5

CHALLENGES FOR THE SPANISH ECONOMY IN THE POST-PANDEMIC SCENARIO

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Before the health crisis broke, the Spanish economy was already facing major medium-term challenges. The expansionary phase preceding the current crisis allowed the Spanish economy to correct some of its macrofinancial imbalances; but specific challenges linked to several key areas persist. These include most notably the need to increase growth potential, to correct labour market dysfunctions, to enhance the sustainability of public finances and to address the challenges associated with population ageing, inequality and climate change.

The COVID-19 crisis has increased the scale of these challenges and posed some new ones. As detailed in Chapter 4, the crisis has highlighted some of the vulnerabilities inherent in the Spanish economy in recent years. Most particularly, it has cast light on the problems generated by an excessive temporary employment ratio, not only in terms of labour market dynamics, but also of inequality. It also brings into relief the limitations entailed by facing a crisis such as the present one with less room for fiscal manoeuvre than that available in peer economies. In addition, this crisis has evidenced certain vulnerabilities, common to many other economies, that have gone relatively unnoticed in recent years. In addition, it has prompted some notable behavioural changes in economic agents which, in turn, will involve new challenges looking ahead. In particular, as detailed in Section 5.2, this crisis may ultimately have significant consequences for the ongoing globalisation and digitalisation under way in society and the economy, both globally and in Spain. Understanding the implications that a potential structural transformation in these processes might have for the economy as a whole, and for specific sectors, firms and population segments, is a first-order challenge for Spain.

The seriousness of the situation created by the pandemic has raised the need for and urgency of an appropriate response to these challenges. The extraordinarily complex circumstances facing the Spanish economy in the coming quarters, and the scale of the challenges ahead in the medium term, pose a considerable threat to present and future growth capacity and, therefore, to employment and well-being. Accordingly, an ambitious economic policy response is required.[1] In some cases, this response should take the form of new measures in the short term. In others, these measures should be considered once the current recessionary bout and its more adverse economic effects is behind us, although they should be designed and communicated without excessive delay. This is the case, for example, with fiscal policy. Here, as described in Sub-section 5.1.3, there

1 See the Governor's Parliamentary appearance before the Committee for Spain's Social and Economic Reconstruction after COVID-19 (Congress of Deputies), 23 June 2020.

is no place for a premature withdrawal of the stimulus measures deployed, since that would increase the risk of more lasting harm to economic growth. However, at the same time, it would be advisable to move towards the design and announcement of a sufficiently detailed medium-term fiscal consolidation plan, to be implemented once the current crisis is behind us and a robust recovery path has taken hold.

The economic policy response should include a comprehensive, ambitious and broadly agreed medium-term growth strategy. The challenges conditioning the Spanish economy's growth outlook and our society's well-being are closely interrelated. Attempts to resolve any such challenges in isolation are neither feasible nor desirable. A well-planned strategy is needed, in which the impact of each economic policy decision on multiple facets is assessed, and balances are struck between different objectives that are not always simultaneously compatible. Further, the importance of the challenges that will mark the future of the Spanish economy in the coming decades requires an ambitious response in the form of an extensive package of deep-seated reforms. Lastly, structural challenges require structural responses, which last over time. Accordingly, the economic policy measures to tackle the challenges described in this chapter should be the outcome of a high degree of consensus on the part of the different political, economic and social agents. That would mean the underpinnings of our growth are stable and not subject to the vagaries of the political cycle.

National policies should be complemented by actions at the European level that include resolute advances in the institutional structure of the EU and the euro area. This crisis has shown that, to the extent that the European economies' future challenges are essentially shared, successfully resolving them will necessarily involve setting greater store by supranational policies and institutions (see Section 5.4). In the fiscal realm, this calls, among other measures, for an increase in and greater flexibility of the EU budget. Also, the launch of new, genuinely pan-European and permanent instruments will be needed, allowing for a greater pooling of risks among the Member States. Financially speaking, a full Banking Union in the euro area must be accorded priority. Its cornerstone, still pending approval, is a European Deposit Guarantee Scheme. Headway must also be made in reviewing those institutional and regulatory aspects preventing an authentic Capital Markets Union in the region.

5.1 Priority areas for attention in the Spanish economy

This chapter describes some of the main structural challenges that the Spanish economy should already have tackled before the COVID-19 crisis broke. For presentation purposes, these challenges are set out individually. However, it is worth highlighting that they are all closely interrelated, and an overall interpretation must be made of them. Thus, for instance, the problems associated with population ageing cannot be resolved without taking into account the public sector's inter-

temporal budgetary constraint or intra- and inter-generational inequality dynamics. Similarly, structural reforms aimed at increasing the economy's growth potential and at tackling the Spanish labour market's mismatches will have a notable bearing on public finances sustainability. Labour market dynamics also clearly influence the accumulation of human capital by workers and patterns of inequality across population segments, an area where appropriate housing affordability conditions must also be assured.

5.1.1 Constraints on the Spanish economy's growth capacity

The depth of this crisis will probably cause some lasting damage to the Spanish economy's potential growth. Although the shock behind this crisis is eminently temporary, its high intensity and the uncertainty still surrounding how it will evolve are likely to trigger some lasting effects on the productive structure of many economies, including Spain. In this respect, the Spanish economy's potential growth, which was already low before this crisis, will foreseeably diminish because of it (see Chart 5.1.1).

From a broader time perspective, low productivity growth is the main factor behind the Spanish economy's modest potential growth. In the past 20 years, total factor productivity (TFP) has grown at an approximate annual average rate of 0.2% in Spain, far below the growth in the advanced, benchmark economies such as Germany (0.8%) and the United States (0.9%) (see Chart 5.1.2). The sustained differences in productivity largely explain the uneven economic well-being levels across countries in the long term.

The sectoral make-up of the Spanish economy explains only part of its lacklustre productivity. Admittedly, our productive structure is skewed towards sectors of activity that usually post low productivity growth. However, the low level of productivity compared with other European countries can be seen in practically all sectors (see Chart 5.1.3).[2] This suggests the presence of structural factors which, across the board, limit productivity gains in most sectors and, therefore, growth potential in the Spanish economy as a whole. These possible constraints on productivity gains include most notably business demographics, human capital and technological capital.

The small size of Spanish companies is a significant factor in explaining the Spanish economy's aggregate low productivity. The weight of small-sized firms in Spain is relatively high on international comparisons (see Chart 5.2). Thus, for example, the percentage of firms with fewer than five employees was 78% in Spain in 2019, a proportion clearly above the related euro area average (69%). This contributes to the Spanish economy's lower aggregate productivity compared with

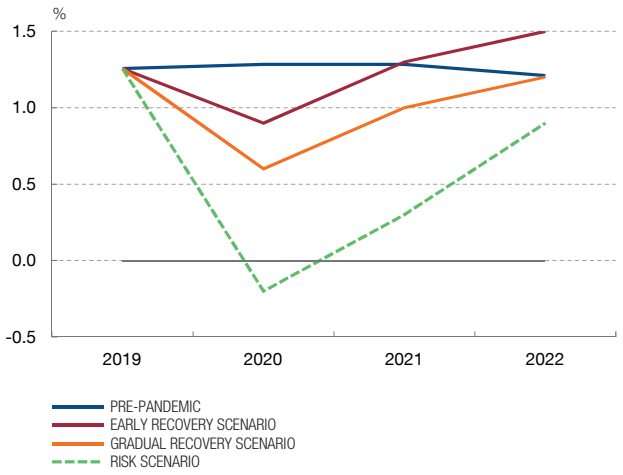
2 See Cuadrado et al. (2020).

Chart 5.1

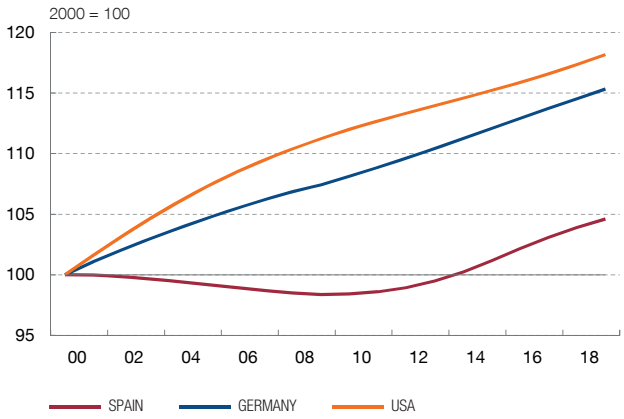
GROWTH CAPACITY OF THE SPANISH ECONOMY

The potential growth of the Spanish economy, which was already relatively low prior to the crisis, will diminish as a result of the pandemic. Muted productivity growth is the main factor behind this modest potential growth. Low productivity relative to other European countries is observed across practically all sectors and is due, in part, to the smaller relative size of Spanish companies.

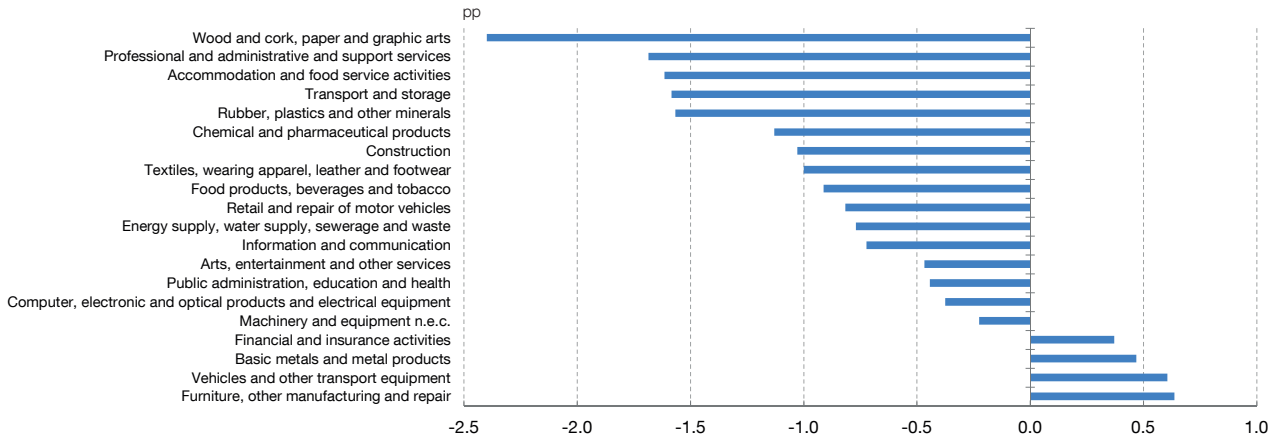
1 GDP GROWTH POTENTIAL



2 TOTAL FACTOR PRODUCTIVITY IN SPAIN, USA AND GERMANY



3 ANNUAL GROWTH DIFFERENTIAL IN TOTAL FACTOR PRODUCTIVITY (TFP) BETWEEN SPAIN AND THE EU-12 (2000-2016) (a)



SOURCES: Banco de España, European Commission and EUKLEMS.

a EU-12 includes Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Italy, the Netherlands, Spain, Sweden and the United Kingdom.

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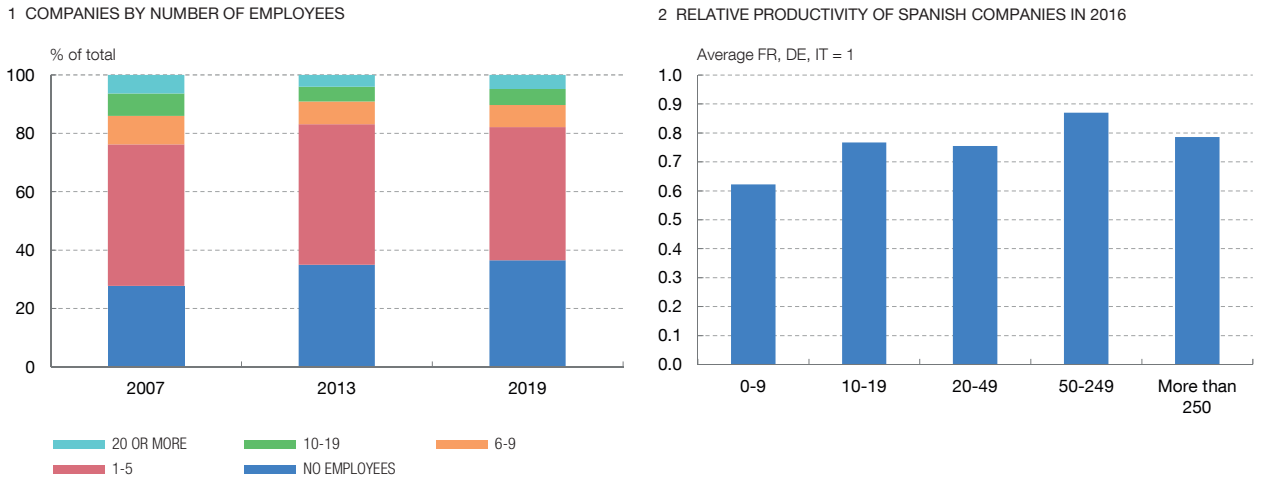
the euro area as a whole, since it is precisely in smaller Spanish companies where there is a wider negative productivity difference in relation to their European counterparts.[3] These differences, which are usually bigger in services firms, hold even after taking into account the different sectoral structures of the European and Spanish economies (see Chart 5.2).

3 See Banco de España (2019a).

Chart 5.2

COMPANY SIZE AND PRODUCTIVITY

The proportion of small-sized firms in Spain has increased in the last decade. Thus, in 2019 the percentage of companies with fewer than five employees stood at 78% in Spain. These firms are, broadly speaking, less productive than companies of the same size in Germany, France and Italy.



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SOURCES: DIRCE and Eurostat.

Further ahead, it will be necessary to delve into the various reasons why the Spanish business sector is so skewed towards small companies, and to have mechanisms at hand to promote business growth. Although the Spanish productive structure itself may prove conducive to a specific business size in specific sectors, there is a broad set of State regulations contingent upon corporate size which may pose deterrents to business growth. In particular, some regulations increase the corporate burden once companies have more than 50 employees (along with other activity-based criteria); they entail, for example, the obligation to establish a workers' committee, to make VAT payments monthly, to forgo the possibility of presenting abridged financial statements and engaging auditors. Plausibly, therefore, some companies opt to remain small to avoid the greater costs that exceeding this employee threshold usually entails. The empirical evidence available is along these lines, confirming the presence of an abnormally high number of firms just below this regulatory threshold.[4] In this respect, it would be worth ensuring that the objectives of these types of regulations do not pose added difficulties to the possibilities of corporate growth. Spain's regional governments have increased their enactment of regulations in recent years, whereby at present there is notable heterogeneity in the regional formalities needed, for example, to undertake certain investment projects. These obstacles to

4 See the evidence on the impact of specific regulatory thresholds on the breakdown by size of firms, Banco de España (2015), in European Commission (2016), Report on Spain España 2016, Garicano et al. (2016) and Almunia and López-Rodríguez (2018).

market unity might not only be restricting company start-ups, but also their subsequent growth capacity. In this connection, it would also be worthwhile for the regions to pool their different practices, sector by sector, to arrive at regulatory standards in keeping with best practices. And this while continuing to pursue the goal of promoting productivity and not restrict access to (and the future growth of) potential competitors.

Small-sized firms, which are generally less diversified both geographically and in terms of product lines and customers, are also more vulnerable to macrofinancial shocks. These types of companies usually face greater obstacles in raising finance, given that investment in them is usually perceived as riskier, and also because of problems of asymmetric information (between investors or lenders and the firm itself) and of limited scale.[5] In particular, the size of firms is an obstacle to gaining access to financing on the wholesale markets via debt issuance, to which resort is normally only possible after facing heavy fixed costs. This means that, generally, small companies have a less diversified financing structure than their larger competitors. Frequently, such financing is particularly dependent on bank loans, meaning that small firms are more vulnerable to shocks affecting this financial channel, as became manifest during the previous financial crisis.

Accordingly, boosting small firms' growth capacity would help shore up the financial soundness of the business sector as a whole. According to information from the Banco de España Central Balance Sheet Data Office (CBSO), the percentage of fixed costs with which SMEs with fewer than 50 employees must contend has increased in the past decade. Indeed, on average this proportion accounts for 31% of turnover.[6] Hence, in the current economic circumstances in which some firms do not have recurring income, they could well incur losses. This is especially so in certain sectors such as retail trade, hospitality and leisure which, since the pandemic crisis broke, have been appreciably affected by the decline in demand and the restrictions on their activity.

The average level of the Spanish economy's human capital also contributes to explaining the negative productivity gap with the more dynamic European economies. In recent decades, the Spanish population's level of educational attainment has improved considerably. The causes have been both the generational change and more education for the latest youth cohorts. However, there remains a

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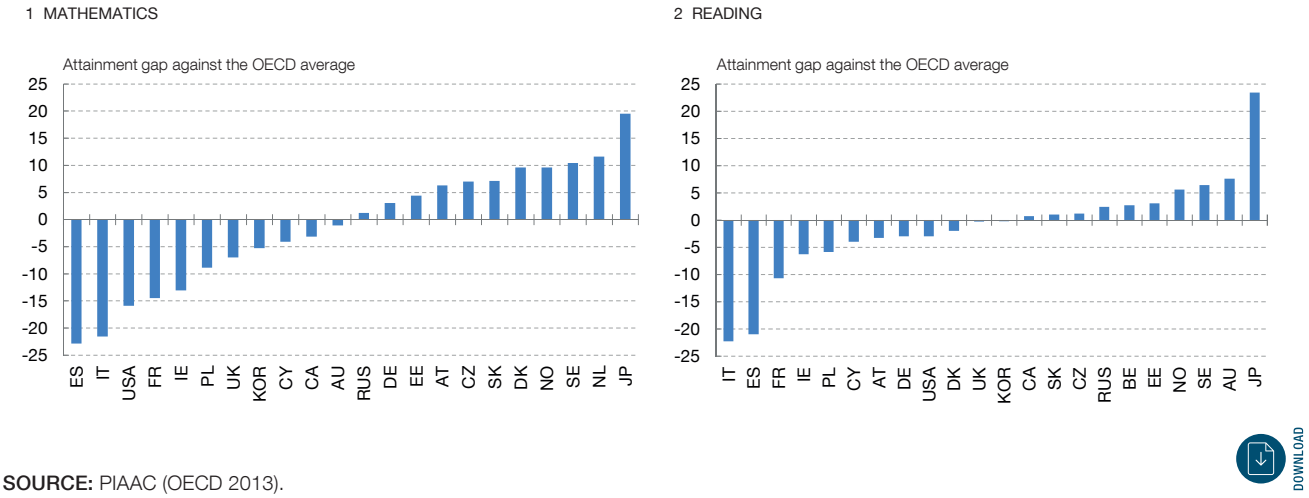
5 Indeed, the economic literature has identified the greater asymmetric information of small-sized firms linked to the lesser quality and quantity of information available on their economic and financial situation as one of the sources of their greater problems in gaining access to external financing. Moreover, their small size means that the fixed costs that lenders incur in analysing their economic and financial situation are comparatively high.

6 For this calculation, the personnel costs relating to permanent employees, other operating expenses not related to the size of production (including external services, such as R+D, leasing, repairs, independent professional services, transport, insurance, banking services, advertising and supplies, along with taxes and other current administration expenses) and financial expenses are considered. Further, net purchases and work by other firms relating to the size of production and personnel costs relating to temporary workers are considered.

Chart 5.3

HUMAN CAPITAL AND PRODUCTIVITY

The Spanish population's level of educational attainment has improved in recent decades. However, there remains a significant shortfall in respect of the EU average, which helps to explain the negative productivity gap. Spain ranks last amongst OECD countries in mathematical reasoning and penultimate in terms of reading comprehension.



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SOURCE: PIAAC (OECD 2013).

significant shortfall in respect of the EU average, which affects both Spanish workers and employers. In Spain, in particular, 38.9% of the self-employed, 35.9% of employers and 31.1% of employees had a lower educational level in 2019, according to Eurostat. These percentages are far higher than those for the euro area as a whole (22.2%, 19.0% and 18.8%, respectively). At the same time, Spain is in last position among the OECD countries in mathematical reasoning and in penultimate position in terms of reading comprehension (see Chart 5.3).

The relative disadvantage in the Spanish economy's human capital advises reconsidering the institutional design of the education system. It should include a far-reaching review of curriculum content and the very system of learning. The evidence available internationally shows the advisability of reducing curriculum content to promote individualised and early guidance for pupils by teachers and to focus learning on the application of knowledge creatively and not on repetition.[7] On this point, the draft legislation amending the Organic Law on Education (LOMLOE by its Spanish abbreviation) currently being discussed in Parliament may be a good opportunity to address the challenges outstanding. In the university sphere, there is extensive room for improving aspects such as the selection of tutors and researchers, and the bolstering of the conditionality of the financing of the system to excellence-based goals.[8] In this respect, Spain has very few universities among the best worldwide in terms of quality and quantity of

7 See OECD (2019a).
8 See OECD (2017).

scientific output, given the size of our population and economy according to some international rankings.[9] Finally, against a background in which the existing skills mismatches between labour supply and demand will foreseeably increase, vocational training takes on particular importance. Its design can be considerably improved in line with that of the systems of other European countries that have attained better results here, as is the case of Germany.[10]

Technological capital is another key factor for explaining lacklustre productivity in Spain. According to Eurostat, the proportion of innovative companies in Spain stood at 36.9% in 2016, at some distance from the related figures in France, Italy and Germany (57.7%, 53.8% and 63.7%, respectively).[11] In a similar vein, the weight of investment in R&D activities relative to Spanish GDP, in the public and private sectors alike, is 26% and 54%, respectively, lower than the EU average.

Given the particularities of investments with more innovative potential, the most suitable financing arrangements to develop them must be leveraged. The expected return on research, development and innovation (R+D+I) investments is usually shrouded in high uncertainty. Moreover, such projects have a long time horizon, and the specific nature of the intangible assets generated with them hinders their use as collateral when it comes to financing. These factors warrant a role for general government as a catalyst in financing such investments, especially in the field of basic research. From a business standpoint, the foregoing differential aspects of investments in innovation mean that debt is often not the most suitable instrument for financing these projects and that innovative companies that exhaust their internal sources of financing usually resort to the capital markets and, more specifically, to venture capital to obtain the funds needed to pursue these activities. Spain is a heavily banked economy in which the venture capital industry is less developed than in the United States and the United Kingdom, for example. And in this connection, it is vital that resolute headway be made under the various Capital Markets Union initiatives of the EU that are attempting to develop these markets.

It is essential to reinforce the mechanisms supporting innovation and to improve the evaluation and selection of research-based further education to encourage a greater volume of investment in R+D+I. Here, the restructuring of the public organisations that undertake innovation in Spain could be considered in an attempt to harness to the full potential synergies between them and to strengthen the mechanisms for allocating resources across centres so that they reflect academic excellence more than at present. Any future efforts made in this connection could be complemented with changes to the arrangements for promoting research and

9 See Academic Ranking of World Universities.

10 For Spain, updated aggregate and regional information can be found on vocational training teaching at the Ministerio de Educación y Formación Profesional. Also, for an assessment of the Madrid region's dual vocational training system, see Bentolila et al. (2019).

11 See Community Innovation Survey 2016.

complemented with changes to the arrangements for promoting research and higher-education research studies in order to smooth access for and the personal development of new high-potential researchers.

5.1.2 Labour market dysfunctions

For decades, the structural shortcomings in the Spanish labour market have largely explained why our economy has a significantly higher unemployment rate than any of our peers, even in expansionary periods. These shortcomings can be more clearly appreciated in crisis periods like the present. However, they also have a notably negative influence on the Spanish labour market in periods of growth. Indeed, since 1980, the average unemployment rate in Spain has stood at close to 17%, a figure far higher than those observed in other European countries (see Chart 5.4.1). Moreover, this high level of unemployment is frequently long-term, which has very negative effects on the employability of the workers affected.

Another differential aspect of the Spanish labour market is its high temporary employment ratio. In the past decade, this ratio has stood on average at 25.2% relative to total employment, compared with 13.9% in the other euro area countries. Further, this marked difference cannot be attributed to the particular sectoral composition of the Spanish economy, where certain industries such as tourism are highly seasonal, given that the high temporary employment ratio is across the board in all sectors of activity (see Chart 5.4.2). In clear contrast to other advanced economies, job shedding in the Spanish labour market during recessionary phases is largely concentrated in the destruction of temporary employment. As Section 4.2 sets out, employees on temporary contracts have disproportionately borne the brunt of job destruction flows in the Spanish economy in recent decades. This pattern has remained in place in the current crisis.

The strong cyclical oscillations in temporary employment have historically contributed to the fact that the unemployment rate in Spain has also evidenced very marked changes and to inequality increasing substantially in crisis periods. Each recession in the Spanish economy expulses a large number of temporary employees from the labour market. These include particularly vulnerable groups, such as those with less work experience and the lesser skilled. This pattern of adjustment has the perverse effect of significantly increasing inequality in individuals' income levels during these episodes.[12]

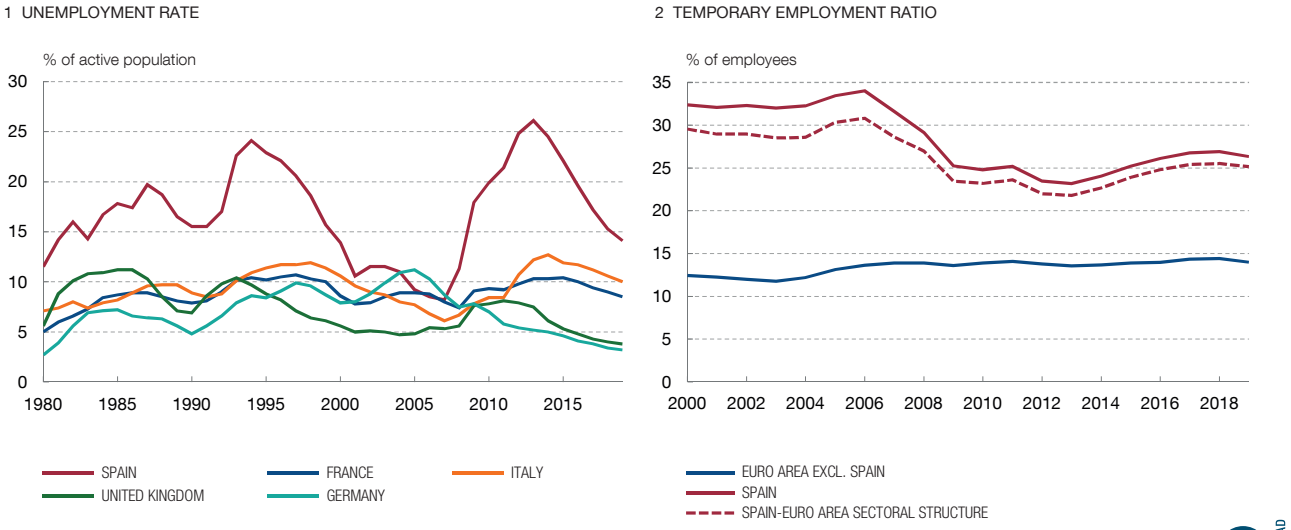
The scale and vulnerability of temporary employment in Spain also have negative structural implications in many other dimensions. Thus, for example, the high temporary employment ratio and unemployment, essentially affecting the

12 See Bonhomme and Hospido (2017).

Chart 5.4

UNEMPLOYMENT RATE AND TEMPORARY EMPLOYMENT RATIO OF THE SPANISH ECONOMY

The Spanish labour market presents far higher unemployment rates than peer countries, particularly in crisis periods. Another differential aspect of the labour market is its high temporary employment ratio. In the past decade, this ratio has stood on average at 25.2% relative to total employment, compared with 13.9% in the other euro area countries.



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SOURCES: Eurostat and Banco de España.

young, have been documented as reducing both the formation of new households and their size, by negatively influencing fertility decisions.[13] The rates at which youths leave the family home to live independently are also seen to be negatively related to the degree of job insecurity[14], undoubtedly accentuated by the incidence of temporary employment. Temporary employment has also been shown to be associated with persistent effects on the careers of the workers most affected and on decisions on investment in human capital, both by firms and by employees.[15] In particular, the empirical evidence suggests that temporary workers have fewer possibilities of working in firms that offer training and that, even if they are in firms that do offer it, the likelihood of receiving it is less than that of the permanent employees in the same firm.[16]

Accordingly, reducing the high duality in the Spanish labour market is an inescapable objective. Employment protection mechanisms should be reviewed to square the necessary protection of workers with flexibility requirements; but it should also be an aim to achieve a fairer division of protection among workers with different contractual conditions. In this respect, contractual mechanisms that avoid strong discontinuity in the degree of employee protection, in terms of the type of

13 See Gutiérrez-Doménech et al. (2008) and Adsera (2006).
14 See Becker et al. (2008).
15 See García-Pérez et al. (2019).
16 See Albert et al. (2005).

contract they have at each point in time, are an interesting option for tackling this significant dysfunction in our labour market. Modalities such as contracts with growing firing costs may in particular be a good starting point for the debate on the design of a new regulatory framework, which should under no circumstances promote a widening of the protection gap already existing between temporary and permanent employees. Also worthy of attention are mixed models. These combine the possibility, while the worker remains in employment, of building up in advance in a fund a portion of the related severance costs (the "Austrian backpack" scheme) with a severance payment in the event of dismissal whose amount increases in terms of years of experience.

It is imperative to strengthen active labour market policies in order to increase workers' human capital and to reduce unemployment permanently. In circumstances like the present, but also generally over the course of the cycle, it is necessary to have appropriate policies and instruments to increase the employability of those who have lost their jobs. In that way, we avoid a permanent impairment of the human capital of the unemployed and of the growth potential of the economy as a whole.[17] In this connection, there is a need to promote active job search, appropriate worker guidance and specialised and specific training when skills requirements are detected. To this end, mechanisms should be set in place to provide for monitoring and individualised guidance for the unemployed based on available statistical profiling techniques of unemployed workers and of local vacancies.

In the current economic situation, improving active labour market policies must be a priority. As indicated in Section 4, the COVID-19 crisis is bearing down very unevenly on different sectors of activity. It cannot be ruled out that some of these dynamics will ultimately prompt permanent changes in the economy's sectoral composition and, therefore, in employment needs in the different productive sectors. The sound functioning of active labour market policies is vital if this potential cross-sectoral reallocation is to go ahead flexibly and efficiently. Some of the sectors most affected by the crisis evidence a greater concentration of less-skilled workers less used to performing IT, numerical and reading and writing-related tasks. That hampers their employability in other productive sectors with a better growth outlook. This makes reinforcing active labour market policies, and their instruments and resources (see Chart 5.5), a particular priority.[18] In addition, the new, post-pandemic economic environment that will emerge will require firms to adapt flexibly to the new conditions, in respect both of the demand for their products and services, and of possible changes in the structure of their sector of activity. In this process, providing for the appropriate functioning of the internal flexibility mechanisms available at firm-level will be essential for alleviating potential adverse effects on employment.

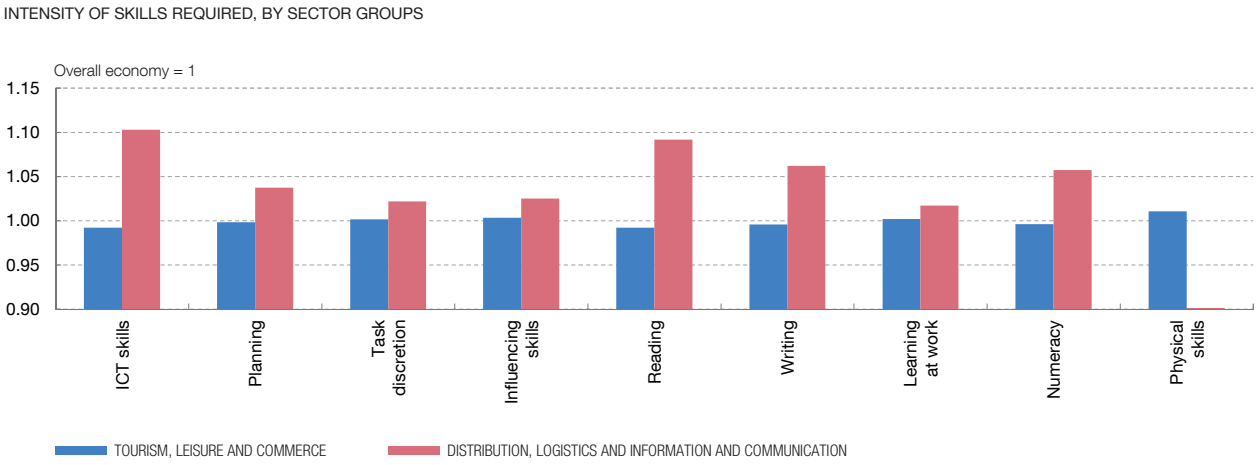
17 Keane and Wolpin (1997) estimate a rate of depreciation of skills during unemployment of 30% per annum for non-manual workers and of 10% for manual workers.

18 See Anghel et al. (2020).

Chart 5.5

HUMAN CAPITAL AND ACTIVE LABOUR MARKET POLICIES

Potential shifts in demand may adversely affect sectors associated with tourism, leisure and commerce. These sectors present a higher concentration of lower-skilled workers less used to performing IT, numerical and reading and writing-related tasks, which hampers their employability in other productive sectors. This makes reinforcing active labour market policies, and their instruments and resources, a particular priority.



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SOURCES: MCVL, PIAAC (OECD 2013) and Banco de España (see Anghel *et al,* 2020).

Improving active labour market policies is also necessary over a medium-term horizon. Unquestionably, technological advances (artificial intelligence, automation and robotics) will create new opportunities and will contribute to much-needed productivity growth. However, some workers will lose their jobs in this transition and will not always be in a position to instantly take advantage of the new opportunities. Active labour market policies and training policies, duly redesigned to boost their effectiveness and efficiency, and suitably endowed with funds, are a natural lever for ensuring learning throughout a person's career. They can help workers to acquire new skills, to hone them and to recycle themselves professionally in the face of a changing and, foreseeably, very demanding environment in terms of technological skills. These policies are of particular significance against a background of rapid population ageing (see Sub-section 5.1.4).

5.1.3 Restoring room for manoeuvre for fiscal policy

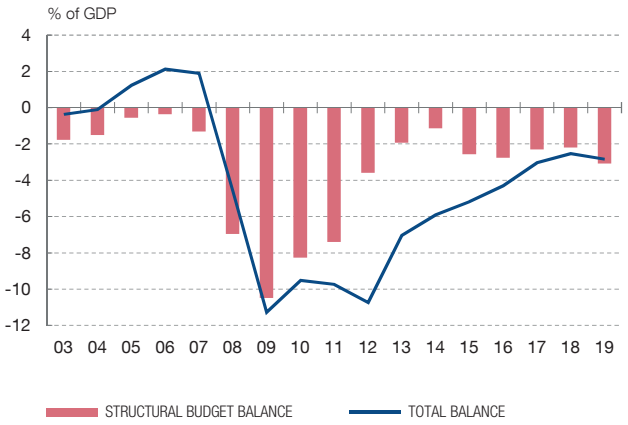
The general government accounts were evidencing considerable mismatches before the COVID-19 crisis. The Spanish economy's fiscal policy leeway in the face of recessionary situations had diminished considerably because of the global financial and European sovereign debt crises. Moreover, it scarcely recovered subsequently, despite the robust and uninterrupted growth of activity and employment. Indeed, after four years of declines, the overall general government

Chart 5.6

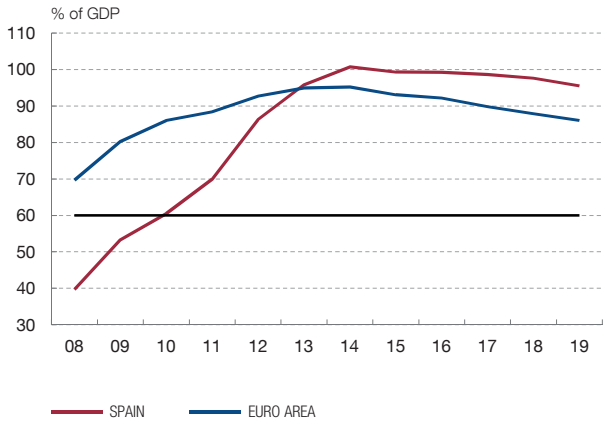
THE CHALLENGE OF ENSURING THE SUSTAINABILITY OF PUBLIC FINANCES

After four years of declines, the overall general government deficit increased to 2.8% of GDP in 2019. In structural terms, i.e. having stripped out the effect of the economic cycle, the public finances shortfall also increased. The public debt/GDP ratio stood at 95.5% at end-2019, 5.2 pp below its 2014 peak, and far above the reference value of 60%.

1 TOTAL AND STRUCTURAL GENERAL GOVERNMENT BALANCE



2 GENERAL GOVERNMENT DEBT IN SPAIN AND THE EURO AREA



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SOURCES: Banco de España, IGAE and Eurostat.

deficit increased to 2.8% of GDP in 2019. In structural terms, i.e. having stripped out the effect of the economic cycle, the public finances shortfall also stands at over 3% of GDP on Banco de España estimates. Thus, since 2015 there has been no appreciable headway in reducing the structural budget deficit (see Chart 5.6.1). In fact, the correction of the budgetary imbalance achieved from that year onwards was due solely to the improvement in the economy's cyclical position and to lower debt service expenditure. The public debt/GDP ratio stood at 95.5% at end-2019, only 5.2 pp below its 2014 peak, and far above the reference value of 60% of GDP under the current framework of European fiscal rules and of the Organic Law of Budgetary Stability and Financial Sustainability (see Chart 5.6.2).

However, the economic policy response to this pandemic calls for resolute fiscal action. A flexible but forceful fiscal response aimed at sustaining household and corporate incomes in the short term is needed. This is not only to restrict the impact of the strong recession triggered by the crisis, but also to reduce the risk of a persistent deterioration in the economy's growth capacity and to contribute to a swifter and sounder economic recovery once the pandemic is behind us. The effectiveness of fiscal policy in the current situation should be assisted by the forceful response of monetary policy and by the record-low interest rate environment (see Box 3.4, which underscores monetary and fiscal policy complementarity).[19]

19 For a detailed analysis on the complementarity between expansionary monetary and fiscal policies, see Arce et al. (2016).

The fiscal measures adopted to alleviate the effects of the pandemic, the inevitable worsening of the macroeconomic environment and the operation of the automatic stabilisers will bear down most adversely on public finances. As detailed in Sub-section 4.4.3, the latest Banco de España estimates point to a very significant rise in the budget deficit and public debt ratios relative to GDP in the 2020-2022 period. Further, there remain some factors of risk relating to how the disease will unfold in the coming quarters and to the harm the current strong recession may cause to the productive system. If such harm materialises, it would give rise to higher levels of deficit and debt than those projected. Because of these factors of risk, there is notable uncertainty over whether it will be necessary to apply fresh fiscal stimuli in the coming quarters to reactivate the economy. Moreover, it cannot be ruled out that, as witnessed in previous recessionary episodes, the sensitivity of tax revenue to changes in tax bases will be greater than usual in the coming months, with the subsequent adverse impact on public finances.

In the short run, it might be necessary to prolong the fiscal stimulus, focusing it on the agents and sectors most affected by the crisis. There may be a need to extend some of the measures already implemented to address the pandemic, or to introduce new ones. Were this the case, it is essential the decisions adopted should seek to maximise the potential impact of public funds committed and that they be geared to the sectors and groups of firms and households most affected. In the health system, the huge efforts to contain the pandemic have led to the postponement of numerous operations and treatments at all levels, which may require additional funds to absorb them in the coming months. The pandemic has also highlighted a shortage of material and human resources in the fight against the disease. While the system was greatly stretched due to extraordinary circumstances, it would be advisable to study material-supply measures and equipping the system with greater resources if structural shortcomings are identified[20], especially given the risk of possible outbreaks of the disease for some time. In the case of households, a minimum income scheme (MI) has recently been approved to reduce the level of extreme poverty of groups with special structural difficulties. On the business front, extending furlough-like or short-time working schemes over a longer period could be considered for specific activities. And other measures could include the immediate payment of VAT refunds and of general government outstanding payables to suppliers, and the introduction of new liquidity programmes for firms and the self-employed linked to debt receivables from their customers or to overheads on their trading activity.

While in the short term the fiscal response to this crisis should be expansionary, in the medium term far-reaching reforms must be enacted to reduce public debt and restore fiscal policy leeway ahead of future negative shocks. Based on the analytical tools developed by the Banco de España, it is possible to assess

20 In this respect, the second phase of the spending review project entrusted to AIReF, scheduled for completion by summer 2020, envisages analysing hospital-related spending by the National Health System.

the future path of Spanish public debt under different alternative scenarios. In this respect, the exercises conducted in Box 5.1 suggest that, in a hypothetical scenario in which general government were not to make any structural fiscal effort in the next 10 years, the public debt/GDP ratio would, by end-2030, remain at levels far above 100%. The persistence over time of such high public debt levels would reduce the countercyclical room for manoeuvre available to fiscal policy to address adverse macroeconomic shocks. It would also expose the Spanish economy to chronic vulnerability in the face of changes in investor sentiment on financial markets. Further, this high public debt would weigh down on the growth capacity of the economy, in that it would affect its aggregate financing conditions, distorting private-sector investment decisions. Set against a scenario such as that described in which no structural fiscal efforts are undertaken in the medium term, the simulations of Box 5.1 draw on an alternative scenario. Hereunder, if general government were to adopt a fiscal policy consistent with the requirements of the preventive arm of the Stability and Growth Pact (SGP) over the coming decade, public debt/GDP ratio might gradually fall in this period, standing below 100% at end-2030.

To bring general government debt back onto a path consistent with the fulfilment of the SGP commitments, a multi-year fiscal consolidation programme is needed. To reinforce its credibility and effectiveness, this programme should be part of a comprehensive strategy that includes the introduction of growth-capacity-enhancing reforms for the economy and that provide for broader tax bases. Budgetary consolidation could then be undertaken with the necessary gradualism to allow it to run in step with a robust economic recovery.[21] This strategy should link all government tiers with tax-raising powers and be structured around a detailed definition of the budgetary objectives it is wished to attain (along with the timeframes and measures that will be needed to achieve this). Moreover, this programme should be based on a prudent forecast of macroeconomic developments and include a rigorous early-response plan in the event of potential slippage from the objectives set. An essential aspect of any budgetary consolidation programme is the composition of the adjustment in terms of the contributions of the various revenue and expenditure items, whereby it is attempted to minimise the adverse effects on economic growth. While there is no universally accepted blueprint for an optimal composition of public expenditure and revenue, international comparisons with euro area economies offer a useful starting point.

On the revenue side, there is room to re-define the basket of taxes to make it more conducive to economic growth. Tax revenue in Spain, including that relating to social security contributions, is around 2 pp of GDP lower than the euro area average (see Chart 5.7).[22] About 40% of this difference is due to lower VAT takings in Spain, given the high percentage of consumer goods bearing a reduced or super-reduced

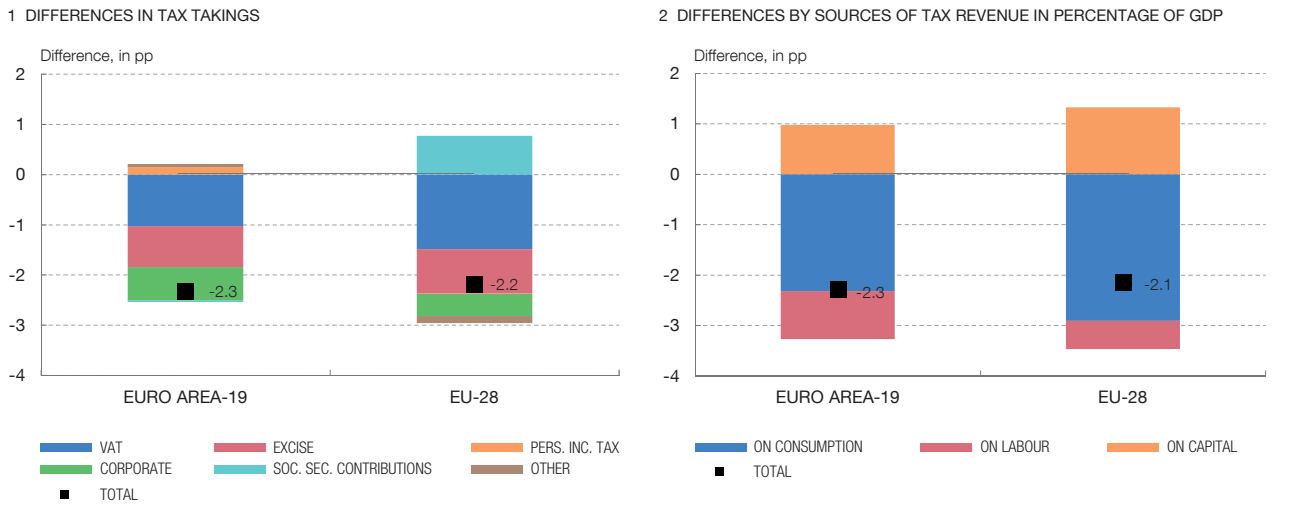
21 See Andrés et al. (2020).

22 See López-Rodríguez and García Ciria (2018).

Chart 5.7

DIFFERENCES BETWEEN THE TAX STRUCTURE OF SPAIN AND THE EURO AREA AND EU AVERAGE IN 2018 (a)

Tax revenue in Spain, including social security contributions, was more than 2 pp of GDP lower than the euro area average in 2018. Around 40% of this difference is due to lower VAT takings, given the high percentage of consumer goods bearing a reduced or super-reduced rate. Excise duties account for around one-third of the difference.



SOURCE: Eurostat 2020.

a The tax take is defined as total tax and social security contributions revenue (excluding imputed contributions), less amounts assessed but unlikely to be collected. The average in the EA-19 and EU-28 is calculated as the arithmetical mean of the Member States' revenue.

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rate. Revenue arising on corporate income tax and excise duties each account for around 30% of the difference. In the case of the latter, the lower revenue is due largely to the low taxation of hydrocarbons in Spain and, to a lesser extent, on tobacco and alcohol. Personal income tax and social security contributions do not contribute significantly to the revenue gap with the euro area, although it is true that employers' social security contributions in Spain are higher than the European average. Finally, environmental taxation, which includes - alongside some excise duties such as that on hydrocarbons or that on electricity - other indirect taxes, such as that on transport, also stands in Spain at around 0.8 pp below the euro area average.

One distinctive feature of Spanish taxation susceptible to reconsideration is the high level of tax benefits. These benefits, derived from the presence of numerous exemptions, deductions and special reduced rates, frequently give rise to significant forgone revenue and distort the efficiency and fairness of the tax system. The findings of the second phase of the ongoing review of public spending by AIReF (the Independent Authority for Fiscal Responsibility), which explicitly includes the analysis of tax benefits, will make a significant contribution to this much-needed comprehensive review of the efficiency of the tax system.

Currently in passage through Parliament is the draft legislation for the introduction of two new taxes, falling respectively on certain financial transactions and on the provision of digital services. The tax on financial

transactions is to be applied at a rate of 0.2% of the effective value of secondary stock market transactions involving the acquisition of shares in Spanish companies whose capitalisation exceeds €1 billion, irrespective of both where the acquisition is made and of the residence for tax purposes of the parties involved. The Tax on Specific Digital Services will be applied at a rate of 3% of the value of operations providing three types of digital services (the inclusion of advertising services on a digital interface, intermediation in commercial transactions between users and the sale of data compiled on user activity), provided that the provision of the services is by companies whose turnover exceeds €750 million globally and €3 million in Spain.

The revenue-raising capacity of these or other new taxes will be influenced, among other factors, by the degree of fiscal coordination in these areas internationally. The Spanish economy's high degree of international integration, against a background in which certain tax bases can shift with relative ease across jurisdictions, suggests the advisability of attaining some degree of coordination with other countries in introducing certain taxes. The aim here is to prevent the emergence of competitive disadvantages and the delocalisation of certain tasks, with the subsequent adverse impact on economic activity pursued in Spain and, therefore, on tax revenue. In the case of the new tax on the provision of digital services, the OECD-sponsored negotiations currently under way internationally should, as reflected in the draft legislation, serve to set minimum common conditions for the future orderly introduction of this tax. This will be so at least in the main advanced economies, with transposition to Spanish legislation once the conditions are approved. This international coordination drive is also significant with a view to other taxation tools that may affect other areas, such as environmental taxes or those on the activities of certain multinationals.

On the expenditure side, it would be advisable to increase the relative weight of those items relating to human and technological capital accumulation. As already mentioned in sub-section 5.1.1, human and technological capital is one of the key determinants of productivity and long-term growth capacity of the economy. Yet the weight of these items in the Spanish economy, from the standpoint of the public and the private sector alike, is limited. The economic literature has widely documented the potential that public efforts in this field may have for generating positive externalities and multiplier effects on innovation capacity in the private sector.[23] And in this connection, public investment should act as a catalyst in order to increase the mobilisation of private resources in this area (see Box 5.2). Accordingly, bearing in mind the need to prioritise the use of budgetary resources, public investment in innovation should ideally be stepped up, especially in those sectors and processes where complementarity with private-sector activity is higher. This would be the case, for instance, in the digitalisation of the economy and the fight against climate change.[24]

23 See, inter alia, Fournier (2016) and European Commission (2017).
24 See Dechezlepretre and Popp (2015).

For a greater provision of resources in specific areas to be compatible with the necessary correction of budgetary shortfalls, it is necessary to set out a clear map of priorities and improve the efficiency of public spending under every heading. In the years ahead it will not only be necessary to increase the weight of certain public investment items and tackle the challenges arising directly from the pandemic; other major challenges already in place before the crisis will also need to be addressed. These include most notably population ageing (see Sub-section 5.1.4) and climate change, and the transition to a more sustainable economy, which will significantly affect certain public revenue and spending items (see Sub-section 5.1.6). As a result of the foreseeable increased pressure on public resources, the need for fiscal consolidation makes improving efficiency on the expenditure side and reducing resources for non-priority items in light of the economy's and Spanish society's more significant needs vital. This calls for an ambitious structural reforms package, and an ongoing and painstaking assessment of public policies that enables the efficiency of greatly stretched budgetary resources to be maximised. In this respect, the conclusions of the first phase of AIReF's public spending review last year highlight the presence of ample headroom to improve the efficiency and effectiveness of key expenditure components such as those on pharmaceuticals, subsidies and active labour market policies. It is important that the previous recommendations by this authority, along with those stemming from the review currently under way, be taken into account as soon as possible in the budgetary process.

5.1.4 Population ageing

Population ageing is one of the biggest challenges the Spanish economy will have to face, from both a short and long-term perspective. The extraordinary scale of this challenge stems not only from the magnitude of the demographic changes under way, but also from the numerous implications these changes will have in terms of the economy's growth capacity, the labour market and fiscal policy, among other areas.[25]

Demographic change is a challenge affecting most of the advanced economies. But it is a process that will have a particular bearing on Spain. On Eurostat figures, the dependency ratio (which measures the over-65s in proportion to the population aged 15-64) currently stands at 29.5% in Spain. This ratio is 31.4% lower than that of the EU as a whole and that of 16 of its Member States. However, Eurostat's projections show that, in the next 25 years, the dependency ratio will increase by more than 25 pp in Spain to 56.1% (see Chart 5.8.1). According to Eurostat, Spain will be the EU country that undergoes the biggest increase in this ratio and, in 2045, only Italy, Greece and Portugal will have a higher dependency ratio (the European average will stand at 49.8%).

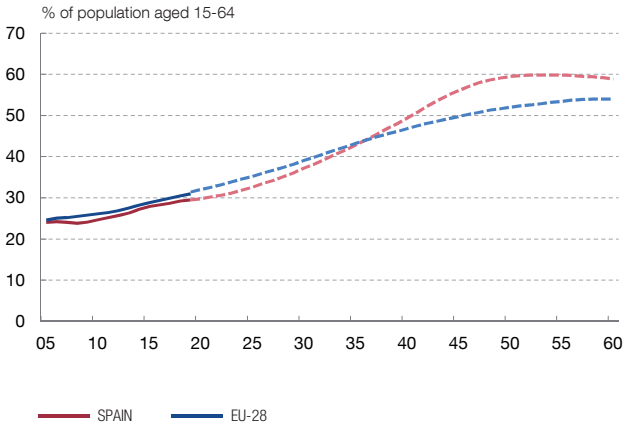
25 See Banco de España (2019b).

Chart 5.8

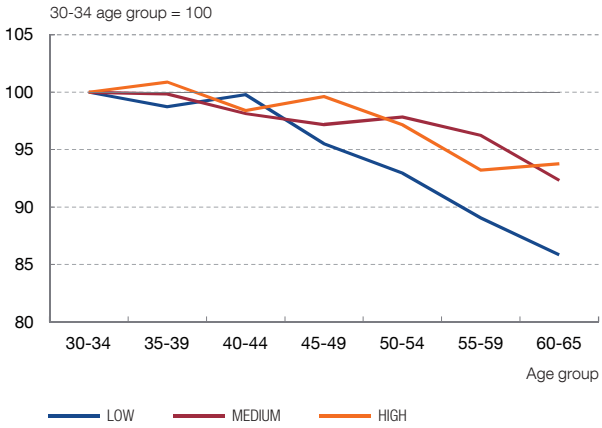
POPULATION AGEING IN SPAIN

According to Eurostat projections, in the next 25 years, the dependency ratio will increase by more than 25 pp in Spain to 56.1%, the largest rise among EU countries. People's physical and cognitive skills worsen over time, entailing a reduction in their productivity and added difficulty when performing specific tasks. It is vital to reinforce the role of active employment policies and lifelong learning for this group.

1 CHANGE IN DEPENDENCY RATIO
(population +65 / population 15-64)



2 PIAAC SCORE IN MATHEMATICS BY LEVEL OF EDUCATION (a)



SOURCES: Social Security, INE, Eurostat and PIAAC (OECD 2013).

a "Low" means secondary school education or lower, "Medium" means above secondary school education but below university level, and "High" means university education or higher. The bars represent the estimated coefficient of a regression indicator for each of the age groups (50-54, 55-59 and 60-65) that includes other control variables. The dependent variable is the use of skills at work index. The regression includes gender, level of education and dummy variables for sector of activity, job and age group.

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Among the prominent determinants of population ageing in Spain are the increase in life expectancy and the decline in the fertility rate. Globally, Spain has one of the highest levels of life expectancy. Specifically, on the latest Eurostat data, a Spaniard's life expectancy was 83.5 years in 2018, higher than that (81 years) for the EU as a whole. Set against this clearly positive aspect, the fertility rate in Spain, at scarcely 1.26 children per woman, is very low compared with other European countries. This rate is, moreover, at some distance from the fertility rate women of childbearing age *would wish for* (1.96 children per woman)[26]. This evidence suggests dual needs: to analyse in detail the role that various factors are playing in influencing the decision to have children; and to assess the advisability of introducing additional measures to promote work-life balance, to step up support for families and to increase opportunities in the labour market, especially for young women with children, since it is they who are frequently most affected economically by the decision to have children.[27]

Population ageing has notable implications in the fiscal policy arena. Both public revenue and public spending will be extraordinarily affected in the coming

26 See Encuesta de fecundidad, INE 2018.
27 See de Quinto *et al.* (2020).

years as a result of population ageing. Any medium-term budgetary plan and fiscal consolidation strategy must be mindful of this aspect. As regards public revenue, the composition of tax bases and, therefore, the revenue-raising capacity of the current tax system will be greatly affected by demographic change. Household consumption, saving and investment decisions change appreciably over their life cycle. Likewise, there are very significant differences in the level and composition of individuals' income and wealth based on their age. In particular, the return on previously accumulated assets usually accounts for a higher proportion of the income of older households than of younger households, whose labour income has a greater relative weight. Given that for many assets the taxation on saving is below that on employment income, this aspect will result in a lower aggregate tax take as a consequence of ongoing population ageing, unless the current tax structure is adjusted. Further, insofar as household income normally dips when retirement age is reached, the progressivity of personal income tax will also entail lower tax revenue.[28]

Increased longevity and the fact the baby boomer generation is on the verge of retiring will exert considerable upward pressure on public finances. According to the latest Eurostat figures, for 2018, spending on health and on social protection in Spain, which includes transfers associated with retirement, survival and disability, inter alia, totalled 22.9% of GDP that year. The weight of these items in GDP will increase in the coming years. Thus, for example, the European Commission's 2018 report on ageing forecasts that, in 2050, spending on health and on long-term care will be almost 2 pp of GDP higher than that recorded in 2016.[29]

Demographic pressure poses the need to introduce additional measures to strengthen the financial sustainability of the public pension system. The recent decisions to revalue pension benefits on the basis of the CPI and to suspend application of the sustainability factor have entailed, in practice, the withdrawal of two important adjustment mechanisms. These had provided for countering the impact on pension spending of the expected increase in the dependency ratio in the coming years.[30] Against this background, ensuring the financial viability of the public pension system will call for a rigorous debate. Discussions will have to address the level of benefits that the system should provide and how to mobilise sufficient funds to afford them. Insofar as a greater need for resources may entail a heavier burden for the present and future younger generations, the discussion should take into account not only the cohorts closest to retirement age, but also the young, establishing basic parameters of intergenerational fairness.

28 See Ramos (2019).
29 See European Commission (2018a).
30 See Arce (2019).

It would be desirable to strengthen the link between contributions made and benefits received, while always ensuring a level of sufficiency for less well-off households. Generally, establishing automatic adjustment mechanisms helps stabilise the system, adapting it to demographic and economic changes. In this respect, and precisely to ensure the sustainability of the system, several EU countries, namely Germany, Sweden, Italy and Portugal, have already established a link between the level of benefits or retirement age and life expectancy. Such options might be worth considering in Spain's case. Also, the advisability of promoting private saving mechanisms complementing the public system should be assessed. Their presence in Spain is very limited compared with what is observed in other northern European economies.[31]

Population ageing also poses key challenges in terms of the potential growth of the economy through its impact on the labour market and worker productivity. The labour market participation rate declines for ages close to retirement. Part of this is because people's physical and cognitive skills worsen over time, entailing a reduction in their productivity and added difficulty when performing specific tasks (see Chart 5.8.2).[32] Avoiding this downturn in the employability of workers as they age and, therefore, in the economy's growth potential is particularly important at present. In addition to far-reaching demographic changes, we are witnessing a most intense process of technological change, which requires increasingly greater levels of numeracy, data management and the adoption of digital technologies. In this connection, it is vital to reinforce the role of active labour market policies and lifelong learning.

Prolonging the working life of older workers may also require changes in working conditions. It would particularly help if firms were to attempt to promote teleworking in those cases where it is a possibility. On the evidence available, teleworking, the roll-out of which has accelerated very significantly since the current crisis broke (see Section 5.2), is seen as more attractive and is used more frequently precisely by older workers. It would also be advisable to reconsider working conditions so they might smooth cross-occupational switches by workers during their career, since they have been demonstrated to help increase productivity and allow for longer labour market participation.[33]

As with many other challenges, population ageing also poses new opportunities that should not be dismissed. In particular, demographic change offers possibilities for the development of certain sectors in the medium term. These include most notably health, recreation, tourism, real estate and finance. In this respect, Spain enjoys a favourable starting point to compete in the provision of services intended

31 See OECD (2019b).
32 See Anghel and Lacuesta (2020).
33 See INE (2020) and Hudomiet *et al.* (2020).

for the elderly (what has been called the "silver economy"[34]). This is in light both of our special geographical and cultural conditions, and the pattern of sectoral specialisation developed in recent years. Harnessing these new opportunities will require a flexible, nimble approach, on the part of the public and private sectors alike, and the pursuit of continuous improvements in quality and efficiency in providing the goods and services that a more aged society demands.

5.1.5 Inequality

The global financial crisis gave rise to a significant increase in wage income inequality in Spain. The robust and uninterrupted economic growth phase that ran from late 2013 until the pandemic broke a few months ago enabled almost 3 million jobs to be created and a notable reduction in the unemployment rate. That contributed significantly to easing income inequality in Spain. However, the improvement in the main inequality indicators has been relatively limited, to the extent that the Spanish economy and society are facing the COVID-19 crisis from a starting level in terms of inequality that is clearly above that in place at the end of the expansionary cycle prior to the 2008 crisis (see Chart 5.9).

Notable among the groups most affected by the increase in inequality are the young. Thus, for example, the level of income of the under-35s in 2018 was still 20% below its 2007 level. This has essentially been the result of the reduction in the average duration of temporary contracts for the young, something excessively frequent in this group, and of the increase in the degree of involuntary part-time working, in many cases.[35]

The crisis is bearing down more sharply on the most vulnerable groups, which will foreseeably entail a further increase in inequality levels. Both in Spain and in other EU countries, it has been documented that, among the employed in the sectors most affected by the social distancing measures implemented to contain the pandemic, the proportion of women, youths and the less-skilled, the lowest-paid, the inexperienced and those on temporary contracts is particularly high. In Spain there is in these sectors, moreover, a higher percentage of employees with limited financial assets with which to withstand a decline in labour income (see Box 4.2).[36]

Along with youths, women are another of the groups being most affected by the crisis. A survey conducted in May in Spain revealed that, unlike in the previous economic crisis, since the start of this crisis 11% of women have lost their jobs, compared with 8% of men. The percentage of women put on short-time working

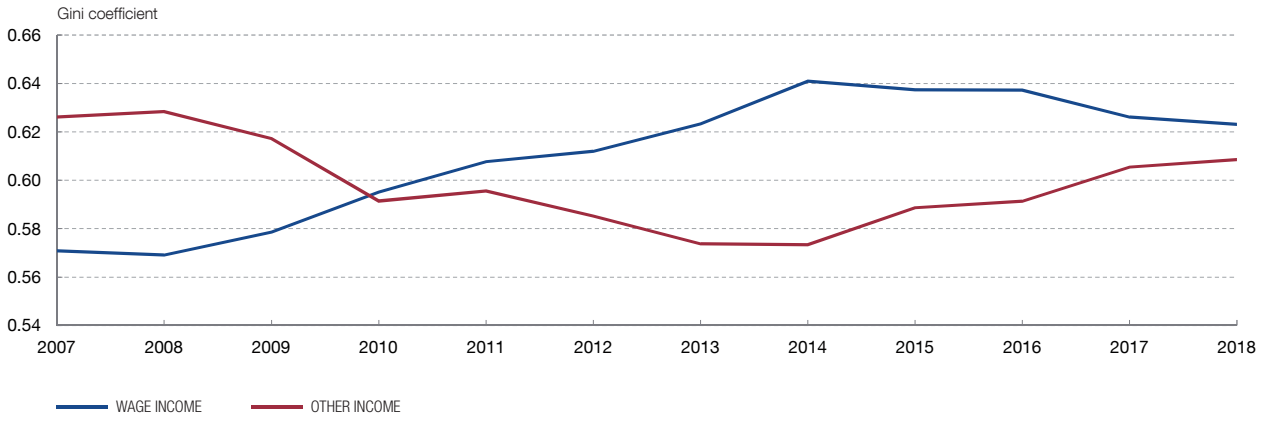
34 See European Commission (2018b).
35 See Puente and Regil (2020).
36 See Adams-Prassl *et al.* (2020) for the United Kingdom.

Chart 5.9

INCOME INEQUALITY IN SPAIN

Despite the decrease in income inequality in recent years, the Spanish economy and society are facing the COVID-19 crisis from a starting level in terms of inequality that is clearly above that in place at the end of the expansionary cycle prior to the 2008 crisis.

GINI COEFFICIENT OF TOTAL HOUSEHOLD WAGE INCOME AND OTHER HOUSEHOLD INCOME (a)



SOURCE: INE (Survey of Income and Living Conditions).

a Other income includes: self-employed income, capital income, income of children under 16, old-age benefits and survivors' benefits, other social welfare benefits, unemployment benefits and transfers from other households.

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schemes (25%) was also higher than that for men (19%).[37] Further, women devote on average more time than men do to childcare. In this respect, it should be borne in mind that the gender wage gap begins to be discernible precisely at the time care for the first-born begins, and it persists over time.[38]

Against this backdrop, support measures must be taken to protect the groups most affected. As discussed elsewhere in this Report, one of the key objectives of economic policy in the current circumstances is to prevent the eminently transitory shock caused by the pandemic from ultimately exerting permanent effects on the economy. Successfully attaining this goal will inevitably involve tackling the adverse effects the crisis may cause to activity through an excessive increase in inequality. Here there is abundant empirical evidence suggesting that excessive inequality may adversely and permanently influence not only the degree of social cohesion, but also spending, investment and human capital accumulation decisions in the economy as a whole. In other words, excessive inequality frequently weighs down economic growth and its sustainability.[39]

The employment protection and household income support measures enacted by the government in response to this crisis will contribute to lessening the

37 See Farré *et al.* (2020).
38 See De Quinto, Hospido and Sanz (2020).
39 See Banerjee and Duflo (2003).

vulnerability of the households most affected by it (see Section 4.3). Insofar as some of the adverse effects of this crisis may extend over time, it would appear appropriate to maintain some of these employment and income support measures for the most vulnerable households over a longer horizon than initially envisaged. However, when it comes to extending these measures, it is vital to retain their attendant focus and planned timeframe. In this connection, it must be sought to prevent these support measures from ultimately delaying inefficiently the structural adjustments needed in certain sectors and firms (e.g. in the case of short-time working arrangements) or permanently distorting the labour market participation decisions of certain groups (e.g. in the case of certain subsidies).

More permanently, the recently approved minimum income scheme (MI) can be a useful tool for reducing the level of extreme poverty of groups with special structural difficulties. Here it will be essential, as with any other economic policy measure, that the MI's functioning, cost and the fulfilment of its stated goals be continuously and rigorously monitored. In particular, it is important at present to assess how this instrument may overlap with other forms of assistance already available at the central, regional and local levels, for the purposes of ensuring efficiency in the use of public funds across all tiers of government. It must also be clear whether the eligibility requirements laid down in its current design (such as those relating to the need to be registered with the Public Employment Service) exclude certain vulnerable groups from assistance, or whether other requirements can be recalibrated to provide a more precise picture of the genuine degree of need of the beneficiaries. Such is the case with the asset-holding thresholds, which should possibly include some type of information requirement about the applicant's level of debt. Moreover, there should be close monitoring of whether this instrument, as it involves a permanent transfer, may ultimately prompt unwanted effects, e.g. in terms of the future income-generating capacity of beneficiaries or of a possible switch from certain economic activities to informality. In this respect, as set out in the Royal-Decree Law, it will be necessary to assess the effectiveness of some of the measures envisaged in order to prevent these unwanted effects, such as the temporary maintenance of at least a portion of the subsidised amount when the beneficiary finds work.

In any event, the MI does not replace the role of other tools that can act as automatic stabilisers and generally soften adverse household income shocks. Thus, for instance, in recessions like the present, there will probably be groups most adversely affected but who do not meet MI eligibility conditions. For example, for those unemployed whose unemployment subsidies are running out, but who do not meet the requirements for the MI, it might be necessary to approve further extensions of these automatic stabilisers, with the possibility of allowing some compatibility with work during the initial months after restarting work.

Reducing the adverse effects of inequality does not only require income support policies for the underprivileged, but also action on many different

fronts. To the extent that one of the main determinants of the vulnerability of the young is the excessive use of temporary contracts in the labour market and the marked duality between permanent and temporary employees, labour market regulations should be reviewed in line with the proposals considered in Sub-section 5.1.2. One significant area in which considerations of fairness should be taken into account is that of future reforms to the public pension system, discussed in Sub-section 5.1.4. In particular, any changes to be made to the system should be designed such that both the costs and benefits generated are shared fairly among the cohorts that are currently beneficiaries of the system and the younger generations.

Another area where action is called for is housing affordability. In recent years, conditions have become harsher in terms both of owner-occupied housing and, in particular, rental housing.[40] This phenomenon particularly affects vulnerable groups, such as the young, and may even adversely influence aspects such as the rate of new household formation, the fertility rate and regional mobility decisions. Once again, some of the aforementioned shortcomings of the Spanish labour market will have influenced these observed dynamics in the housing market. And the surge in rental prices in recent years, particularly so in specific cities and regions that have witnessed strong increases in demand, will also have been a contributing factor.[41] In this setting, priority should be given to those public policies aimed at promoting a sustained increase in the supply of rental housing.[42] Likewise, a stable regulatory framework that ensures legal certainty is needed, so that property owners may have sufficient incentives to offer their properties on the rental market.

5.1.6 The transition to a more sustainable economy

Climate change and the transition to a more sustainable economy is one of the main challenges now facing our society. This truly global challenge affects all social and economic agents, and calls for a deep-seated transformation of our methods of production and consumption habits.

In recent years, both the EU and Spain have taken an active stance in combating climate change and, in particular, in favour of the implementation of the Paris Agreement.[43] In late 2019, the European Commission unveiled the European Green Deal[44], which includes a broad package of measures to attain climate neutrality in the EU in 2050 and raises the emissions-reduction target for 2030. Further, the EU has taken the lead in the search for internationally coordinated action to tackle

40 See López-Rodríguez and Matea (2019).
41 See Álvarez and García-Posada (2019).
42 See López-Rodríguez and Matea (2020).
43 This agreement seeks to prevent global warming from being 2ºC higher, taking pre-industrial levels as a basis, and to step up efforts to confine its rise to aound 1.5ºC.
44 See "A European Green Deal", (European Commission).

climate change. As regards Spain, last May the Government sent the first draft Climate Change and Energy Transition Law to Parliament. As in the European case, this draft legislation sets ambitious environmental targets. In particular, the plan aims, by 2030, to achieve a 20% reduction in greenhouse gas emissions relative to the 1990 level (entailing a 33% reduction from the 2017 level), a 35% improvement in energy efficiency and a share for renewable energies in total final energy consumption of 35%. Further ahead, the aim is to achieve climate neutrality no later than 2050 and that the electricity generating system is 100% renewable.

Attaining these goals will call for a comprehensive and internationally coordinated strategy. The strategy should seek to provide for investment in less polluting technologies, to avoid regulatory uncertainty and to minimise the risks of delocalising activity and adaptation costs. According to some studies, there appears to be a majority in Spanish society who are mindful of the risks of not taking immediate action in combating climate change and who are prepared to assume certain costs that may arise from such action.[45]

Fiscal policy can and should be to the fore in managing the transition to a more sustainable economy. It is governments and parliaments, the depositories of the popular will, that have the necessary legitimacy to set out the path for this transformation. Moreover, they have the most appropriate instruments to implement it. Indeed, setting and calibrating taxes and subsidies so that private and social marginal costs even out is the most efficient means whereby economic agents may internalise the environmental impact which their activities cause. In this respect, environmental taxation should be centre-stage in tackling the challenges of climate change.

Various initiatives under discussion are along these lines. Thus, for example, the main tool envisaged in the European Green Deal to achieve the goals proposed is the Emissions Trading System (ETS). The aim of the ETS is to set a price for emission allowances that acts as a deterrent to carbon use in favour of less pollutant energies. In 2019, the price of these allowances held at levels still at some distance from the references some agencies consider appropriate for attaining the objectives of the Paris Agreement. With the aim of closing this gap, the European Green Deal extends the ETS to more sectors in the economy, such as transport, the maritime sector and construction, and reduces at a greater pace the volume of issues permitted within the system. As a complement to the emissions system, the Commission has also proposed the introduction of an at-border adjustment to the cost of carbon to prevent firms from transferring their production to countries with less demanding environmental regulations. Other initiatives are geared to reducing emissions in the transport sector, eliminating subsidies for the use of fossil fuels and tightening car pollution regulations, along with promoting recycling and innovation in clean technologies. In any event, it is worth highlighting that, in respect of environmental taxes, there are currently

45 See Lázaro-Touza et al. (2019).

notable national differences within the EU, both in terms of the type and scope of the instruments used. Looking ahead, it would be advisable to increase the degree of European harmonisation in the use of environmental taxes.

The role of fiscal policy in combating climate change is not confined exclusively to the tax role: increasing public investment will be vital. Thus, for example, although the European Green Deal seeks to mobilise investment worth €1 trillion in 10 years (approximately 0.5% of European GDP per annum), the European Commission's own estimates suggest that achieving the EU's climate goals would still require an additional annual investment equivalent to 1.5% of European GDP. As mentioned in Sub-sections 5.1.1 and 5.1.3, it is precisely in innovation projects, such as those relating to the development of cleaner and more efficient new technologies, and at times of uncertainty, as at present, when public investment must act as a catalyst. In that way it is liable to generate significant multiplier effects and positive externalities both on private-sector investment and on the overall economy's growth potential.

Some fiscal policy instruments could also be used to compensate those agents that may be adversely affected in this ecological transition process. Economic policy should acknowledge that, in the transition to a more sustainable economy, there will be population groups, regions and sectors whose well-being will inevitably be diminished, at least in the short term. In particular, attaining the climate goals will require very different efforts by the different sectors of activity. In this respect, it is imperative that those agents or sectors more vulnerable to the measures in place to tackle climate change be properly identified, and that effective and efficient policies be implemented to mitigate the potential adverse effects on them. One possibility would be to use the environmental tax revenue obtained to smooth the process of adjustment for these groups in the short term.

The financial sector is also called on to play a key role in the transition to a more sustainable economy. It is crucial here that the sector should incorporate into its decision-making process all climate change-associated risks, physical and transition-related alike, and identify the opportunities opening up in this transformation. Only by properly assessing these risks and opportunities may the financial sector contribute to the swift and efficient shift in resources between savers, sectors and firms that the transition to a more sustainable economy requires.

Supervisors must ensure that banks correctly price the risks associated with climate change and incorporate them into the management of their portfolios. Many initiatives are under way along these lines.[46] In particular, supervisory guidelines are being drawn up in order to align the approach different banks are using to treat

46 See Banco de España (2019b) and Delgado (2019) for a recent analysis of the consequences of climate change for the financial system and the initiatives by financial regulators in this area.

these risks. Many supervisors (including the Banco de España) are also developing environmental stress tests. Their aim is to introduce them in the coming years and analyse the consequences the financial institutions of different scenarios entailing changes in the structure of the economy.

Spanish credit institutions are moderately exposed to the sectors of activity potentially most affected by transition risks.[47] In particular, lending extended by Spanish banks to these sectors account for around 24% of their portfolio of loans to productive activities (see Chart 5.10.1). Since the global financial crisis, the non-performing loans ratio in these sectors has been lower than that observed in other productive sectors (see Chart 5.10.2). This would partly be the consequence of some of the sectors most exposed to transition risks posting above-average unit profits. To the extent that, as part of the ongoing transition to a more sustainable economy, these sectors are obliged to internalise the environmental costs they generate, they could see their profitability differential decline, while their perceived credit and market risk would rise in relation to that of other sectors of activity. Credit institutions must take these considerations into account.

Supervisors must also collaborate in developing the capital markets infrastructure that the transition to a more environmentally sustainable economy demands. The aim is for these markets to have the necessary instruments to be able to complement credit institutions in the enormous process of cross-sectoral and cross-firm reallocation of financing that the ecological transition entails. It is worth noting here that financial markets are progressively developing debt instruments linked to the so-called "green economy". Currently, investor demand for this type of product exceeds supply, which has contributed to these instruments enjoying something of a "green premium", which recently appears to be increasing. In collaboration with other institutions and with financial market players, supervisors should contribute to the development and international harmonisation of a sufficiently dynamic and detailed taxonomy. Such a taxonomy would add transparency to those activities (and products) that contribute to the transition to a low-carbon economy, and those that are more exposed to climate change risks. In this respect, the EU Taxonomy for sustainable activities, which will come into force shortly, is a landmark. It is the result of cooperation by a wide range of institutions and financial market participants in order to bring forward "green" debt products with a view to the future.[48] Supervisors should also play a key role in the initiatives under way that are seeking to develop a robust and internationally consistent framework for the dissemination of financial information relating to climate matters.

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47 This category includes those sectors of activity whose annual CO2 emissions exceed 0.11 kg per euro of value added. This group includes several transport segments, electricity production, oil refining, the chemical industry, metallurgy, the manufacture of non-metallic products, paper, timber, food, textiles and agriculture. Overall, these sectors account for 20% of the Spanish economy's value added and 18% of employment. It is important to highlight that not all the firms in the sectors are equally pollutant.

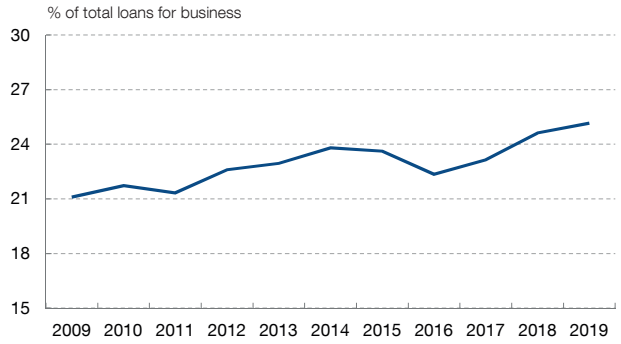
48 See EU taxonomy for sustainable activities.

Chart 5.10

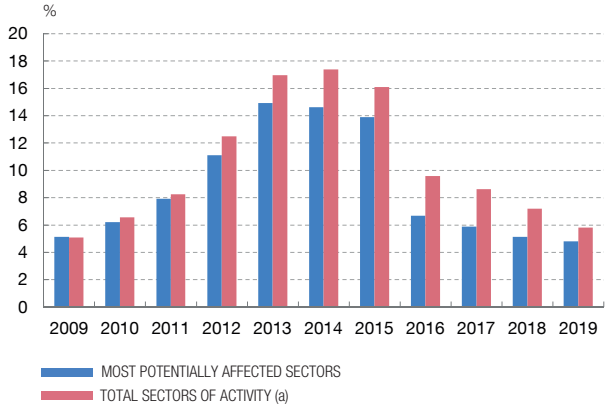
THE BANKING SYSTEM AND CLIMATE CHANGE-RELATED RISKS

Loans granted by Spanish institutions to the sectors of activity potentially most affected by the energy transition risks account for around 24% of their loans-for-business portfolio. Furthermore, the NPL ratio in these sectors of activity has, since the global financial crisis, been lower than that recorded in the other productive sectors.

1 EXPOSURE OF THE SPANISH BANKING SYSTEM TO THE SECTORS OF ACTIVITY POTENTIALLY MOST AFFECTED BY THE ENERGY TRANSITION RISKS



2 NPL RATIO BY SENSITIVITY OF THE SECTORS OF ACTIVITY TO THE ENERGY TRANSITION RISKS



SOURCE: Banco de España.

a Excluding construction and real estate development activities.

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Financial regulation and monetary policy could also contribute to the transition to a more sustainable economy, but only insofar as this does not interfere with the fulfilment of regulators' and policymakers' primary objectives. Under consideration is the possibility that central banks, within the financial regulation and monetary policy framework, could play a more proactive role in the transition to a more sustainable economy. They could do so by penalising the most pollutant sectors or initiatives (dubbed "browning") or by favouring their cleaner counterparts ("greening"). However, the explicit inclusion of environmental aspects in the conduct of these policies should be warranted by the fact that there is a well-identified risk differential between different types of activities (and the related assets) according to their degree of environmental awareness, or because these activities give rise to asymmetric aggregate price dynamics. These considerations, among others, are currently being taken into account in the Eurosystem's monetary policy strategic review. In any event, while this review is ongoing, the Banco de España has already approved the inclusion of sustainability and accountability criteria in its investment policy in respect of the reserves it manages. Also, under its mandate, the Spanish central bank has progressively increased its own holdings of green bonds. Furthermore, it is one of the founding members of the green investment fund set up by the Bank for International Settlements in Basel.

5.2 New economic realities after COVID-19

In addition to inflating some of the challenges previously facing the Spanish economy, the current crisis also poses new ones. This crisis has, in particular, revealed vulnerabilities linked to the notable international fragmentation of production processes via the so-called global value chains (GVCs), one of the linchpins of the ongoing globalisation of the world economy in recent decades. The health crisis has also prompted significant changes in agents' patterns of behaviour. Examples of this are household consumption habits and the organisation of work within firms, which might considerably alter the future pace of the ongoing digitalisation of the economy. The response to these new vulnerabilities and the extent to which the changes recently observed in agents' behaviour prove to be permanent may have very considerable implications for economic activity in the medium and long term, not only in Spain but globally (see Figure 5.1).

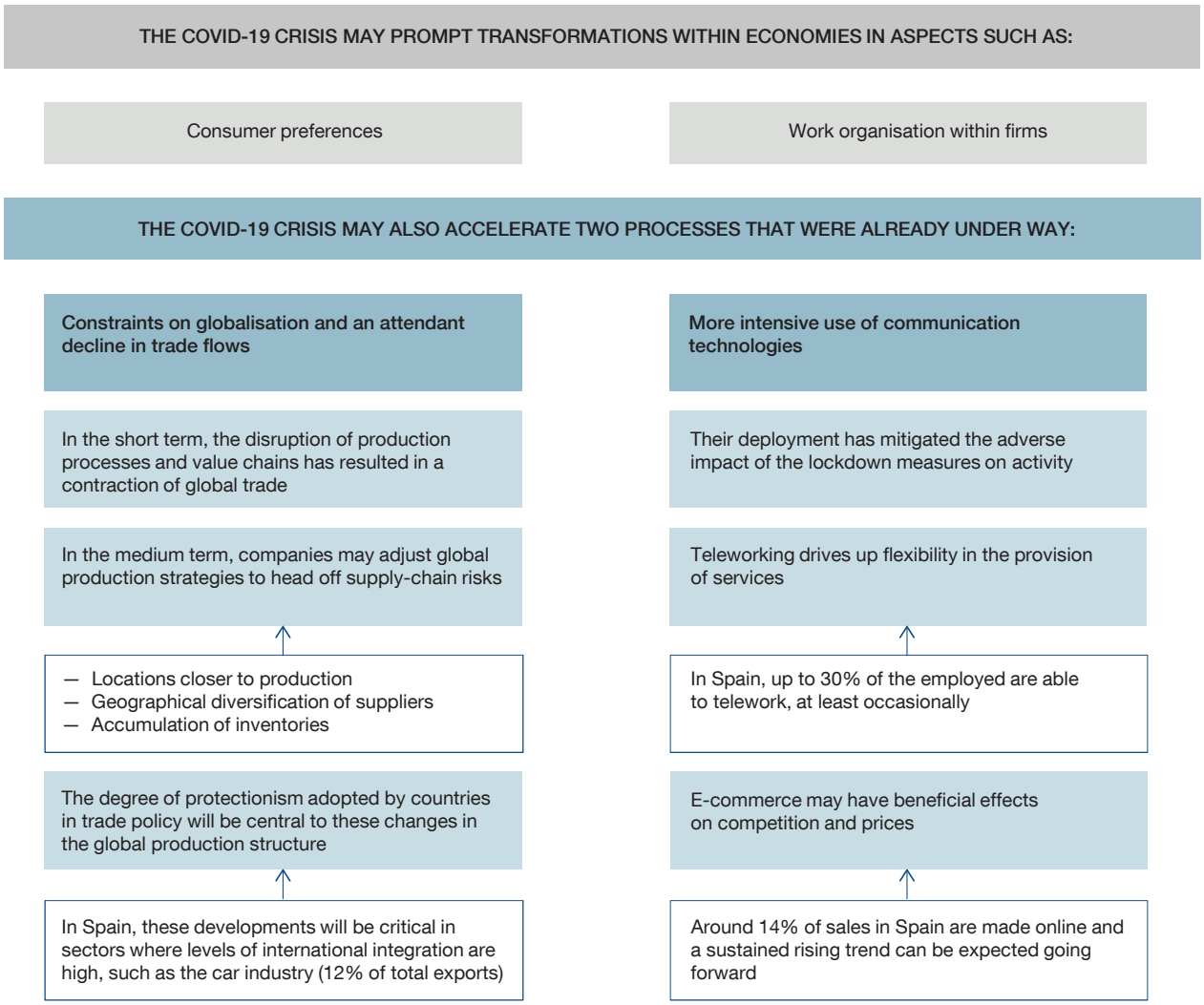
The crisis has highlighted some of the vulnerabilities associated with globalisation. Over recent decades, against the background of a favourable regulatory environment, firms have tended to relocate some of their production to other countries and to supply themselves with inputs on international markets pursuing cost savings and efficiency gains. Hence, at present, global value chains account for almost half of all world trade.[49] At the same time, in order to fully harness different economies' asymmetries in the pattern of productive specialisation, the production of certain final goods has been significantly delocalised, and in some cases concentrated in a few international suppliers. In a productive and trade environment such as that described, and set in an incomplete global governance framework like that set out in Section 3.2, the outbreak of the health crisis has evidenced certain frictions affecting the proper functioning of national economies. These frictions would appear to be linked to the extraordinary dependence of many economies and sectors on international trade flows with a view to maintaining domestic production in specific sectors of activity or to meeting domestic demand for certain products. Specifically, as a result of the pandemic there have been major disruptions in global supply chains that have conditioned production in sectors such as the car industry, one of great importance for the Spanish and European economies. In many countries, too, major shortcomings have been observed in meeting minimal levels of domestic demand in the case of specific essential consumer and health-equipment goods.

It cannot be ruled out that, in light of these vulnerabilities, some national authorities may seek to reduce their dependence on imported inputs and final goods and to boost domestic industry in specific sectors. Likewise, albeit at the expense of some loss of efficiency, some firms might opt to switch some phases of production to the parent company or to closer locations, sourcing supplies to a

49 See World Bank (2020).

Figure 5.1

POST-PANDEMIC GLOBAL TRANSFORMATIONS AND THEIR IMPACT IN SPAIN



SOURCE: Banco de España.

greater extent in the domestic market or regionally, for example within the European Union. They may also choose to diversify their sources of inputs and to build up more inventories to head off supply-chain risks. A generalisation of some of these strategies aimed at reinforcing national production would contribute to slowing even further the process of globalisation in the world economy, in line with what has been observed in recent years, largely as a result of the re-emergence of protectionist trends in some of the major world economies.

It is difficult to anticipate how permanent and intense these global trends and their impact on the Spanish economy will be. But it would be desirable to plan a strategy, ideally in the European context, to contend with the potential developments that may arise in this connection. It should be stressed that, since

the global financial crisis, the weight of Spanish exports in GDP has increased by almost 10 pp. While this should be interpreted as a sign of the strength and competitiveness of our economy, Spain's current greater openness may be a source of vulnerability in a hypothetical situation in which international trade were to slow strongly or global value chains were to diminish sharply. The impact of such a scenario would, probably, be very heterogeneous by sector, insofar as there are major differences as regards export orientation, participation in global value chains and import content (see Chart 5.11). Among the sectors most exposed would be the automobile industry, which accounts for 12% of Spanish exports and is one of the sectors most integrated into international trade. Conversely, in the services sectors, business services and the accommodation and food service activities sector, which account for 5% and 6%, respectively, of exports, have a relatively very low share in global value chains. In any event, these latter sectors will be very sensitive to how much global demand recovers after COVID-19.

The pandemic might also significantly alter the process of digitalisation in which economies and societies worldwide have been immersed in recent years. Unquestionably, Internet-based connectivity between households, tiers of government and firms has been a key tool in recent months for lessening the impact of the lockdown measures adopted in most countries. This has been especially evident in respect of work, where the resort to teleworking has stepped up appreciably; in wholesale and retail trade and in recreational activities, with the expansion of online channels; and in the educational field, where face-to-face teaching has gone virtual in a short space of time for millions of students whose schools and universities were shut down. Some of these trends might prove to be permanent and even accelerate in the medium term, especially those that may entail significant productivity gains or cost savings.

There is potential for teleworking becoming more widespread in Spain, but this option would not necessarily be equally accessible to all groups of workers. The extent of teleworking in Spain is still limited compared with other European economies. In 2018, while 13.5% of those employed aged 15-64 worked remotely in the EU-28, this ratio was only 7.5% in Spain. In this respect, the evidence analysed in Box 5.3 suggests that, when the intrinsic characteristics of each occupation are taken into account, approximately 30% of the employed could telework, at least occasionally. Yet this evidence also reveals that the lesser-skilled and those linked to more basic activities would have greater difficulty benefiting from this mode of working. It would be desirable for this aspect to be taken into account in the design and implementation of active labour market policies.

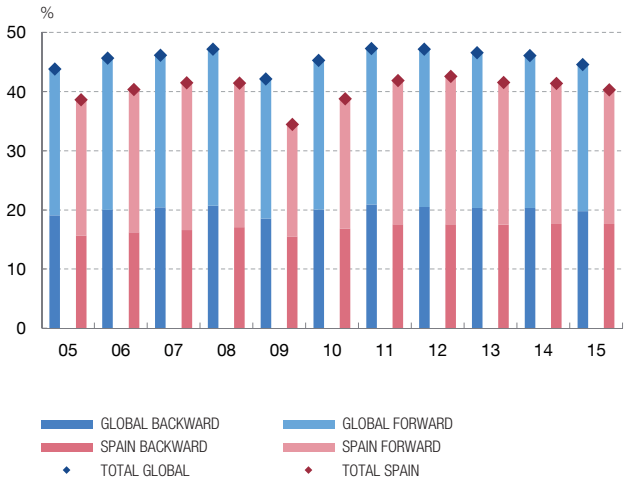
The promotion of teleworking will, however, need to bolster its positive aspects and seek to alleviate its potential disadvantages. It is essential to bear in mind that the possibility of working from home and its potential impact on productivity depend, among other aspects, on the type of work, on the firm's readiness to allow

Chart 5.11

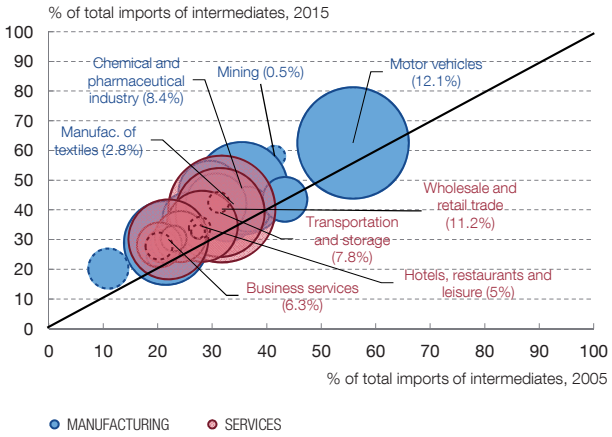
RECENT TREND IN GLOBAL VALUE CHAINS

Participation in global value chains (GVCs) is measured as the percentage of total value added of exports crossing at least two international borders. Backward participation refers to the ratio of foreign value added and forward participation refers to the ratio of domestic value added that direct importers will in turn include in their exports. Chart 5.11.2 illustrates the trend in the percentage of inputs imported by a sector that are re-exported following transformation in the Spanish economy. 2005 is compared with 2015, and a widespread increase is recorded in all sectors of activity. The bubble's size reflects the weight of the sector as a percentage of Spain's total exports.

1 GLOBAL AND SPANISH PARTICIPATION IN GLOBAL VALUE CHAINS



2 IMPORTS OF INTERMEDIATE INPUTS INCLUDED IN EXPORTS



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SOURCES: OECD, Trade in Value Added (TiVA) - December 2018.

this activity to go ahead and on each employee's capacity to work remotely. In this respect, some studies have already noted that if the appropriate conditions are not in place, teleworking-related productivity might be lower than that involving workplace attendance.[50] Likewise, the findings of different surveys suggest that, although teleworkers usually view favourably the prospect of not incurring commuting costs (time and money) and the flexibility of being able to work at different points in time and in different places, teleworking might have some adverse effects in terms of occupational health.[51]

Foreseeably, e-commerce will continue to gain in importance in the coming years, with very significant and multi-faceted consequences. Even before the outbreak of the COVID-19 crisis, this area of activity had been growing very considerably. In the euro area, according to Eurostat, the share of sales via digital platforms stood at around 14% in 2016, up by more than 4 pp since 2009 (see Chart 5.12). Spain has been party to this trend and shows a digital/total sales ratio similar to that of the euro area as a whole. Looking ahead, after the increase witnessed in e-commerce in some facets during the lockdown, an acceleration in the growth path this activity has been

50 See Morikawa (2020).

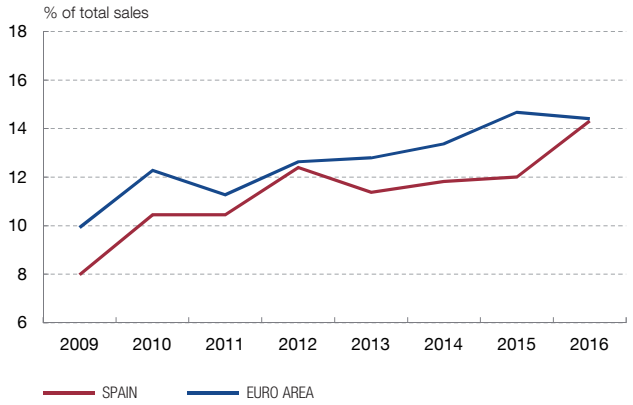
51 See Tavares (2017).

Chart 5.12

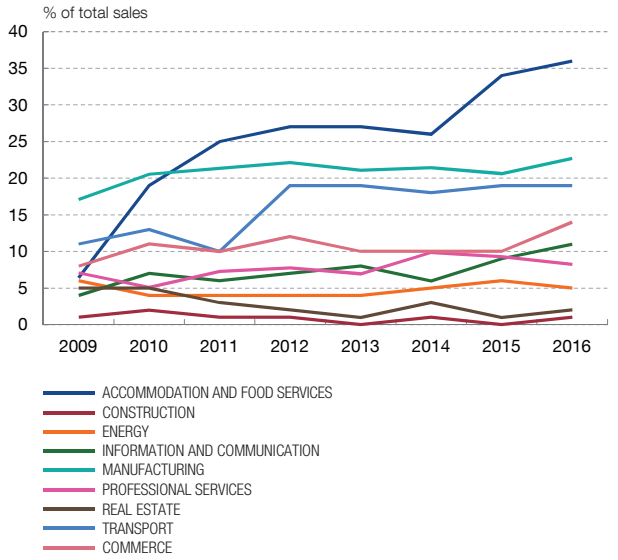
DIGITAL COMMERCE IN SPAIN

In the euro area, the share of sales via digital platforms stood at around 14% in 2016, the last year for which data are available. Online commerce was up by more than 4 pp since 2009. Spain has shown a more marked trend since that year, converging with the euro area average in 2016, albeit with significant differences in the trends posted by each activity.

1 ONLINE SALES IN SPAIN AND IN THE EURO AREA (a)



2 ONLINE SALES IN SPAIN, BY SECTOR OF ACTIVITY (a)



SOURCE: Banco de España, based on Eurostat data (2020).

a The value represented is calculated using an average (weighted by sales) of the companies by region or sector.

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moving on in recent years is not to be ruled out. This might entail significant changes, e.g. in business competition and in price-setting dynamics, although the empirical evidence does not yet offer a conclusive response in this respect.

It is necessary to prevent the eminently global and growing digitalisation of commercial transactions from putting the Spanish economy at a competitive disadvantage. As in any other transformation, the greater development of e-commerce in the future will see winners and losers. As part of a comprehensive growth strategy, it will be vital to identify promptly these profiles and to take measures that minimise any potentially adverse effects on the productive system as a whole or on aggregate demand. In principle, the Spanish economy's starting point ahead of this process of transformation does not appear to be unfavourable. Indeed, among other aspects, Spain enjoys one of the best high-speed Internet networks in Europe, with 91% broadband coverage across the country.[52] Conversely, however, the high weight of SMEs in our economy may prove a burden when it comes to harnessing the economies of scale e-commerce offers.

52 According to the CNMC (National Commission on Markets and Competition), in 2018 mobile telephony penetration in Spain was 116.1 lines per 100 inhabitants and, for mobile broadband, 98.6 lines per 100 inhabitants.

5.3 Challenges for the financial sector

Spanish banks continued to improve the quality of their balance sheets and solvency levels in 2019, but profitability fell significantly. In fact, return on equity declined to 7.1% in 2019, below the estimated cost of capital. The bulk of this drop was due to non-recurring factors, such as staff restructuring at some banks, reflected in operating expenses, and impairment of goodwill. In terms of solvency, the Common Equity Tier 1 (CET1) capital ratio for deposit institutions as a whole stood at 12.6% at end-19, rising 35 basis points (bp) in the year, essentially due to the accumulation of reserves. In 2019, the average profit ratio for the main Spanish institutions stood above the EU average, but Spanish institutions ranked last in terms of CET1 ratio (see Chart 5.13). Consolidated assets grew 3.4% last year, driven by activity abroad, while the consolidated NPL ratio improved slightly.

The severe adverse impact of the COVID-19 crisis on economic activity is expected, with something of a lag, to worsen the quality of the financial institutions' credit portfolios. In 2019, the NPL ratio of the resident private sector continued the downward trend of the previous five years and stood at 4.8% (see Chart 5.14), while forbearance as a percentage of total credit likewise declined to 5%. The COVID-19 crisis will foreseeably change this trend (See Box 5.4). Business closures, widespread job losses and, broadly speaking, a decline in borrowers' income will impair loan repayment capacity, although these effects may be cushioned by the support measures provided by the Government to the hardest-hit groups (households and businesses). In particular, the legislative moratoria approved by the Government and those agreed by the credit institution associations would, as a whole, delay the receipt of repayments under these schemes and, in the case of legislative moratoria, likewise of the interest. However, insofar as they comply with the conditions set out in the European Banking Authority's Guidelines,[53] the deferred payments will be subject to specific prudential treatment, meaning they will not automatically be classified as defaulted, forborne or under distressed restructuring. In any event, increased NPL inflows can be expected, as well as complications in terms of the recovery of non-performing loans and the disposal of troubled assets for some time.

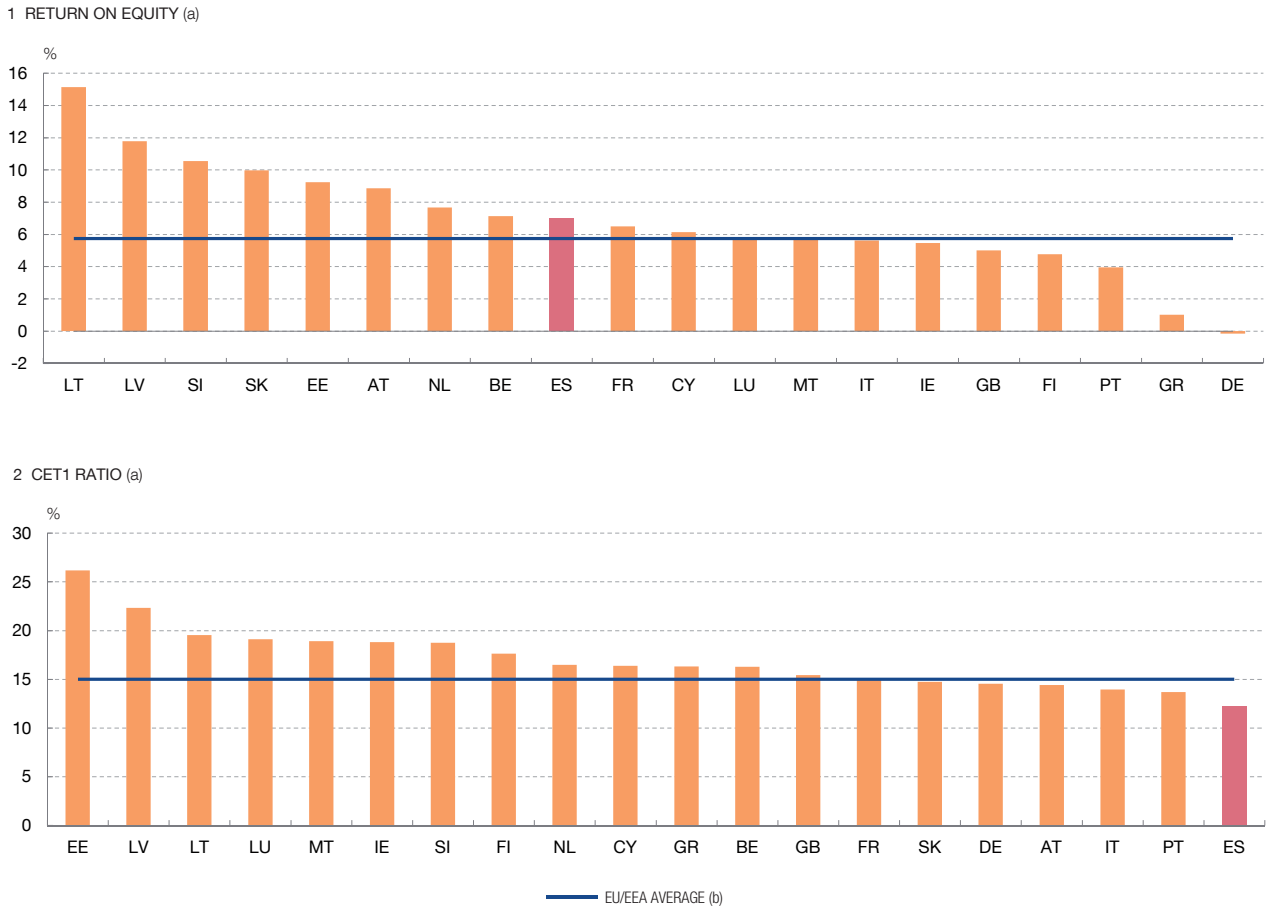
Losses materialising on credit portfolios will exert additional downward pressure on the banking sector's profitability. As has been noted, the average profitability of the Spanish banking system prior to the onset of the crisis stood below the cost of capital. This was also observed in the banking systems of most European countries. The cost of capital has risen during the COVID-19 crisis, associated with greater risk aversion among investors. This will likely be coupled with a decline in profitability, resulting in further widening of the negative spread against the cost of capital. The low interest rate environment - which will probably

53 See European Banking Authority (2020)-

Chart 5.13

THE SOLVENCY AND PROFITABILITY OF SPANISH BANKING INSTITUTIONS

In 2019, the Spanish banking system's position relative to other European systems was favourable in terms of profitability, standing above the EU average, while it ranked last in terms of CET1 ratio.



SOURCE: EBA.

a Consolidated data. December 2019. The data for each country correspond to the sample of that country's institutions included in the EBA Risk Dashboard.
b The EBA data include Iceland. EEA: European Economic Area.

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persist for longer than envisaged prior to the COVID-19 crisis - will hinder a profitability recovery through growth in net interest income, although it will help to stem losses from the credit portfolio by easing the debt burden of borrowers. Improving the sector's profitability will therefore require efforts to reduce operating costs, which may be achieved through efficiency gains. Therefore the supervisory authorities must remain vigilant and head off the risks to financial stability stemming from this crisis and be ready to provide a forceful, pan-European response should they materialise.

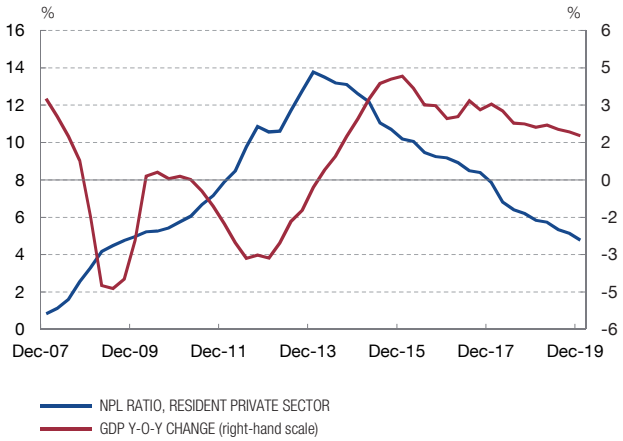
Since the onset of the pandemic there have been no signs of a general tightening of funding conditions for businesses. Indeed, the combination of the measures approved by all authorities and the stance adopted by the institutions

Chart 5.14

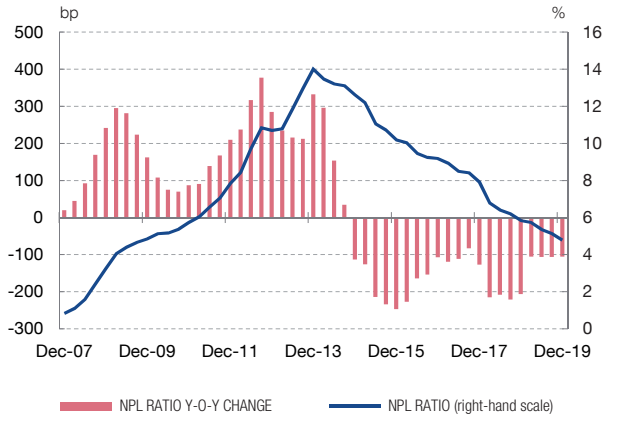
NPL RATIO AND GDP GROWTH

The NPL ratio exhibits pronounced countercyclical behaviour in Spain. During the global financial crisis which began in 2008, the NPL ratio for bank credit rose to a peak of around 14% in late 2013. It has followed a downward trend in the last five years, standing at 4.8% at end-2019. The NPL ratio can be expected to rise in 2020.

1 NPL RATIO AND GDP GROWTH



2 NPL RATIO. LEVELS AND Y-O-Y CHANGE



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SOURCE: Banco de España.

themselves is allowing many companies to secure sufficient liquidity to face the current downturn. The latest data for banks' balance sheets reveal a sharp increase in new credit extended to businesses and the self-employed during March and April. However, as noted above, there is likely to be a lag before impairment losses on credit exposures materialise, leading to some erosion of the institutions' capital levels. It is therefore crucial that the capital buffers built up by institutions can be used and that they do not undertake a process of balance sheet reduction during the crisis.

The institutions must have the certainty that capital buffers will be rebuilt very gradually once the crisis has been overcome and financial markets have returned to a situation of relative normality. Under such conditions the cost of capital should be lower, which would be conducive to raising funds on the markets. Certain lessons learned during this crisis must be incorporated into the reconstruction of solvency levels, including greater emphasis on cyclical components that are releasable during macrofinancial crises, such as the present scenario. It is worth recalling that even before the outbreak of the COVID-19 pandemic some of these ratios for the Spanish banking system were among the lowest of the EU's banking systems. Although activating macroprudential measures (such as expanding the countercyclical capital buffer or the limits on indebtedness) can curb economic growth in the expansionary phase of the cycle, the available empirical evidence shows that deactivating or easing the measures during downturns substantially

moderates their scope.[54] Thus, in net terms, the benefits of such actions seem to clearly outweigh their costs.

The health crisis has brought into even sharper relief the urgent need to address certain challenges, such as those associated with digitalisation and cybersecurity risk management. The spread of the pandemic and the resulting confinement have accelerated the activation of remote working protocols and business continuity contingency plans. This underscores the importance of pressing forward with the sector's digitalisation, seeking greater efficiency in the provision of financial services. This process will entail an increase in cybersecurity risk, which institutions will have to manage in order to minimise any adverse impact on their business activities.

In the medium term, further vigilance is required to ensure that the foreseeable continuation of the low interest rate environment does not lead to excessive risk-taking by financial intermediaries. Although the outbreak of the COVID-19 crisis prompted an avid pursuit of safe and liquid assets globally, over time, and once risk aversion dissipates, some investors may once again increase their exposure to risk-bearing assets. Should such risk-taking, which is necessary for the smooth functioning of any economy, become excessive, the financial systems may become more vulnerable to adverse shocks. To rein in any potentially destabilising dynamics, macroprudential authorities must broaden their range of available instruments, particularly in connection with the markets and non-banking intermediaries, where the least headway has been made to date. It is worth noting in this regard that in 2019 the first Spanish macroprudential authority (AMCESFI) was set up and the sectoral supervisors were furnished with additional macroprudential tools. The aim was to enhance the early detection of systemic risk and improve coordination between the different supervisory authorities, against a backdrop of strong interconnection among the financial intermediaries subject to different supervisors.

In the medium term, the Spanish financial system, like those of other European economies, must also address the challenges associated with digital disruption and climate change. BigTech firms, with their capacity to collect, store and analyse vast volumes of data, could potentially begin providing services as financial intermediaries. This might significantly shift the sector's traditional business model. In order to compete with BigTech firms, existing financial institutions will need to invest in new technologies and data processing methods. As has been noted in Sub-section 5.1.6, the financial sector must also play a leading role in the transition towards a more sustainable economy, providing the required volume of funding to facilitate the shift towards a greener economy and including climate and environmental factors in their risk analyses.

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54 See Banco de España (2020) and J.E. Galán (2020), which uses the growth-at-risk method to measure the costs and benefits, in the European context, of activating and easing macroprudential instruments such as the countercyclical capital buffer.

In the longer term, the financial sector will also face the challenges associated with population ageing, which has important implications in terms of households' demand for financial services. First, population ageing will tend to depress demand for credit, given that households' financing needs are largest during the middle stages of the life-cycle. Second, these trends will generate growing demand for new long-term savings and other products that grant greater liquidity to the wealth accumulated by individuals during their working life to cover living expenses in later life.[55]

5.4 Europe's role: challenges and responses

Many of the challenges facing the Spanish economy can neither be understood nor addressed from an exclusively domestic perspective. Some of them are shared with the other advanced economies, specifically, the European economies. Moreover, in such an interconnected world, national authorities' ability to act and the effectiveness of unilateral measures are relatively limited. This is especially the case of the European Union and the euro area, where, on many fronts, Europe is the optimal platform for taking action.

The nature of the current crisis warrants swift and unequivocal action by the EU to ensure economic recovery and to reaffirm the European project of social and economic progress. The health shock that triggered this crisis is exogenous in nature and unrelated to the greater or lesser structural or cyclical strength of the economies afflicted by it. Even so, its economic impact on Europe's various countries is particularly uneven. This is largely a result of each country's productive specialisation, itself a product of the workings of the Single Market. In this regard, protecting the Single Market also means preventing the pandemic from leading to excessive economic disparity among the members.

The measures approved by the EU Council to provide countries with liquidity, such as the SURE instrument and the ESM credit line, and to support lending to business through the EIB represent important progress, yet they have certain limitations in terms of their force and scope. These measures help to further shore up the European safety net of last resort, but neither in terms of size or nature are they ideal for instrumenting a wide-ranging, common fiscal response. Overall, the three instruments mentioned above will mobilise at most around €540 billion. This figure is relatively small in proportion to the EU Member States' future financing needs resulting from the fiscal policy measures applied to counter the pandemic's effects, which, for the next two years, are estimated to total €1.7 trillion.[56]

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55 See Banco de España (2019c).

56 The estimated financing needs refer to the sum of the Member States' cyclical and discretionary deficit, excluding, for example, the possible losses related to State guarantee schemes.

The European Commission's proposal to create a temporary recovery fund (Next Generation EU) would serve to partially offset the potential real and financial disparities among European members. This fund could harness the positive spillovers arising from joint action and pave the way for a coordinated recovery from the crisis, based on common budgetary instruments (see Figure 5.2). Financing the fund through pooled debt would take advantage of the favourable low interest rate environment and would preclude the Member States from assuming debt individually under conditions that, in some cases, would foreseeably be less favourable than those expected to be applied to this joint instrument.

In the medium and long term, a common, investment-focused fiscal drive, such as that proposed by the European Commission, would facilitate a buoyant recovery and would increase the EU's potential growth capacity. Box 5.2 analyses the macroeconomic effects of a fiscal impulse at the European level based on investment and productive spending. In the current context, there are grounds for expecting the European Union to be able to benefit from a larger government spending multiplier resulting from the complementarity of certain government spending items with private investment, a low interest rate environment and the positive spillovers among countries.[57] Furthermore, the increase in government investment in certain items - such as research, digitalisation and the fight against climate change - would help to improve the long-term outlook for sustainable growth. These are areas where the EU must assert its size, economic capacity and social commitment so as to prevent the gap that has opened up in recent years relative to the global position of the other two large economic powers (the US and China) from widening further.

However, the fact that the EC's current proposal for the recovery fund is focused on medium- and long-term objectives means that there is still a significant need to fund Member States' budgets to combat the pandemic's effects. To cover this shortfall, it would be desirable for the fund to be larger and more agile, doing away with the delays inherent to proposing, approving and implementing specific government investment projects. Further, given the aforementioned cross-country heterogeneity in the crisis's impact, it would be advisable to have fiscal policy mechanisms at the EU level whose main aim would be to act as a line of defence against potential spells of fragmentation in the EU, both financially and in terms of competition in the Single Market.[58] In the medium term, the EU should equip itself with an appropriate institutional framework for tackling the uneven impact of economic shocks, for example, by implementing a macroeconomic stabilisation fund in the EU common budget, a cyclical stabilisation function or a pan-European unemployment reinsurance scheme. This would result in increased risk sharing at a budgetary level and would improve resilience to adverse shocks.[59]

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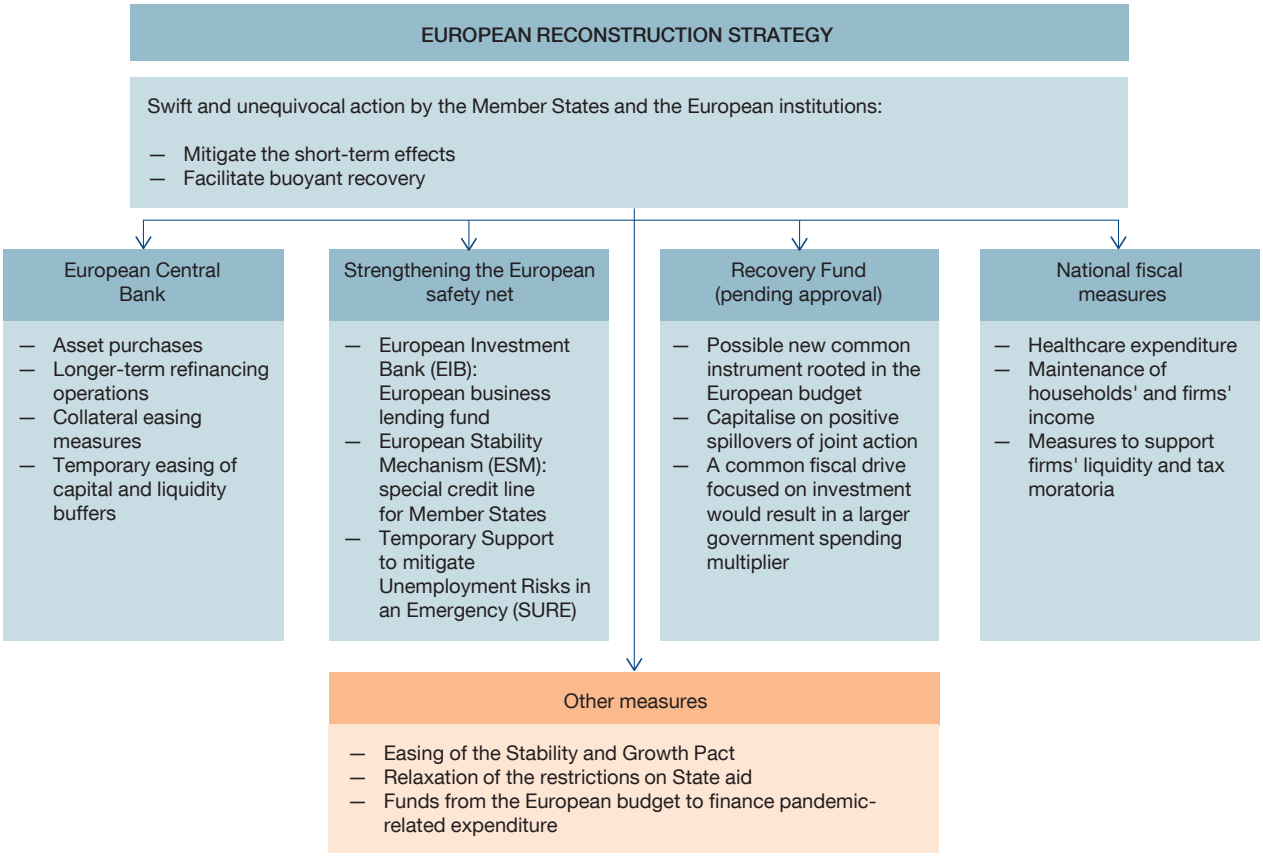
57 See Arce et al. (2016).
58 See Arce et al. *(2020).*
59 See Banco de España (2017).

Figure 5.2
EUROPEAN RESPONSE TO THE COVID-19 HEALTH CRISIS



SOURCE: Banco de España.

The EU would reap the benefits of the creation, on a large enough scale, of a common and pooled safe asset. Alongside the borrowing-cost savings made by using the joint capacity of the EU budget to raise funds,[60] the creation of an ample quantity of common safe assets would reduce the sovereign-bank nexus and improve financial integration in the EU. Pooled funding, rather than national debt, would therefore become a "positive sum game". That would complement the operation of the private risk-sharing channels - such as accessing bank credit or obtaining foreign investment - and lessen the risk of these channels behaving procyclically, as there would be a safe benchmark common to all the countries. Against a backdrop of relatively scant euro-denominated safe assets, the availability of this new safe asset would also encourage international investment and bolster the international role of the euro.[61]

60 The European Union currently only borrows through instruments directly linked to a loan arranged with a state (inside or outside the EU). Debt issued by the EU totals around €51 billion. Most of that sum relates to loans linked to the instruments created during the European debt crisis between 2010 and 2012, which were the origin of the European Stability Mechanism (ESM).

61 See, among others, Brunnermeier et al. (2017), Farhi and Werning (2017), Hernández de Cos (2019) and Iltzezki et al. (2020).

This crisis has, in any event, demonstrated that in order for the EU to achieve further integration, it is essential that the supranational systems be afforded greater influence and that the EU budget be reinforced. Since the future challenges facing the European economies are necessarily common to them all, it would be recommendable for them to at least partially pool their financing. In this regard, expanding the EU's resources would also require the taxes established at the European level to have more weight. Various alternatives exist, such as potential taxes on some aspects linked to the growing importance of the digital economy or on activities that cause the most pollution, in order to foster the economy's decarbonisation. The fact that the tax base of these potential taxes may be transferred between countries would already justify, in and of itself, at least a high level of coordination at the European level.

All Member States would benefit were the European Union to have greater weight in fiscal policy. However, this would also require increased fiscal responsibility at the domestic level. The issuance of new bonds at the European level does not mean that the EU must satisfy the debt obligations incurred by the Member States in the past, which should continue to fall to the Member States themselves. In any event, in order to further pool fiscal resources it is necessary to update and bolster the countries' incentive framework, so that the use of these mutually backed resources is tied to a greater commitment to macroeconomic and fiscal stability, and to the reforms aimed at improving the sustainable growth capacity of the national economies.[62]

The new priorities should supplement, and not replace, the tasks yet to be completed to strengthen European governance. Key in this regard is, among other reforms, the completion of the Banking Union by creating a European Deposit Insurance Scheme. A fully pooled deposit insurance scheme would make a fundamental contribution to generating confidence in the European banking system, at a time when it is required to provide sufficient liquidity to the European economy. However, in recent years, no headway has been made in either this area or in the regulatory harmonisation required to complete the Banking Union.[63] The persistence of these barriers helps, in turn, to explain why banking operations are structurally skewed towards national markets and the scarcity of cross-border bank consolidation processes.

Headway should also be made in reducing the various impediments to the existence of a fully fledged Capital Markets Union in the EU. Achieving that goal requires, first, a clear and determined political commitment from the national authorities to this common project. Second, it requires a detailed and thorough plan of the measures that must be implemented. With that specific goal in mind, at

62 See, among others, Beetsma and Bovenberg (2001), and Arce et al. (2020).
63 See Lane (2019).

end-2019 the European Commission set up the High Level Forum on the Capital Markets Union.[64] This forum's final report, published on 10 June, should serve as a starting point to make determined progress in integrating the European capital markets. Specifically, this report presents, in a relatively granular fashion and with a detailed timeline, 17 clusters of measures that are mutually reinforcing and dependent on each other. These should be implemented without delay to eliminate the main obstacles that, in recent decades, have prevented European financial institutions from increasing the scale of their operations, especially at the cross-border level, have made European markets less attractive to international investors and have limited the ability of region's financial institutions to compete globally.

As regards coordinating fiscal policy, prior to the outbreak of the health crisis the European Commission had instituted a reform process to simplify fiscal rules and improve compliance therewith. This reform may be key when the current situation - in which the rules have been relaxed in order to prevent them from creating a procyclical bias in national fiscal policy - has been overcome. In particular, it is crucial that, once the crisis has been weathered, the fiscal rules make it possible to conduct the necessary national fiscal consolidation without jeopardising the recovery in activity. Moreover, the reform process under way should serve the aforementioned purpose of updating and reinforcing the incentive framework of the national authorities vis-à-vis compliance with the common rules.

64 See High Level Forum on Capital Markets Union and Final report of the High Level Forum on the Capital Markets Union - A new vision for Europe's capital markets.

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Box 5.1

ALTERNATIVE SCENARIOS FOR PUBLIC DEBT IN THE MEDIUM AND LONG TERM

The economic crisis triggered by COVID-19 has called for a forceful fiscal response in the near term, both in Spain and in other affected countries (see Sections 3.4 and 4.3 in Chapters 3 and 4, respectively, of this Report), to limit the scale and duration of the adverse effects of the pandemic, and to foster the subsequent recovery. However, this budgetary stimulus is prompting a very substantial rise in general government indebtedness (see Sub-section 4.4.3 in Chapter 4), which will require that a broad fiscal consolidation strategy be applied in the medium term, once the current economic downturn is over.

This box analyses the possible future path of the public debt-to-GDP ratio in Spain over the coming decade, considering various assumptions as to the behaviour of its main determinants. The two approaches used for analysing the debt trajectory on the basis of the relevant driving factors are based, respectively, on a standard deterministic model and a stochastic model.

The standard model contains three equations describing changes in real GDP, inflation and interest rates.[1] Specifically, the real GDP growth rate is assumed to depend upon the degree of slack in the economy – measured by the output gap – and changes in interest rates. The inflation rate in each period is estimated on the basis of the output gap and future inflation expectations, which, in turn, are determined by a combination of the ECB's medium-term inflation target and more recent price behaviour. Lastly, interest rates on general government financing hinge on the public debt maturity structure and are sensitive to the potential adverse effects on conditions of access to financing that could derive from having an excessive debt stock or deficit (see Box 3.4 of this Report for an analysis of the interplay between these variables).

Charts 1 and 2 show the expected path of public debt in Spain over the coming decade according to this model under different sets of assumptions. Specifically, the paths presented differ from one another in two aspects: the trend in the macroeconomic and fiscal variables up to 2021, and the (fiscal and structural) economic policies adopted from 2022 onwards. As regards the former, it is assumed that the trajectory of GDP, inflation, interest rates, the budget deficit and public debt in 2020 and 2021 alternately reflect those of the early and gradual recovery scenarios constructed by the Banco de España in its most recent projections in June 2020.[2] For the latter, the alternative assumptions as to fiscal policy beyond 2021 are that the structural balance will either remain constant as from that year or that it rises 0.5 pp annually until it reaches equilibrium. The possibility of structural reforms being introduced to raise potential growth is also considered.

Construction of the paths of public debt set out in Charts 1 and 2 is completed with the endogenous changes in the different variables (real GDP, inflation, interest rates, budget deficit) obtained in the context of the model described above. In particular, Chart 1 shows the public debt-to-GDP ratio under the early and gradual recovery scenarios, assuming, in both cases, a neutral fiscal policy from 2022 (i.e., no variation in the structural deficit). As can be seen in the chart, the public debt ratio is expected to rise gradually over the course of the decade, to around 115% and 125%, respectively, in 2030 under the two scenarios. This increase in debt during the period considered is due to nominal GDP growth not being sufficient to counterbalance the high primary deficit recorded year after year. Moreover, the rise in debt is greater in the gradual recovery scenario because of the higher primary deficit in 2022, which would be maintained going forward, whereas nominal growth thereafter is relatively similar to that under the early recovery scenario. Similarly, if a more adverse macroeconomic scenario than those described were to materialise, such as the very slow recovery risk scenario also considered in the most recent projection exercise, the debt ratio would reach significantly higher levels, owing essentially to the greater worsening in public finances in the short term.

Taking the gradual recovery scenario up to 2021 as an example, Chart 2 illustrates the sensitivity of the debt path to alternative economic policy strategies from 2022 onwards, in terms of adopting a fiscal consolidation programme and possible structural reforms that raise economic growth capacity.

The red line in this chart, reflecting a neutral fiscal policy from 2022 onwards, corresponds to the gradual recovery scenario presented in Chart 1. The yellow line shows the public debt-to-GDP ratio if, rather than fiscal policy being neutral from 2022, an effort is made to reduce the deficit

1 See Hernández de Cos, López-Rodríguez and Pérez (2018). "The challenges of public deleveraging", *Occasional Paper* No 1803, Banco de España.

2 See Sub-section 4.4.3 in Chapter 4 and Banco de España (2020). "Macroeconomic projections for the Spanish economy (2020-2022): the Banco de España's contribution to the Eurosystem's June 2020 joint forecasting exercise".

consistent with the usual requirements of the Stability and Growth Pact (SGP). In particular, a fiscal policy is assumed that would enable the primary structural balance to rise by 0.5 pp of GDP each year until it reaches equilibrium. Thanks to such budgetary consolidation, public debt shows a clear trend of sustained moderation, returning to a level in 2030 similar to that recorded at end-2019, before the outbreak of the health crisis. If this fiscal policy were also combined with the introduction of ambitious structural reforms that increase economic growth potential (by 0.5 pp, to 1.7% in 2030) and, therefore, the size of the main tax bases, the resulting greater economic buoyancy would enable the debt ratio to fall more sharply, to below 90% of GDP in late 2030 (blue line).[3]

Fiscal policy must play an active role in reducing the public debt ratio following the economic crisis. A structural effort in line with SGP requirements would reduce public debt to below 100% of GDP before 2030. The adoption of structural measures that increase potential GDP would substantially improve public debt sustainability.

Chart 1
SIMULATED PUBLIC DEBT PATHS WITH A NEUTRAL FISCAL EFFORT

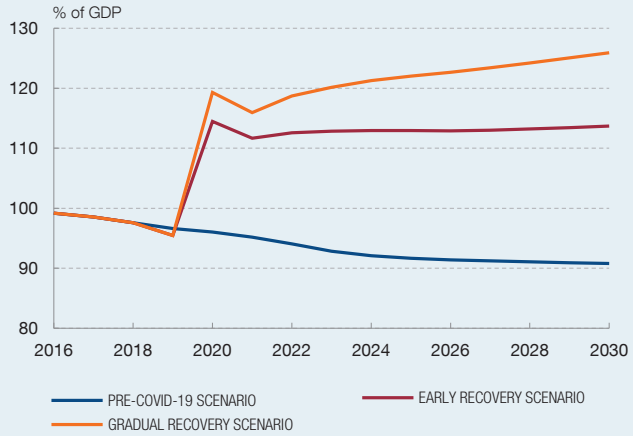


Chart 2
SIMULATED PUBLIC DEBT PATHS UNDER THE GRADUAL RECOVERY SCENARIO CONSIDERING ALTERNATIVE ASSUMPTIONS AS TO FISCAL EFFORT

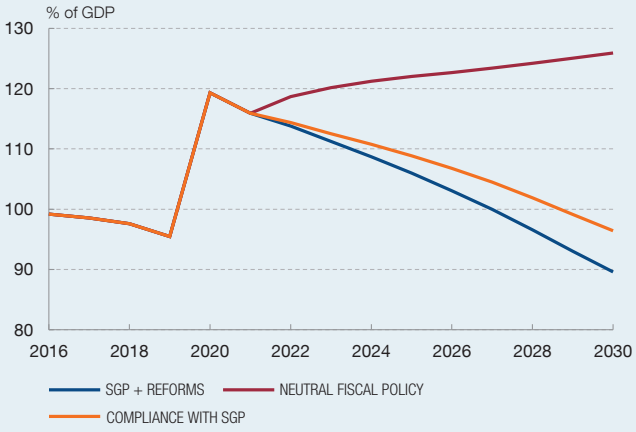


Chart 3
DISTRIBUTION OF PUBLIC DEBT SIMULATIONS ONE QUARTER AHEAD (FORECASTS FOR 2020 Q1-2022 Q4)

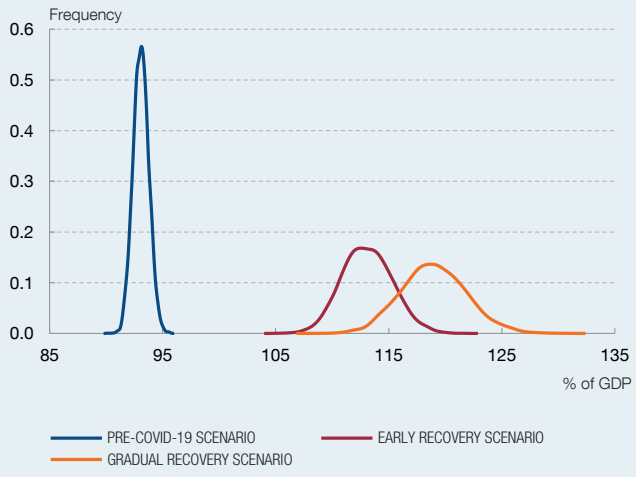
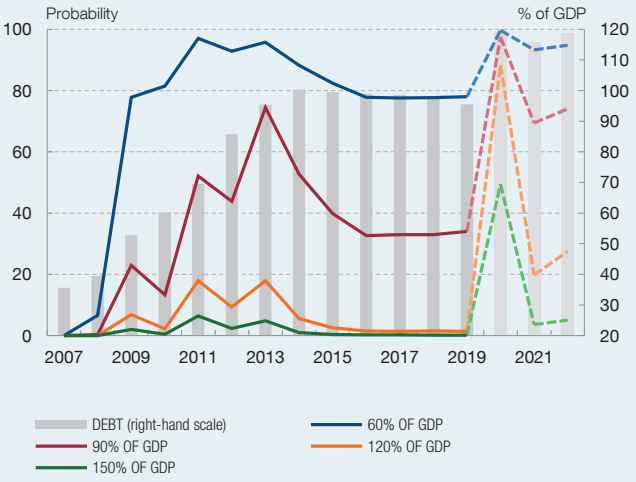


Chart 4
PROBABILITY OF THE DEBT RATIO EXCEEDING A THRESHOLD 10 YEARS AFTER A GIVEN DATE (FORECASTS UNDER THE GRADUAL RECOVERY SCENARIO FOR 2020 Q1-2022 Q4)



SOURCES: Banco de España, using INE and IGAE data.

3 The tool used distils the fiscal policy stance in the change in the structural primary balance, without distinguishing between the effects derived from using alternative combinations of fiscal instruments, which could be conducive to economic growth to different degrees.

When considering the different potentially feasible scenarios, the public debt paths set out in Charts 1 and 2 help illustrate, as an initial approximation, the high level of uncertainty surrounding the future behaviour of this variable, on the basis of its main driving factors. For a more explicit quantification of the effect of this uncertainty, a second set of exercises has been conducted, based on a stochastic model. This model uses empirical relationships between the main determinants of the public debt ratio to generate a large number of alternative paths for this variable which are, a priori, statistically feasible.[4] The simulation of these paths is therefore based on the assumption that the fiscal policy discretionary measures are governed by their historical behaviour, abstracting from hypothetical changes in the fiscal policy reaction function. The paths obtained can subsequently be used to calculate probability distributions as to the possible future behaviour of public debt.

By way of illustration, Chart 3 shows the probability distribution for the public debt-to-GDP ratio in 2023 Q1 under three different macroeconomic scenarios: that considered by the Banco de España in late 2019,[5] before the outbreak of the health crisis, and the early and gradual recovery scenarios considered in the June 2020 projections. The change in the probability distribution for the public debt ratio highlights the heightened uncertainty over the future behaviour of this variable as a result of the adverse shock to activity triggered by the pandemic. Thus, while under the scenario considered in the December 2019 projection exercise, this ratio was simulated at around 93%, within a relatively limited range of some 4 pp, under the gradual recovery scenario, not only is the ratio significantly higher, but its dispersion is also wider (with potential values ranging between 110% and 130%).

This stochastic model can also be used to calculate the probability of the debt-to-GDP ratio rising above a certain threshold over a specified horizon. Chart 4 shows the outcome of this exercise, taking by way of example the gradual recovery scenario, and considering a period of ten years. As can be seen in the chart, in late 2019 the probability of the public debt-to-GDP ratio exceeding 120% ten years ahead was virtually zero. However, after incorporating the information for this gradual recovery scenario, taken from the published 2020-2022 macroeconomic projections, which already considers the substantial worsening in public finances expected in the short term, the probability of debt surpassing 120% of GDP over a ten-year horizon increases to around 25%.

In summary, the simulations presented in this box, which consider different macroeconomic scenarios and models, underline that the necessary fiscal stimulus in response to COVID-19 will trigger a very significant, prolonged increase in government indebtedness in Spain from 2020 onwards. In this setting, the striking degree of vulnerability brought about by persisting and very high levels of government indebtedness will have to be tempered, and a degree of scope for fiscal action will have to be rebuilt in order to be able to deal with future adverse shocks. These needs make it advisable to undertake an ambitious medium-term fiscal consolidation plan and structural reforms, once activity begins to recover, in order to increase growth potential and, therefore, help reduce the cost of budgetary consolidation.

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4 See Alloza, Andrés, Pérez and Rojas (2020). "Implicit Public Debt Thresholds: An Operational Proposal", *Journal of Policy Modeling,* forthcoming.

5 See Banco de España (2019). *"Macroeconomic projections for the Spanish economy (2019-2022): the Banco de España's contribution to the Eurosystem's December 2019 joint forecasting exercise"*.

Box 5.2

THE ROLE OF PUBLIC INVESTMENT ON A EUROPEAN SCALE IN THE ECONOMIC RECOVERY

The economic situation arising from the pandemic and confinement measures demands a re-evaluation of economic policy priorities so that the European economies may recover as soon as possible. Against this background, in late May the European Commission (EC) proposed establishing a Recovery and Resilience Facility financed by European long-term debt. This Facility would distribute funds from the European budget via transfers and loans to the Member States. Its aim would be to support public investments and reforms that leverage the growth potential of European economies and help address the challenges that the EU faced prior to the pandemic, such as digitalisation and the fight against climate change.

Ramping up public investment in Europe would simultaneously help correct the declining trend observed in the public investment-to-GDP ratio in recent decades. The median figure for this ratio across a broad set of EU countries fell from 5% in 1960 to 2.7% in 2018 (see Chart 2), while the latest data indicate ratios of 3.2% in the United States, 3.8% in Japan and over 6% in China. Several factors are behind this trend.[1] First, the stock of public capital grew significantly over that period, meaning the investment needs of the more traditional areas (such as road and rail transport) may be lower at present. Second, the development of the welfare state - against the backdrop of an ageing population - has seen welfare expenditure become an increasingly prominent component of government budgets, doubling its weight in GDP over the last four decades (see Chart 1). With the public sector facing budgetary constraints, the vigour of this expenditure item has impinged on the capacity to implement public investment projects.

The economic literature indicates that public finances with a more balanced mix of investment and current expenditure can ultimately yield benefits. In particular, the empirical evidence suggests that those economies where the public sector focuses investments on areas conducive to growth post stronger activity levels in the long term.[2] This, in turn, allows public sector budget constraints to be eased and contributes to the sustainable financing of other spending items, such as welfare expenditure.

Further, public investment often generates public goods that yield positive externalities for private sector activity. This is true, for example, of many investments that might benefit from the Recovery and Resilience Facility proposed by the EC - such as basic public research - and public sector investments geared to addressing

Chart 1
WELFARE EXPENDITURE

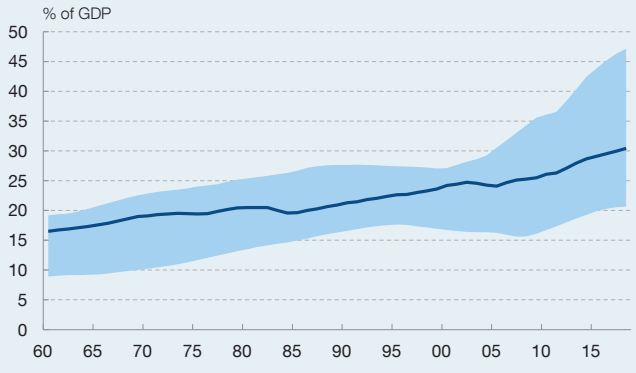
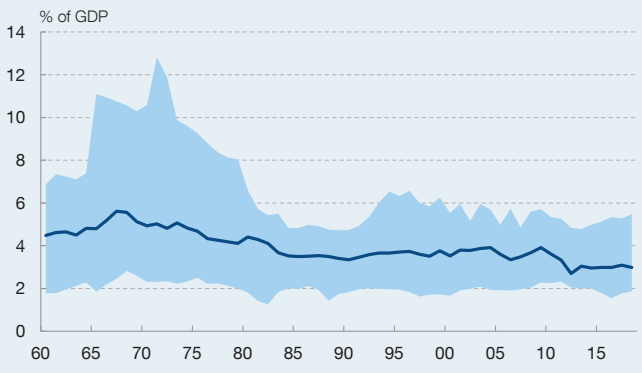
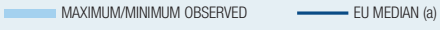


Chart 2
PUBLIC INVESTMENT





SOURCE: Own calculations based on European Commission data.

a The EU median comprises the following countries: Austria, Belgium, Germany, Spain, Finland, France, Greece, Ireland, Italy, the Netherlands, Portugal, Denmark, United Kingdom, Sweden and Luxembourg.

1 M. Delgado Téllez, E. Gordo, I. Kataryniuk and J. J. Pérez (2020). "The decline in public investment: "social dominance" or too-rigid fiscal rules?", *Working Papers,* Banco de España, forthcoming.

2 J. Fournier, (2016). "The positive effect of public investment on potential growth", *Working Papers,* No 1347, OECD Economics Department; European Commission (2017). "Government investment in the EU: the role of institutional factors", *Report on Public Finances* in EMU 2017, 133-186.

climate change.[3] In both cases, such public investment has a potentially sizeable multiplier effect on innovation capacity in the private sector[4] and the economy's long-term growth.[5] However, this effect is contingent upon efficiently designed public investment plans.[6]

A macroeconomic model calibrated for the euro area, distinguishing between Spain and the rest of the eurozone, helps to illustrate the channels through which public investment influences activity.[7] The model includes a high level of detail with respect to each region's fiscal authority, both on the income and expenditure sides. On the latter, it is worth noting that public investment, according to the model, enables the stock of public capital to increase, which enhances private capital and labour productivity.[8]

Table 1 shows the impact on the economy's output of a permanent increase of 1 pp of GDP in public investment in Spain.[9] In the short term, stronger public sector demand for investment goods would directly boost private output and employment. In the medium term, there would be private sector productivity gains as larger public investment outlays expand the stock of public capital, driving employment and output growth.

This impact essentially depends on four factors. First, the extent to which public capital can complement private capital and employment, i.e. how effectively public capital can yield positive externalities for private activity. The model captures this through the elasticity of private output with respect to public capital. The available empirical evidence indicates that a reasonable value for this parameter is around 0.02. In other words, a 1% increase

Table 1
LONG-TERM EFFECTS OF A PERMANENT INCREASE IN PUBLIC INVESTMENT OF 1% OF GDP

	Elasticity of private output with respect to public capital = 0.02			Elasticity of private output with respect to public capital = 0.03		
Percentage difference with respect to the baseline scenario	Private investment	Private consumption	GDP	Private investment	Private consumption	GDP
Funded by taxation on salary income	0.4	-0.2	0.3	1.2	0.6	1.1
Funded by public debt	1.4	-0.3	1.4	1.8	0.3	1.9
EU-wide increase in investment	0.7	0.1	0.5	5.5	4.9	4.3

SOURCE: FiMod model, see Stahler and Thomas (2012).

3 A. Dechezlepretre and D. Popp (2015). "Fiscal and Regulatory Instruments for Clean Technology Development in the European Union", *Working Paper Series,* No 5361, CESifo.

4 J. Gruber and S. Johnson (2019). *Jump-Starting America: How Breakthrough Science Can Revive Economic Growth and the American Dream,* New York: Public Affairs Publishers.

5 In endogenous growth models, the economy's long-term growth rate depends on the pace at which new technology is created or existing technology is improved, for which research and development are key (see P. Romer, (1990). "Endogenous Technological Change", *Journal of Political Economy,* 98(5), pp. S71-S102; G. M. Grossman and E. Helpman (1991). "Quality Ladders in the Theory of Growth", *Review of Economic Studies,* 58(1), pp. 43-61, and P. Aghion and P. Howitt (1996). "Research and Development in the Growth Process", *Journal of Economic Growth,* 1 (1), pp. 49-73). Further, the recent literature indicates that R+D+I influences an economy's adjustment pattern, generating persistent economic cycles (see D. Comin and M. Gertler (2006). "Medium-Term Business Cycles", *American Economic Review,* 96 (3): 523-551, and M. Correa-López and B. Blas (2018). "Faraway, So Close! Technology Diffusion and Firm Heterogeneity in the Medium Term Cycle of Advanced Economies", *Working Papers,* No 1835, Banco de España).

6 A. Abiad, A. Almansour, D. Furceri, C. Granados and P. Topalova (2014). "Is it time for an infrastructure push? The macroeconomic effects of public investment". *World Economic Outlook,* 75-114.

7 See N. Stähler and C. Thomas (2012). "FiMod — A DSGE model for fiscal policy simulation". *Economic Modelling,* Vol. 29, number 2, March 2012, 239-261.

8 In the model, the stability of public debt is ensured by lifting tax rates on salary income or reducing expenditure on non-distorting transfers when the public debt-to-GDP ratio exceeds 60%. The model parameters are calibrated based on a series of long-term ratios for the Spanish economy and the rest of the euro area.

9 This represents a 28% increase in public investment levels, rising from 3.5% of GDP to 4.5%. That figure is somewhat larger than the boost to investment in Spain prompted by full use of the transfers from the Recovery and Resilience Facility proposed by the European Commission during its lifetime (2021-2024).

in public capital would lift output by 0.02%.[10] The relevance of this parameter is apparent in the simulation shown in the first row of Table 1. For example, elasticity of 0.03%, i.e. 50% more than in the baseline scenario, would generate far greater synergies between private activity and public capital, with the activity growth prompted by public investment magnified fourfold as a result.

Second, how far public investment contributes to growth depends largely on how it is funded. Broadly speaking, funding investment projects with tax increases tends to generate stronger crowding-out effects on private investment in the short and medium term than if the same investment is funded with debt[11], while the latter strategy would allow tax revenue to be modulated over a longer horizon. In particular, according to the model, using short-term personal income tax increases to fund the fiscal impulse would stifle private investment growth considerably more than using debt (see the first two rows of Table 1).

Third, how a fiscal stimulus affects GDP in Spain also depends on the extent to which the expansionary policy is coordinated internationally. In particular, a stimulus introduced only in Spain and funded by taxation would, in the short term, drive stronger public sector demand for investment goods and boost private output and employment. This might prompt domestic wage pressure and price increases, leading to a loss of competitiveness vis-à-vis other euro area members and impinging on activity growth. By contrast, there would be no such loss of competitiveness if a similar fiscal stimulus were deployed across the euro area, resulting in more robust growth in activity, consumption and private investment in Spain. In parallel, rising public investment elsewhere in the euro area would boost local activity and, as a corollary, benefit Spanish exports and GDP. Thus, according to the model simulation, coordinated action across the above-mentioned channels could as much as double the domestic impact of an increase in public investment (see the third row of Table 1).

Lastly, the impact on GDP of public investment also depends on the responsiveness of monetary policy. Nominal interest rates not rising in response to moderate inflation increases, which is likely at present in the euro area, would magnify the effectiveness of increased public investment.[12] In this case, the price rises resulting from greater aggregate demand would not come in conjunction with higher nominal interest rates. Consequently, agents would anticipate lower real interest rates and therefore bring forward consumption and investment decisions, helping to spur even stronger activity growth. This, in turn, would limit the crowding-out effect on private investment and consumption that is often ascribed to higher public spending when an economy is operating with few idle resources.

In short, the above exercises show that for public investment to be optimally effective it must be geared to those sectors and processes that are most complementary to private activity. In addition, securing the initial funding for such investment by means of common debt issuance would yield financial cost savings for all Member States (see Section 5.5).

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10 See E. M. Leeper, T. B. Walker and S. C. S. Yang (2010). "Government Investment and Fiscal Stimulus", *Journal of Monetary Economics,* 57, 1000–1012.

11 H. Ahmed and S. M. Miller (2000). "Crowding-out and crowding-in effects of the components of government expenditure", *Contemporary Economic Policy,* 18(1), 124-133.

12 For a detailed description of this mechanism, see O. Arce, S. Hurtado and C. Thomas (2016). "Policy Spillovers and Synergies in a Monetary Union", International Journal of Central Banking, Vol. 12, No 3: 219-277.

Box 5.3

CHANGES IN THE BUSINESS MODEL PROMPTED BY COVID-19: REMOTE WORKING

To restrict COVID-19 contagion, measures began to be taken in the second week of March restricting movements by workers and consumers. These restrictions have given rise to changes in working and consumption patterns, accelerating certain trends in the business arena observed in recent years. Also, the legislation on the "new normal" stipulates that workplaces shall adopt measures to "promote remote work when this is possible given the working activity involved".[1] This box analyses the organisational opportunities opening up in relation to teleworking, which is an option firms have adopted to soften the adverse effects of the current lockdown and to prepare themselves ahead of potential fresh outbreaks in the coming months.

In 2019, according to the Spanish Labour Force Survey (EPA), 8.4% of workers in Spain indicated that they occasionally worked at home and 4.5% did so for half of their working days. These figures mark a slight increase over the past 10 years, since in 2009 they stood at 6% and 3.4%, respectively.

These percentages are lower than those observed in the EU-28. In 2018, the latest year for which uniform information is available, 13.5% of the employed aged 15-64 worked from home in the EU-28 (Eurostat). Chart 1 shows there is much cross-country heterogeneity. Generally, remote working is a deeper-rooted practice in the northern European countries, while in the southern and eastern countries, it is used less frequently. In the Netherlands and Sweden, over 30% of all workers work remotely, whereas this practice is virtually non-existent in Cyprus, Bulgaria and Romania. Spain stands 6 pp below the European average, at 7.5%, and is some distance off the figures for other major countries such as France (20.8%) and Germany (11.6%).

The recent lockdown has galvanised this way of working. According to the Banco de España survey conducted in the first week of April, 80% of the firms consulted stated that remote working was proving an essential tool in tackling the crisis.[2] Furthermore, it has indirectly boosted the use of webinars and videoconferencing, and also the development of specific cybersecurity tools. These offer more powerful solutions in terms of antivirus, firewalls, backups, VPN, etc., against a background in which both operational and security risks have increased in intensity.

It is still premature to calibrate precisely the scope of these changes and their continuity over time once the pandemic is behind us. That said, two aspects appear to be evident. First, on the information available, there is considerable scope to increase teleworking in Spain. For a measure of the work that can potentially be done at home, we use the methodology proposed in the paper by Dingel and Neiman (2020).[3] At a highly disaggregated level, this paper classifies a job as not being able to be done at home if it meets at least one of the context- or activity-based characteristics identified as difficult to reproduce in the worker's main residence. Notable among these characteristics are, for example, having to spend the majority of time walking or running, working outdoors every day, conducting machinery inspection work or working directly with the public. This classification is applied to all workers in the Labour Force Survey based on their occupation and compared with the information offered in the same survey as to whether they performed part of their work at home.[4] Based on this characterisation, the proportion of workers in Spain who could work at home would be 30.6%, somewhat down on the estimate in the paper cited for the United States (34%).

Second, the room for improvement is clearly not the same for all sectors and groups (see Chart 2). In particular, there are some sectors currently in which teleworking is practically non-existent and where its potential for growth would be very high, such as transport and storage (a 42 pp potential increase); electricity, gas, steam and air-conditioning supply (+37 pp); general government (+32 pp); wholesale and retail trade (+25 pp); other services (+22 pp); water supply, sewerage, waste management and remediation activities (+22 pp) and manufacturing (+17 pp). At the other end of the scale are sectors such as agriculture, construction, hotels and restaurants, and domestic service, where there is scant possibility of remote working.

The different characteristics of the different types of jobs give rise to differences as regards the possibility different groups

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1 See Art. 7 of Royal Decree-Law 21/2020 of 9 June 2020 on urgent prevention, containment and coordination measures to tackle the health crisis caused by COVID-19.

2 See Banco de España (2020). "Business survey on the impact of the COVID-19 crisis", Box 1, "Reference macroeconomic scenarios for the Spanish economy after COVID-19". *Economic Bulletin*, 2/2020.

3 See I. J. Dingel and B. Neiman (2020). "How many jobs can be done at home?", NBER Working Paper No 26948.

4 See details in B. Anghel, A. Lacuesta and M. Cozzolino (2020). "Teleworking in Spain", Analytical Articles, *Economic Bulletin* 2/2020, Banco de España.

of workers have of benefiting from remote working. Thus, for example, only 21.5% of the under-24s could telework, compared with 43.5% of the over-65s. This is so because, as experience is accumulated, workers usually spend less on physical tasks and more on planning and supervisory tasks which can more readily be done from home.[5]

By level of educational attainment, the estimate of the potential number of remote workers shows that, among the highest qualified, the total number of people working from home could increase to 51%. Conversely, among the group of workers with a lower educational level, only 16.7% could do so.

Different studies show the repercussions of remote working on firms' profits and workers' attitudes. For instance, Bloom et al. (2015) analysed the productivity-related results of a Chinese travel agency which, randomly,

Chart 1
PERCENTAGE OF EMPLOYED AGED 15-64 TELEWORKING (2018)

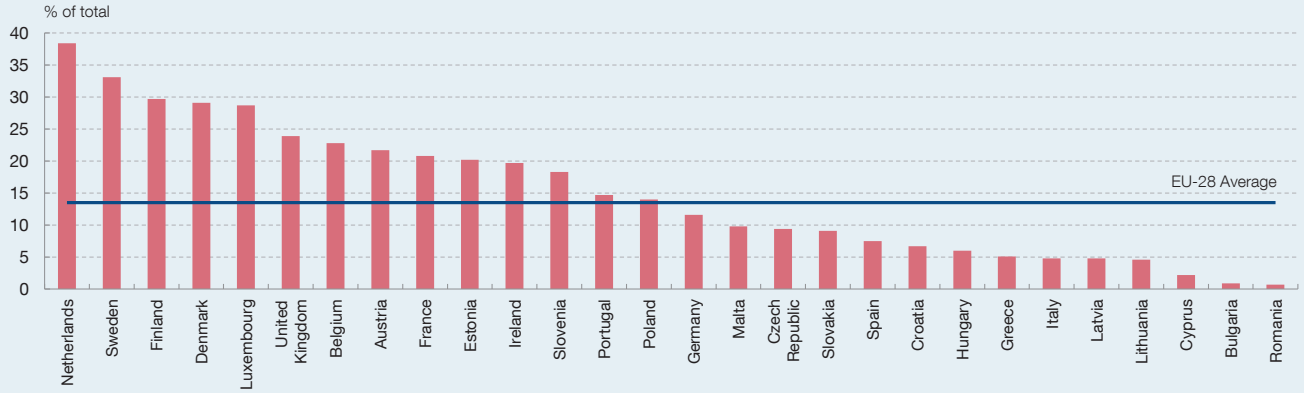
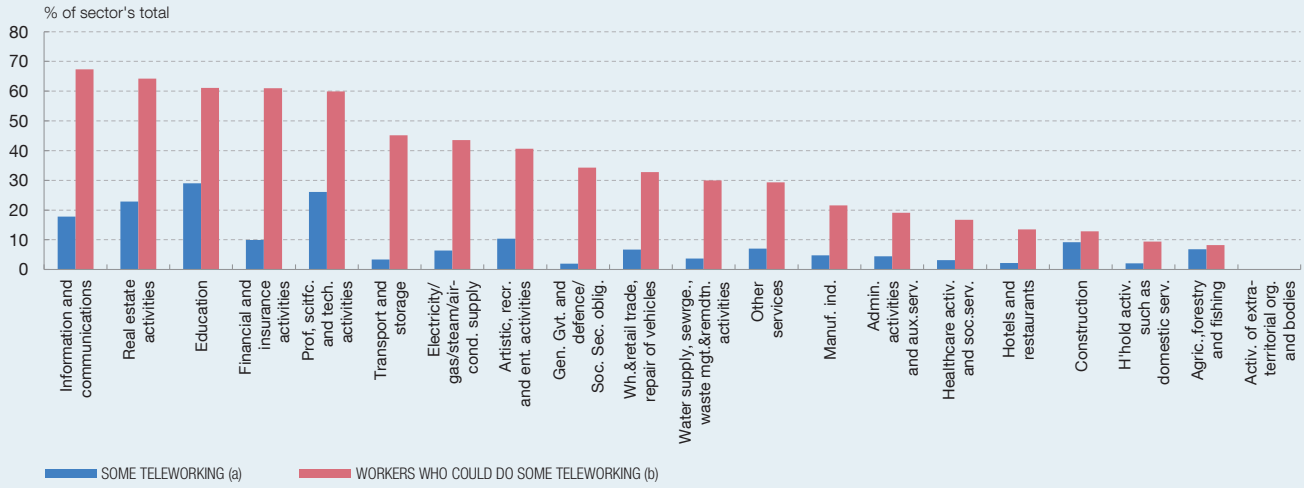


Chart 2
PERCENTAGE OF WORKERS TELEWORKING: OBSERVED AND POTENTIAL



SOURCES: Eurostat (Labour Force Survey, 2018) and INE (EPA, microdata of the annual sub-sample for the year 2019).

a The EPA definition of teleworking is used, in the question: "Did you work at home in the past 4 weeks (possibility envisaged in labour agreement)". The reply options are: "For over half the days you worked", "Occasionally" or "Not at all".
b The methodology of Dingel and Neiman (2020) is used.

5 See B. Anghel and A. Lacuesta (2020). "Ageing, productivity and employment status", Analytical Articles, Banco de España 1/2020.

assigned teleworking to a group of voluntary teleoperators for nine months.[6] In that period, productivity increased by 13%, with more hours worked and more calls attended to per minute. Further, there are studies indicating that this increase in productivity may depend on the type of tasks being performed. There is a positive increase for creative work, but it may be negative for urgent and complex tasks (Battiston et al. (2017) and Dutcher (2012)).[7] This negative effect on productivity may be compounded in a situation like the present in which remote working has been imposed by circumstances, without workers having had the opportunity to invest appropriately beforehand in home equipment or in training (Morikawa (2020)).[8] The paper by Bloom et al. (2015) also shows that workers feel satisfied at the possibility of remote working.

Generally, the findings of different surveys show that remote workers usually value in particular the flexibility of being able to distribute their working day accordingly, to perform their tasks in different places and to be able to avoid commuting to the workplace. However, set against this, remote workers usually list as negative aspects a lack of communication with co-workers, the feeling of working alone and greater difficulty in switching off from work.[9] Some analyses have also highlighted disadvantages for workers' health arising from teleworking, such as a greater propensity to suffer stress or depression.[10] In this respect, some authors advocate promoting remote working, but not on a continuous basis; rather, employees should alternate between working at home and being physically present in the workplace. Lastly, there are analyses suggesting that teleworking may become a good option for lengthening employees' working lives, since this timetable flexibility is something people close to retirement age particularly value (see Hudomiet et al. (2019)).[11]

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6 See N. Bloom, J. Liang, J. Roberts and Z. J. Ying (2015). "Does working from home work? Evidence from a Chinese experiment", *The Quarterly Journal of Economics,* Oxford University Press, No. 130(1), pp. 165-218.

7 See D. Battiston, J. Blanes, I. Vidal, and T. Kirchmaier (2017). *"Is distance dead? Face-to-face communication and productivity in teams." CEPR Discussion Paper,* No. 11924; and E. G. Dutcher (2012). "The effects of telecommuting on productivity: an experimental examination. The role of dull and creative tasks", Journal of Economic Behavior & Organization, 84(1), pp. 55-363.

8 See M. Morikawa (2020). "COVID-19, teleworking, and productivity", Vox CEPR Policy Portal.

9 See State of remote work 2020.

10 See A. I. Tavares (2017). "Telework and health effects review", *International Journal of Healthcare,* Vol 3. no. 2.

11 P. Hudomiet, M. D. Hurd, A. Parker and S. Rohwedder (2019). *"The effects of job characteristics on retirement"*, Working Paper No. 26332, NBER.

Box 5.4

THE IMPACT OF THE CRISIS ON BANKING: ANALYSIS OF THE NPL RATIO

One of the main risks facing banks in the COVID-19 crisis is that of the deteriorating quality of the loans on their balance sheets. This risk stems from the sharp contraction in non-financial corporations' and households' income in recent months owing to the disruption to economic activity caused by the pandemic-containment measures, which has not been accompanied by a similar reduction in expenditure. The NPL ratio gauges the quality of banks' balance sheets. It is used frequently as an indicator of changes therein and, therefore, of financial stability. Broadly speaking, it measures non-performing loans (both those which are 90 days past due and those where it is highly likely that borrowers may default in the near future) as a percentage of total credit exposure.

The NPL ratio is, in general, highly countercyclical. Thus, during the 2008 global financial crisis, it increased by more than 13 pp in Spain, peaking at around 14% at end-2013. By contrast, in the five subsequent years of economic expansion, the ratio decreased by approximately 9 pp, to 4.8% in December 2019. This correction was driven by a favourable macroeconomic environment and the supervisory measures geared towards encouraging prompt management by banks of troubled loan portfolios. Given this past behaviour, it is therefore to be expected that the steep declines in GDP envisaged by the various macroeconomic scenarios prepared by the Banco de España for 2020[1] will result in a significant increase in the NPL ratio.

Quarterly data from 2008 to date were used to estimate a correlation between GDP growth and the NPL ratio that points to a 1 pp drop in GDP being accompanied by a 0.7 pp increase in the aggregate NPL ratio (see Chart 1). This historical observation is a guide for approximately calibrating the potential impact of the COVID-19 crisis on the NPL ratio. However, it must be borne in mind that declines in Spain's GDP such as those projected for 2020 are significantly higher than the largest fall recorded in recent history (3.8% in 2009). Therefore, a non-linear effect, leading to an increase in the NPL ratio in 2020 that is larger than that estimated using historical data on the basis of linear models, cannot be ruled out. Nonetheless, it is also necessary to consider the vigorous recovery projected for 2021 by both the Banco de España and most analysts. This would also entail a faster decrease in the NPL ratio than in other recovery periods following previous economic crises. Furthermore, the forceful set of economic policy measures adopted at the Spanish and European level in response to this crisis should also help to reduce the intensity with which the drop in GDP results in an increase in the NPL ratio. In this regard, the Government programmes to guarantee bank loans for business and to support household income and firms' liquidity, the ECB's monetary policy measures and accounting measures in the regulatory realm all take on particular importance.

Moreover, this crisis can be expected to have an inconsistent impact on the various institutional sectors and sectoral levels; therefore, the expected trend in the aggregate NPL ratio will also depend on the distribution of the loan portfolio by agents and economic sectors.[2] That means it is necessary to analyse how the weight of the various institutional sectors and of economic activity in bank lending and in GDP has changed in recent years. Specifically, in 2008 the construction and real estate sector received the largest share of bank loans for business (47.3%), whereas, in December 2019, this sector had become less preponderant relative to the other productive sectors (a share of 21.8%). By contrast, mention should be made of the services sector's growth in weight during this period (55% of total bank loans for business in December 2019, compared with 35% in 2008). This sector includes sub-sectors such as wholesale and retail trade, accommodation and food service activities, and transport, which are more vulnerable to the disruptions caused by the pandemic and the social distancing measures adopted (see Chart 2).

Analysis of the historical correlation between NPL ratios by activity and the activity's respective gross value added (GVA) also shows that the correlation is inconsistent. For example, for the wholesale and retail trade, transport and accommodation and food services sectors taken as a whole, the correlation between GVA and the sectoral NPL ratio is even greater than for the overall loan portfolio. Specifically, a 1 pp change in the GVA of these sub-sectors taken as a whole results in a change of almost 0.8 pp in their NPL ratio, compared with 0.7 pp obtained

1 For more details, see Banco de España (2020). *Macroeconomic projections for the Spanish economy (2020-2022): the Banco de España's contribution to the Eurosystem's June 2020 joint forecasting exercise.*

2 See E. Prades-Illanes and P. Tello-Casas, "The heterogeneous economic impact of COVID-19 among euro area regions and countries", Analytical Articles. *Economic Bulletin,* Banco de España, 2/2020.

for the portfolio in its entirety. Therefore, the sensitivity of the NPL ratio of the different economic sectors and the make-up of the loan portfolio will together determine how the effects, in terms of the NPL ratio and, consequently, profitability and solvency, are distributed among banks.

In 2019, the value of the NPL ratio has significantly improved with respect to that in 2013 in all sectors, yet some have made more progress than others; furthermore, the current levels are still higher than those at the onset of the 2008 financial crisis. As Chart 3 shows, for all businesses, the difference between the 2019 NPL ratio and that of 2008 is less than 2 pp, whereas, for certain sectors, that difference is considerably larger (more than twice as large, in relative terms, in the agricultural sector, in the industrial sector and in the group comprising the wholesale and retail trade, transport and accommodation and food services sectors).

The NPL ratio in loans to households in 2019 (4.2%) was also higher than its 2008 level (2.8%), following a considerable improvement during the period after the end of the last crisis. Households' ability to continue to meet their payment obligations is also key to financial stability, since as at December 2019 loans to households accounted for around 54% of banks' lending to the

Chart 1
CORRELATION BETWEEN THE CHANGE IN THE NPL RATIO AND GDP GROWTH (2008-2019)

Chart 2
SECTORAL DISTRIBUTION OF LOANS FOR BUSINESS, 2008-2019

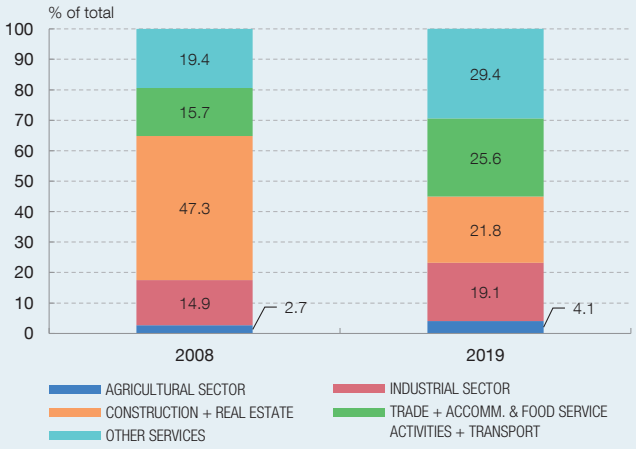


Chart 3
SECTORAL DISTRIBUTION OF THE NPL RATIO, 2008-2019

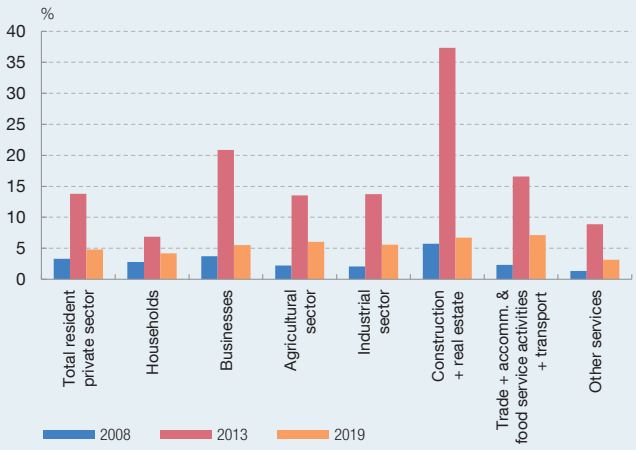
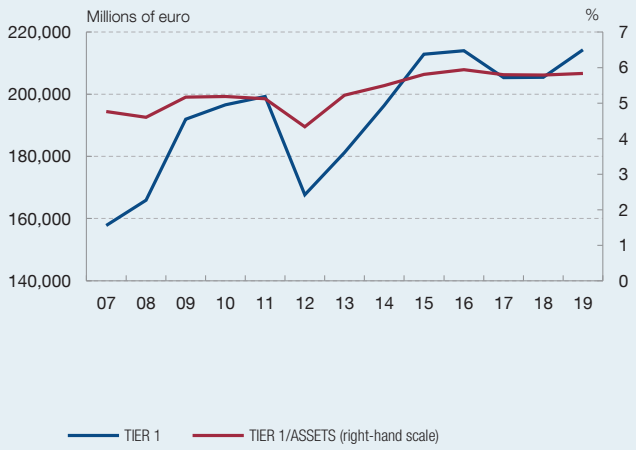


Chart 4
TREND IN TIER 1 CAPITAL (a)



SOURCE: Banco de España.

a Tier 1 capital comprises the highest quality capital, or Common Equity Tier 1, and other additional items (such as some hybrid instruments *(participaciones preferentes))*.

resident private sector. In particular, consumer loans accounted for 11.6% of loans to households at that date, but in general had grown significantly since 2015. Available analyses on the trend in non-performance in loans to households reveal that, for those households taking out various types of loan, defaults tend to arise first in the consumer lending segment.[3] Considering the recent trend in consumer loans and these historical patterns, this segment can be expected to suffer a relatively high and early impact on its credit quality as a result of the COVID-19 crisis. By contrast, if the current crisis ultimately proves to be an essentially temporary episode, the increase in the NPL ratio of mortgage loans might be moderate, since the mortgage loans that survived the global financial crisis are generally of a high credit quality and the new mortgage loans were granted under prudent lending standards.[4]

Lastly, although the NPL ratio is a very useful indicator of the quality of banks' balance sheets, it must be borne in mind that it does not provide all the information necessary to be able to assess banks' ability to absorb the losses associated with non-performing loans. First, the overall macroeconomic and financial conditions throughout the period of the considered scenarios must be assessed. Particularly, the cost of an increase in the NPL ratio in 2020 may vary depending on economic performance in 2021 and 2022. Thus, should there be a significant recovery in activity in this period, as envisaged in most of the latest forecasts, one could also expect an upturn in loan recoveries, i.e. borrowers classified as non-performing in 2020 being reclassified to performing in 2021-2022, and a more favourable trend in collateral prices, which would limit effective losses.

Second, banks' resilience also depends on their loss-absorbing items: provisions (to cover expected losses) and capital (ability to absorb unexpected losses). In the 2008 crisis, the existence of general provisions equipped banks with around €26 billion to absorb their initial losses. At the onset of the current crisis, as a result of the strengthening of capital (volume and its quality) in response to the global financial crisis, Spanish deposit institutions' Tier 1 capital has increased from around €158 billion in 2007 to almost €215 billion in 2019. In other words, Tier 1 capital has increased by €57 billion. Tier 1 capital accounted for 4.8% of total assets in 2007, rising to 5.8% at end-2019 (see Chart 4), thus increasing the ability to absorb the unexpected losses stemming from the growth in non-performance that the COVID-19 crisis will foreseeably cause in 2020.

3 See "Build-up of household debt defaults", Box 1.2, *Financial Stability Report,* Spring 2020.

4 See *El mercado de la vivienda en España entre 2014 y 2019,* Occasional Paper No 2013, Banco de España, 2020.