-Mar   19-Mar   29-Mar   8-Apr

CORPORATE SPREAD (INVESTMENT GRADE)
CORPORATE SPREAD (HIGH YIELD)
GLOBAL MSCI INDEX
VIX VOLATILITY INDEX (right-hand scale)
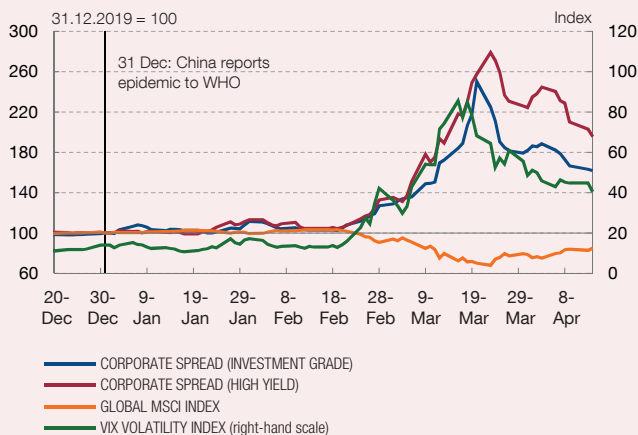
Chart 5
GLOBAL IMPACT OF THE HEALTH CRISIS IN 2020

GDP growth in 2020 (%)

World: Limited -3.5, Persistent -5.4, Confinement -7.8
Euro area: Limited -5.5, Persistent -7.4, Confinement -9.9
United States: Limited -5.3, Persistent -7.7, Confinement -10.8
China: Limited -0.5, Persistent -2.4, Confinement -4.7

PRE-COVID ESTIMATED GROWTH (b)   COVID SHOCK: DOMESTIC DEMAND CHANNEL
COVID SHOCK: TOURISM CHANNEL   COVID SHOCK: FINANCIAL CHANNEL
COVID SHOCK: OIL CHANNEL   UPDATED ESTIMATED GROWTH (c)

Chart 6
CUMULATIVE LOSS OF GDP BETWEEN 2020 Q2 AND 2021 Q4

% of 2019 GDP

World   Euro area   United States   China
Limited   Persistent   Confinement
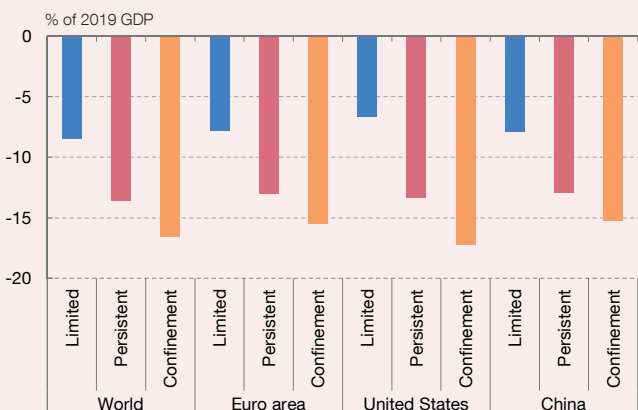
SOURCES: World Bank, IMF, IFS, IHS, ISM, Markit and Banco de España calculations.

a The index used is the ISM index.
b The pre-Covid forecasts considered are those of the IMF published in the January 2020 WEO Update.
c Sum of the impact of the channels taken individually and the composition effect (interaction between channels).

Box 2

GLOBAL ECONOMIC EFFECTS OF THE HEALTH CRISIS (cont'd)

They differ in terms of the assumed duration of the period of confinement, the speed at which demand is assumed to recover and the possibility that global financial conditions may tighten. The technical assumptions of the exercise are detailed in Table 1. In these scenarios it is assumed that the crisis affects the main world economies and that the direct adverse effects of the pandemic are confined, as stated above, to the first half of this year. In the first two scenarios, it is considered that the confinement being applied at present in a very extensive number of countries will have a total duration of eight weeks; in the case of the "prolonged confinement" scenario, the harsher containment measures will run for up to 12 weeks. As to the speed of the recovery, the "limited" scenario considers a more dynamic profile for activity, on account of the rise in consumer durables purchases that were postponed, while the other two scenarios incorporate additional adverse effects. The latter stem from the possibility that

the initial decline may ultimately last longer owing to a potential tightening of financial conditions, which would make some of the contractionary elements of the pandemic more durable.

The size of the shocks applied to the scenarios is calibrated using the data available as at the cut-off date for this report on the reduction in activity in China in Q1 and the declines observed in financial and commodities markets, along with the observed course of potential output following the global financial crisis that broke in 2008.

According to the simulations conducted, compared with what was expected before the pandemic became widespread[4], global growth is estimated to decline by around 7 pp, 9 pp and 11 pp in 2020 in the limited, persistent and prolonged confinement scenarios, respectively. Global economic growth is thereby expected

Table 1
SCENARIO CALIBRATION

Shock		Calibration	Scenario 1 Limited			Scenario 2 Persistent			Scenario 3 Prolonged confinement		
			China	Advanced economies	Rest of Asia	China	Advanced economies	Rest of Asia	China	Advanced economies	Rest of Asia
Domestic demand		Estimates of Chinese GDP growth in Q1: –10% quarter-on-quarter	–10% during the three months following the imposition of containment measures, 40% of the shock is recovered in the following quarter			–10% during the three months following the imposition of containment measures, domestic demand recovers slowly			–15% during the three months following the imposition of containment measures, domestic demand recovers slowly		
Supply		Potential GDP reduction in financial crises + fall in investment + hours worked	The fall in investment and hours worked affects potential GDP			Potential GDP is further affected by a financial crisis					
Tourism		Severe restrictions on movement of people	–100% in 2020 Q2 and gradual recovery to 2021 Q3								
Financial markets	Stock markets	MSCI World Index since the start of the epidemic	–25% in Q2; rapidly returns to prior levels			–25% in Q2; returns to prior levels very slowly					
	Risk premium on investment	Corporate spread (average of investment grade and high yield)	+250 bp in Q2; rapidly returns to prior levels			+250 bp in Q2; returns to prior levels very slowly					
Commodities		Oil futures market	Change in Brent crude prices implict in the futures curve								

SOURCE: Devised by authors.

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4 The IMF's forecasts in its January 2020 WEO report are taken as a reference.

Box 2

GLOBAL ECONOMIC EFFECTS OF THE HEALTH CRISIS (cont'd)

to post negative figures of -3.5%, -5.4% and -7.8%, respectively, en 2020 (see Chart 5). By geographical area, the United States will see an adverse impact on growth of 7.3 pp, 9.7 pp and 12.8 pp in each of the three scenarios, respectively, slightly above the effects obtained for the euro area.[5] These are, specifically, -6.8 pp, -8.7 pp and -11.2 pp, in each of the three scenarios, giving rise to growth rates of -5.5%, -7.4% and -9.9%[6]. The size of the fall-off in Chinese output would be 6.5 pp, 8.4 pp and 10.7 pp. Generally, the most unfavourable channel is that associated with the fall in domestic demand, followed by the collapse of the tourism sector. Given the temporary nature of the health crisis, the main economic areas are expected to begin to recover as from the second half of this year, meaning that the global economy would post significant increases in output in 2021. Nonetheless, the cumulative loss of worldwide income between 2020 and 2021 will be somewhat less than 10% and somewhat over 15% of the level expected before the pandemic, with

these figures relating respectively to the "limited" and "prolonged confinement" scenarios (see Chart 6).

The meagre information available on activity in the current economic circumstances, the speed of events and the lack of comparable episodes in recent decades mean the simulations are subject to an unusually high level of uncertainty, as is explained in the main body of the article. The duration of the pandemic and the implications of the containment measures for the economy in the medium term are particularly uncertain. Should it extend beyond the period considered in these exercises, the adverse impact on the global economy might be even more serious. Against this background, a robust and coordinated economic policy reaction such as that being deployed is necessary in order to soften the negative effect on households and firms and to bring the economy back as soon as possible onto a path of sustained growth and job creation.

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5   The relatively more marked decline in the United States would be on account of a greater weight of private consumption, owing to the greater weakness of the automatic stabilisers and to a greater incidence of the financial shock than in the euro area. Conversely, in the latest WEO, the adverse effects are somewhat lower in the case of the United States. While details on the assumptions underlying the IMF forecasts are not provided, part of the discrepancy is likely to be due to the fact that these projections were prepared at an earlier time, when the spread of the epidemic in the US economy was far less than at present.

6   To make these rates for the euro area economy comparable with those presented for Spain in the main body of the report it is necessary to make a technical adjustment in the former, which would give rise to rates of -5.9%, -8.5% and -11.1%, respectively, in each scenario, in 2020.