



Epilogue

# REDISCOVERING OPTIMISM



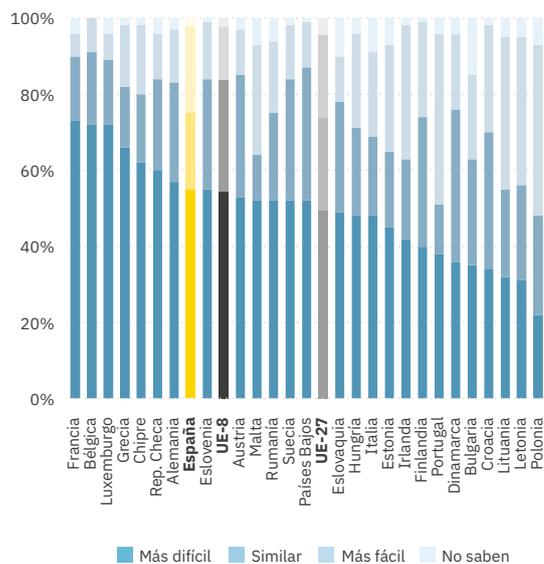
The notion of the *future* is, along with those of equality and freedom, one of the most powerful ever conceived by Western culture. It wasn't always there. For centuries, our European ancestors professed a deterministic view of the future marked by religious creed. In the Middle Ages and much of the Modern Age, history was understood as an inexorable decline (*mundus senescit*) and the future as a terrible and inevitable outcome predefined by the Scriptures (the Apocalypse) from which humanity could not escape.

From the 16th century onwards, this view began to change. Scientific advances and historiographical discoveries gradually gave rise to a different vision, which conceived of human history not as a decline, but as a slow and arduous flowering, no longer the fruit of divine work, but of the efforts of men and women living in society. It was then that the notion of *progress* emerged (with the Enlightenment) and the first ideologies that dreamed of a better, fairer, freer and more egalitarian world. It was then, too, that the first utopian and science fiction texts appeared which, unlike the works of More, Campanella and Bacon, saw utopia not as a place on Earth, but as a better placed time period of tomorrow.<sup>1</sup>

This replacement of "prophecies of the inevitable" with "prognoses of the possible" brought about a fundamental change. With it, **our ancestors moved from determinism to voluntarism, from waiting to planning, from passive acceptance of change to being the drivers of change.**<sup>2</sup> The concepts of progress and the future permeated much of Western thought and became the main driving force behind the great social changes that took place in Europe in the 18th, 19th and 20th centuries.

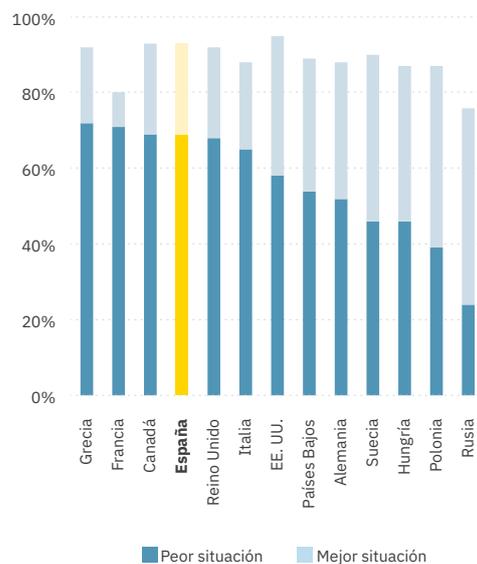
**Today, faith in progress seems more contested than ever.** The data speak of a wave of pessimism that is taking hold of the European and Spanish population. Asked whether future generations will live better than their parents, the majority of our citizens say no [Figs. 1 and 2].

**Fig. 1. Citizens' responses to the question of how they think future generations will live in the EU, 2017**



Source: Drafted by the authors based on data from the European Commission.<sup>3</sup>

**Fig. 2. Citizens' responses to the question of what they think the financial situation of the younger generation will be like in the future, 2017**



Source: Drafted by the authors based on Stokes.<sup>4</sup>

This pessimism towards the future is understandable. Past progress, while impressive, has not always been sufficient or benefited all of society equally. Moreover, the present is full of trends - technological transformation, political polarisation, changes in the global order - that cast long shadows of uncertainty into the future and remind us that **progress is neither linear nor inevitable**. Between here and 2050, many things could get worse. In fact, we can be sure that some will. **But this should not make us forget another incontestable truth: over the last four decades, Spain, like the rest of Europe, has improved enormously on practically all fronts and there is nothing to suggest that it cannot continue to do so in the future.**

Spaniards today live, on average, 36 years longer than our grandparents.<sup>5</sup> We do so in better health and with a better quality of life, thanks to advances in science, the development of the welfare state and changes in our habits. We have less dangerous, repetitive or physically eroding jobs; shorter working hours; and a level of per capita income that is double what we had when we established our Democracy in 1978. This allows us to access goods and services more easily than the vast majority of people on this planet.

Moreover, we live in a freer and more inclusive Spain than before, with more social rights and greater citizen security. We have quieter streets, more efficient and transparent institutions, a cutting-edge infrastructure network and an infinitely greater capacity for access to information and education than existed when the Transition began. Even on the environmental front, we have

made remarkable improvements. So far in the 21st century, Spain has reduced the volume of waste it generates by 27%,<sup>6</sup> expanded its protected areas to cover a third of the total land area<sup>7</sup> and increased electricity generation from renewable sources to 100,000 gigawatt hours, enough to supply more than half of the country's households.

Of course, **we have not improved in all areas and not all improvements have benefited the whole population equally.** Our economy retains a fragile and unsophisticated growth pattern, failing to generate sufficient wealth and quality employment and is neither socially nor environmentally sustainable. We have a disproportionate level of unemployment for a country like ours, an education system that is less advanced than that of our European neighbours, and a huge shadow economy. Our public administrations still suffer from severe inefficiencies that limit the quality of public services and the progress of private sector productivity. It is more difficult for our young people to access stable work and housing than it was for their parents, and poverty still affects an unacceptably high proportion of our population.

These are serious problems that condition much of our lives. **Understandably, we are frustrated by them and demand much more: from the state, from politicians, from companies and from ourselves.** But in doing so, we must not succumb to blindness and pessimism. The existence of these problems should not lead us to completely overhaul everything, to ignore the valuable progress made so far, or to return to the passive resignation to the future from which the Enlightenment freed us. We can continue to make progress. **All three statements are empirically true at the same time:**

- Spain has improved a lot since the Transition.
- Spain faces great challenges, present and future.
- Spain can overcome them and consolidate its position as one of the most advanced countries in Europe before the middle of the century.

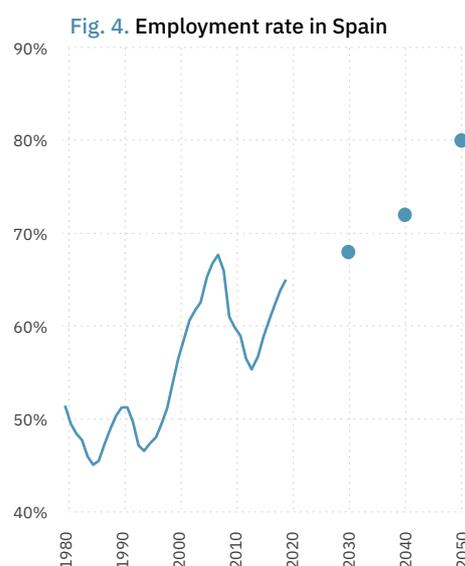
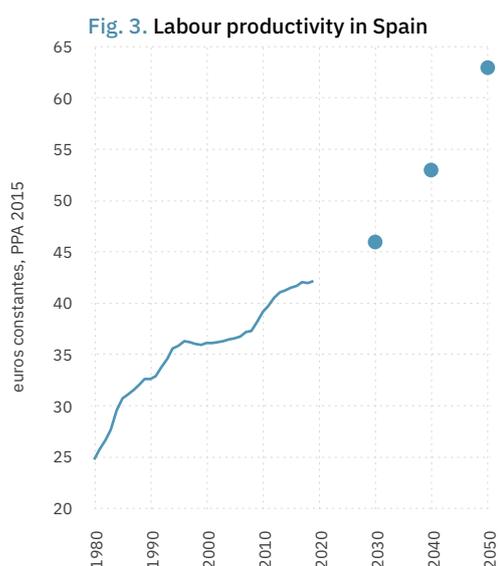
Any reflection on the present and future challenges facing Spain must start from the recognition of this threefold assertion.

**What do we need to improve?** Unfortunately, there is no mathematical formula and no template that we can follow. Every era, every territory, is different. In any case, history points to some ingredients that should be there. The first, to be precise, is confidence in progress. A confidence that we must find not in blind faith in the system or in uniform optimism, but in empirical analysis of Spain's past trajectories, present capacities and projects for the future.

This is, in fact, **one of the main propositions we have tried to achieve with this study.** We believe that the results are conclusive and that they show that, **if we take the right measures, Spain will be able to close or significantly reduce the gaps in social, economic and environmental progress that separate it from the EU-8 by 2050, and thus consolidate its position as one of the most advanced countries in Europe.**

To achieve this, we will need to make effective use of European recovery funds, seize the opportunities offered by megatrends such as demographic ageing, digitalisation and the ecological transition, and undertake far-reaching reforms over the next three decades. Reforms that, in many cases, will be similar in difficulty and magnitude to those already implemented in the recent past. If we could do it then, we can do it again, aided by the socio-economic transformations accelerated by the pandemic and the ambitious recovery funds and plans articulated by the European Union.

**Consider, for example, the economic and employment challenge.** To catch up with the EU-8 countries and close the per capita income gap with them, Spain will have to increase its productivity by 50% by the middle of the century [Fig. 3], while increasing its employment rate by 15 points [Fig. 4]. It may sound like a lot, but the fact is that several Western countries (including our own) have already made similar progress in recent decades. The fact that Spain is starting from lower levels of productivity and employment, and that there are favourable trends underway such as digitalisation and the development of Artificial Intelligence, the equalisation of education and employment for women, increased training and the green transition, increase the chances of achieving this [see chapters 1 and 7].



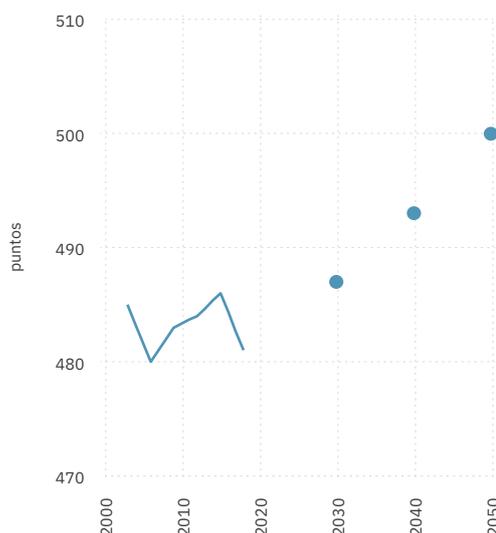
Source: Drafted by the authors, based on Eurostat and OECD data.<sup>8</sup>

Source: Drafted by the authors, based on Eurostat and OECD data.<sup>9</sup>

**The same sense of possibility should permeate our approach to human capital challenges.** To catch up with the EU-8, Spain must do two things: improve its learning levels (e.g. with a 20-point increase in the PISA standardised tests) and increase the proportion of the population aged 25-34 obtaining education beyond compulsory by some 23 percentage points. Can it be done? There are two powerful reasons to think so. The first is the fact that Spain has already made similar learning and coverage gains in the recent past [Figs. 5 and 6]. The second is the possibility that the demographic and technological transformations already underway will serve as a tailwind to achieve this. By 2050, Spain will have almost one million fewer students between the ages of 3 and 24. This could allow us to double our expenditure per student to the level of Denmark without incurring a significant increase in public expenditure. This increase in resources, coupled

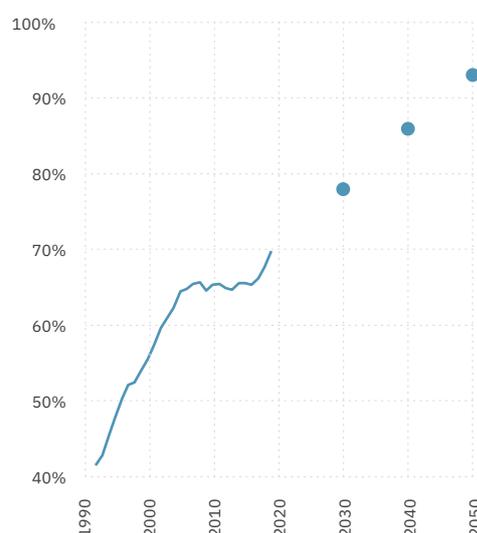
with the spread of technologies such as 5G, sensor technology and *big data*, will allow us to more effectively combat phenomena such as school dropout and segregation, to discover and better harness the potential of our young population, and to reap the gains in coverage and learning that we need to be at the cutting edge of education [see chapters 2 and 3].

**Fig. 5. Spain's PISA results in mathematics**



Source: Drafted by the authors based on data from the OECD.<sup>10</sup>

**Fig. 6. Population aged 25-34 with education beyond compulsory second level in Spain**

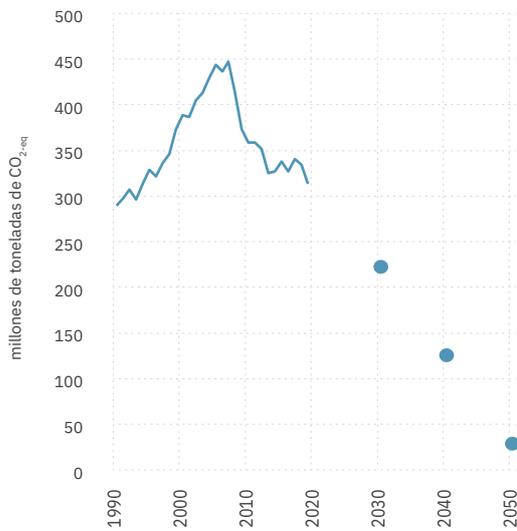


Source: Drafted by the authors based on data from Eurostat.<sup>11</sup>

**As far as the training of the working population is concerned**, the fact is that Spain already has the institutions, the infrastructure and the human resources necessary to implement the comprehensive requalification system it needs. What is needed is a series of gradual regulatory and cultural changes, which are, to some extent, already underway. If Spain was able to create almost 2 million training places in higher education and university between 1980 and 2020, it will be able to create 1 million places for much shorter training programmes by 2050, especially if it relies on new technologies and hybrid learning systems [see chapter 3].

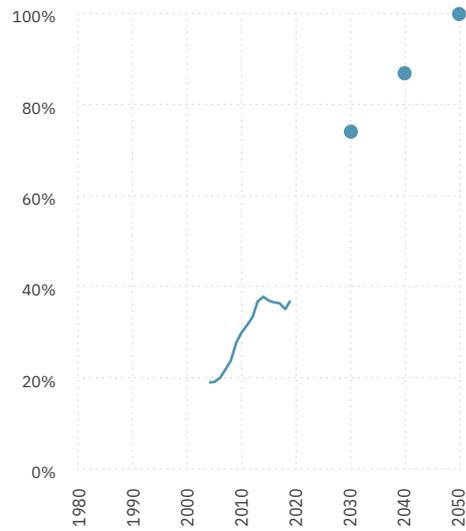
**In the environmental field, the challenges we will have to overcome in the future are particularly significant.** To curb climate change and avoid its most harmful effects, Spain, like the rest of the world, will have to carry out profound transformations that will allow it to become a carbon neutral and resource efficient society with sustainable consumption and production patterns. At the same time, it will need to become more resilient to climate change, adapting to emerging risks and changing the way we relate to the natural environment. Doing so will not be easy, and the track record to date warns of the need for strong and immediate action in the coming years [Figs. 7 and 8]. In any case, the changes that have taken place since the beginning of the century (in terms of recycling, efficiency in the use of materials, water and energy, or the expansion of organic crops) and the plethora of legislative, economic and technological initiatives that are already underway, offer reasons to be optimistic. So much so that most experts agree that Spain will play a leading role in the green transition on a European level [see chapter 4].

**Fig. 7. Total greenhouse gas emissions from Spain**



Source: Drafted by the authors, based on MITECO data.<sup>12</sup>

**Fig. 8. Electricity generated by renewable energy sources (% of total) in Spain**

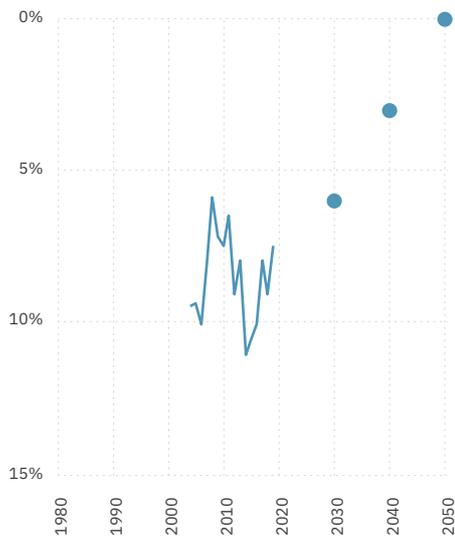


Source: Drafted by the authors, based on Eurostat and OECD data<sup>13</sup>

**We should also be optimistic about the challenges posed by increasing life expectancy.** The key is to understand that what determines a person's expenditure for the state is not only the number of years they live, but also the degree of health they enjoy until the moment of their death, and the level of labour and social participation enjoyed over their lifetime. The ageing of the future will not be the ageing of the past. It will start much later, will be more dynamic, and will not be as associated with phenomena such as inactivity or dependency. This means that, if we make the necessary institutional and cultural changes, the coming decades could see the employment rate of older Spaniards increase considerably and of their own free will. This, together with a series of reforms in our health system and the increase in public revenues that will be achieved through the channels described in this *Strategy*, would mean that, by 2050, public spending in Spain on pensions, health and care services would increase, but would remain at an affordable level of no more than 25% of GDP, which is similar to what countries such as Austria and France already have today [see chapter 5].

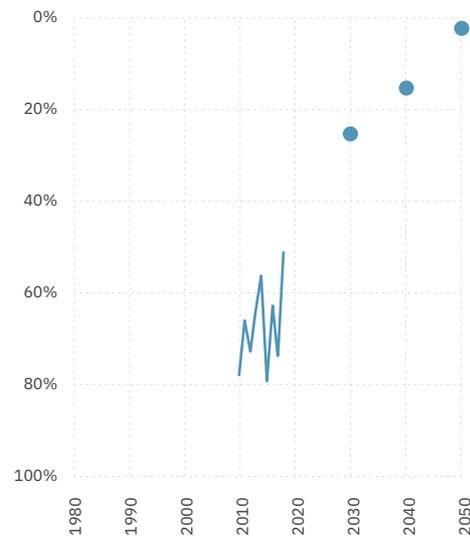
**Another of the great challenges facing Spain is to guarantee the habitability, social cohesion and environmental sustainability of its cities, while ensuring territorial balance and mitigating the depopulation of smaller municipalities.** From here to 2050, the proportion of the Spanish population living in cities will rise by more than 8 percentage points, which could put additional pressure on current challenges such as access to housing, social segregation and environmental sustainability. However, we should not lose sight of the fact that, the last four decades have seen Spain already record a similar increase in urbanisation and that, even so, its levels of residential quality, access to housing, public safety and environmental pollution have improved or remained stable and in line with the European average [Figs. 9 and 10]. If Spain was able to manage the urbanisation process relatively successfully in the past, it should be able to continue to do so in the future, aided now by new technologies, phenomena such as remote work or shared mobility, the increase in public housing stock, the spread of new forms of access to and ownership of housing, and a much more sophisticated and comprehensive knowledge of urban planning and socio-economic dynamics than existed at that time.

**Fig. 9. Energy poverty (% of population unable to keep their home at an adequate temperature) in Spain**



Source: Drafted by the authors based on data from MITECO and the European Committee of the Regions.<sup>14</sup>

**Fig. 10. Population exposed to levels of air pollution (PM<sub>2.5</sub> particles) above WHO recommendations (% of total), Spain**



Source: Drafted by the authors based on data from the European Environment Agency and the European Commission.<sup>15</sup>

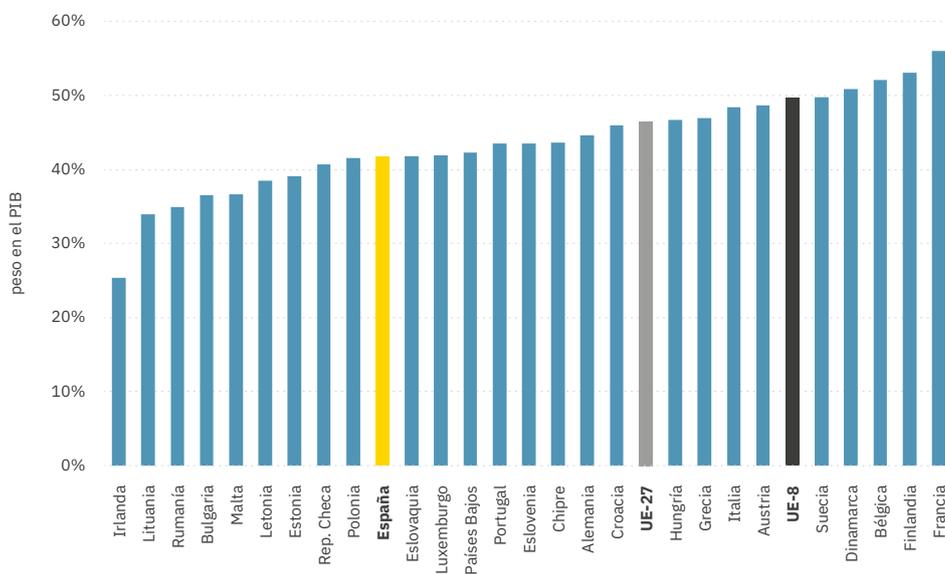
These same instruments, together with a greater willingness to distribute economic opportunities throughout the territory, will help us to halt the depopulation of Spain's medium-sized cities and many small municipalities. In some cases, the hollowing out of rural Spain will not be halted. But if we can take advantage of the changes that are coming, the opportunities and quality of life for the people who will live in rural areas could improve substantially. Advances in technology and social innovation will allow us to bring employment and services (health, education and transport) to places where they did not reach before; the *silver economy* will boost economic and social activity in many municipalities; and the green transition will provide clean energy and new job opportunities even in the most remote parts of our geography. In 2050, fewer people will live in rural Spain, but those who do could live better than they today.

**The adaptation of our labour market to the new social, economic and technological realities should also be approached positively.** Demographic change will substantially reduce our labour force, but if we can raise the employment rate to the current levels of the most advanced countries in Europe (that is, a 15 point increase to 80%), we will be able to largely neutralise the negative effects of ageing. From losing 2.5 million potential employees, we will create 1.5 million by 2050. The same will happen with the technological transformation. History teaches us that technology always ends up creating more jobs than it destroys. If we are able to take advantage of all its benefits, we will create new jobs, reduce unemployment, increase productivity, and improve working conditions for the majority of the working population.

**Another aspiration must be to reduce our inequality and poverty rates.** So far, Spain's progress on this front has been particularly fragile. But that does not mean that the situation cannot change from here on. If we achieve the gains in productivity, employment and education that this *Strategy* calls for, we will greatly reduce the effects of economic crises on inequality and poverty, and generate the public revenues needed to raise social spending and reduce our levels of inequality and poverty to those of the most advanced countries in Europe by 2050.

**The social improvements envisioned by this Strategy are ambitious. But they are also technically and economically feasible.** Together, they would lead to an increase in public expenditure on the items concerned of about 8 GDP points by 2050. This is not an excessive increase. In fact, it would bring us closer to the level of public spending that the most developed countries in Europe already have today (the EU-8 average is 50% of GDP)<sup>16</sup> [Fig. 11].

**Fig. 11. Public expenditure in Europe, 2018**



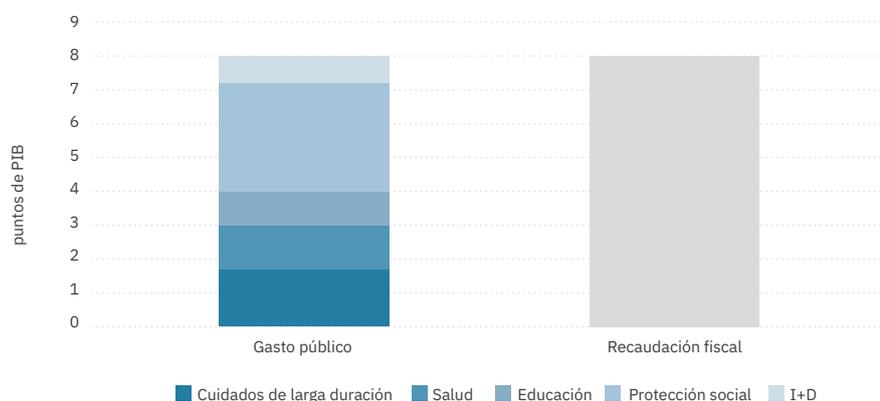
Source: Drafted by the authors, based on Eurostat data.<sup>17</sup>

The bulk of the proposed increase would be concentrated on five items: education,<sup>18</sup> R&D,<sup>19</sup> health,<sup>20</sup> long-term care,<sup>21</sup> and social protection.<sup>22</sup> This reflects the opinions of most of the experts consulted and coincides with the priorities of the majority of citizens, who, according to the most recent studies, support prioritisation of spending on these items.<sup>23</sup>

Of course, **this does not mean that increasing public spending is enough to guarantee the future welfare of Spain. It will be equally important to improve the efficiency of this spending** by implementing the many reforms in public administration that have been described throughout this study.

**It should also be noted that this increase in public spending would not necessarily lead to an increase in the deficit.**<sup>24</sup> The increase in tax revenue<sup>25</sup> alone that this *Strategy* proposes (as a result of both the suggested regulatory changes and the reduction of the shadow economy and the fight against tax fraud) would be enough to offset this increase in public spending. To this should be added the many efficiency gains and savings that would be made in other expenditure items as a result of the other proposed reforms (e.g. the digitalisation of public administrations or gains in labour productivity) and the structural changes they would bring, such as the consolidation of a sustainable and socially inclusive pattern of economic growth, which would help improve the long-term dynamics of public debt, with positive effects on financing costs.<sup>26</sup> Although difficult to quantify in advance, the analysis of this *Strategy* suggests that these reforms will be instrumental in helping to reduce the current public<sup>27</sup> deficit and ensure the long-term sustainability of the public finances [Fig. 12]. In any case, it should be noted that this process of consolidation of Spain's public finances should go hand in hand with European recommendations in this area.

Fig. 12. Variations in public expenditure and revenue items by 2050 in line with the quantitative targets set



Source: Drafted by the authors.<sup>28</sup>

**To summarise: Spain has severe problems and will face significant obstacles between now and 2050. Even so, it is true that, since the arrival of democracy, Spain has not stopped progressing, and there is not a single item of data that would suggest Spain would cease to progress now. The future is often brighter than we think.**

Naturally, progress will not happen by itself. To further improve and consolidate our position as one of the most advanced countries in Europe, the generations that live in this country today will have to carry out profound reforms and implement **bold initiatives** in this very decade. **This study suggests more than 200** actions aimed at generating a more competitive and resilient pattern of economic growth; developing a circular and carbon neutral economy; improving the training of our population; strengthening our capacity to innovate; modernising our economy and our entrepreneurial culture; making our public administrations more efficient and transparent; increasing revenues and progressiveness of our tax system; guaranteeing the sustainability of our welfare state; closing the gender gap; improving the integration of legal immigration; and supporting our youth, who are, after all, the embodiment of the better tomorrow we want to build.

**This view is shared by those who have worked on this study and, we suspect, by millions of Spaniards. In any case, we do not present it as a complete and closed Strategy, but rather as an initial, incomplete and open proposal, which will need to be expanded and improved through constant and reiterated dialogue involving all social and economic stakeholders in Spain.** A dialogue that should go beyond the institutional boundaries of the state government and enter Congress; the regional parliaments; the management committees of companies; trade union assemblies; the agendas of NGOs, think tanks and foundations; the classrooms of our universities and institutes; and, ideally, our homes.

That is, ultimately, the real goal of this exercise: to **help Spain think a little more about the long term and to do so with more ambition, less tension and more willingness to reach consensus.** We humans cannot predict the future, but we can dream it, plan for it and make it a reality. **Let's be optimistic. Let's regain confidence in progress, in Spain, and in ourselves.**

## EPILOGUE: REDISCOVERING OPTIMISM

<sup>1</sup> Mumford, Lewis. *The Story of Utopias*. Azafran Books, 1992.

<sup>2</sup> On this question, see, for example: Brady, A., and E. Butterworth. *The Uses of the Future in Early Modern Europe*. Routledge, 2010; Giddens, Anthony. *The Consequences of Modernity*. Cambridge: Polity Press, 1991; and Hölscher, Lucian. *El descubrimiento del futuro*. Madrid: España Siglo XXI, 2014.

<sup>3</sup> The EU-8 and EU-27 are constructed as the simple average of the values of the individual countries. The specific question of the survey is as follows: “Generally speaking, do you think that the life of those in the EU who are children today will be easier, more difficult or about the same as the life of those from your own generation?”. For further details, see: European Commission. *Future of Europe: Social issues*. European Commission, Special Eurobarometer 467, 2017. <https://ec.europa.eu/comfrontoffice/publicopinion/index.cfm/ResultDoc/download/DocumentKy/80645>.

<sup>4</sup> The specific question of the survey is as follows: “When children today in our country grow up they will be worse off or better off financially than their parents?”. For further details, see: Stokes, Bruce. “Global Publics More Upbeat About the Economy: But many are pessimistic about children’s future.” *Pew Research Center*, 2017. <https://www.pewresearch.org/global/2017/06/05/global-publics-more-upbeat-about-the-economy/>.

<sup>5</sup> Difference in life expectancy between those born in 1920 (39.4 years) and those born in 1980 (75.4). The 1920 data is from the *Human Mortality Database* and the 1980 data is from the INE. For further details, see: Human Mortality Database. *Esperanza de vida al nacer*. <https://www.mortality.org/>; and INE. *Tablas de mortalidad. Tablas de mortalidad por año, sexo, edad y funciones*. [https://www.ine.es/dyngs/INEbase/es/operacion.htm?c=Estadistica\\_C&cid=1254736177004&menu=resultados&idp=1254735573002](https://www.ine.es/dyngs/INEbase/es/operacion.htm?c=Estadistica_C&cid=1254736177004&menu=resultados&idp=1254735573002).

<sup>6</sup> Between years 2000 and 2018. Eurostat. *Municipal waste by waste management operations [env\_wasmun]*. <https://ec.europa.eu/eurostat/data/database>.

<sup>7</sup> Department for Ecological Transition. *Perfil ambiental España 2018*. Madrid, 2019. [https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/publicaciones/pae2018\\_tcm30-504010.pdf](https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/publicaciones/pae2018_tcm30-504010.pdf).

<sup>8</sup> Labour productivity is defined as the ratio of GDP (in constant 2015 euros and adjusted for purchasing power differences) to total hours worked. For further details, see: Eurostat. *GDP and main components (output, expenditure and income) [nama\_10\_gdp]*; *Employment by A\*10 industry breakdowns [nama\_10\_a10\_e]*; *y Purchasing power parities (PPPs), price level indices and real expenditures for ESA 2010 aggregates [prc\_ppp\_ind]*. <https://ec.europa.eu/eurostat/data/database>; and OCDE. *Annual Labour Force Statistics summary tables*; and *Level of GDP per capita and productivity*. <https://stats.oecd.org/>.

<sup>9</sup> The total employment rate is defined as the ratio of total employed persons to the population aged 16-64. For further details, see: Eurostat. *Employment by sex, age and citizenship (1 000) [lfsa\_egan]*; *y Population on 1 January by age and sex [demo\_pjan]*. <https://ec.europa.eu/eurostat/data/database>; and OCDE. *Historical population y Annual Labour Force*

*Statistics summary tables*. <https://stats.oecd.org/>.

<sup>10</sup> OECD. *PISA 2018 Results (Volume I): What Students Know and Can Do. Annex B1 Results for countries and economies. Mean mathematics performance, 2003 through 2018*. Paris: OECD Publishing, 2019. <https://doi.org/10.1787/5f07c754-en>.

<sup>11</sup> The population aged 25-34 with a qualification higher than secondary education is defined as the percentage of people in this age range whose highest level of education is the second stage of secondary education (Bachillerato or Intermediate Level Vocational Training) or tertiary education (University or Higher Level Vocational Training). For further details, see: Eurostat. *Population by educational attainment level, sex and age (%) - main indicators [edat\_lfse\_03]*. <https://ec.europa.eu/eurostat/data/database>.

<sup>12</sup> The target for 2030 is the reduction 23% from the 1990 level according to the PNIEC. Regarding the target for 2050 is a 90% reduction from the 1990 level according to the ELP. For further details, see: Department for Ecological Transition and Demographic Challenge *Inventario Nacional de Gases de Efecto Invernadero (GEI): Resumen Serie 1990-2018*. <https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-/Inventario-GEI.aspx>; and Department for Ecological Transition and Demographic Challenge. *Information Note on the Greenhouse Gas Emissions Preview for the year 2019*. Madrid, 2020. [https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-/avance-gei-2019\\_tcm30-510162.pdf](https://www.miteco.gob.es/es/calidad-y-evaluacion-ambiental/temas/sistema-espanol-de-inventario-sei-/avance-gei-2019_tcm30-510162.pdf). Objective 2030: Department for Ecological Transition and Demographic Challenge *Plan Nacional Integrado de Energía y Clima 2021-2030*. Madrid, 2020. [https://www.miteco.gob.es/images/es/pnieccompleto\\_tcm30-508410.pdf](https://www.miteco.gob.es/images/es/pnieccompleto_tcm30-508410.pdf). Objective 2050: Department for Ecological Transition and Demographic Challenge *Long Term Decarbonisation Strategy 2050*. Madrid, 2020. [https://www.miteco.gob.es/es/prensa/documentoelp\\_tcm30-516109.pdf](https://www.miteco.gob.es/es/prensa/documentoelp_tcm30-516109.pdf).

<sup>13</sup> The 2030 target is according to the PNIEC and the 2050 target is according to the ELP. See: Eurostat. *Share of energy from renewable sources [NRG\_IND\_REN]*. *Renewable energy sources in electricity*. <https://ec.europa.eu/eurostat/data/database>; and Department for Ecological Transition and Demographic Challenge. *Estrategia de Descarbonización a Largo Plazo 2050*. Madrid, 2020. [https://www.miteco.gob.es/es/prensa/documentoelp\\_tcm30-516109.pdf](https://www.miteco.gob.es/es/prensa/documentoelp_tcm30-516109.pdf); and Department for Ecological Transition and Demographic Challenge. *Plan Nacional Integrado de Energía y Clima 2021-2030*. Madrid, 2020. [https://www.miteco.gob.es/images/es/pnieccompleto\\_tcm30-508410.pdf](https://www.miteco.gob.es/images/es/pnieccompleto_tcm30-508410.pdf).

<sup>14</sup> We establish this indicator to monitor fuel poverty although it is necessary to analyse the joint evolution of the four indicators established by the European Observatory on Fuel Poverty: 1) percentage of the population unable to maintain an adequate temperature at home; 2) percentage of the population in arrears with bill payments; 3) percentage of households whose energy expenditure is excessively low (hidden fuel poverty) and 4) percentage of households whose expenditure on energy supplies is disproportionate to the level of income. The objective for 2030 isn't in line with the National Fuel Poverty Strategy, which aims to reduce to at least 6% the percentage of the population unable to keep

their homes at an adequate temperature for 2025. The objective for 2050 is in line with the European Committee of the Regions proposal. See: European Committee of the Regions. *Opinion: Multilevel governance and cross-sectoral cooperation to fight energy poverty*. Brussels: European Commission, 2019. <https://cor.europa.eu/ES/our-work/Pages/OpinionTimeline.aspx?opId=CDR-5877-2018>; Eurostat. *Inability to keep home adequately warm - EU-SILC survey [ILC\_MDES01]*. <https://ec.europa.eu/eurostat/data/database>; and Department for Ecological Transition and Demographic Challenge *Actualización de indicadores de la Estrategia Nacional contra la Pobreza Energética*. 2020. [https://www.miteco.gob.es/es/prensa/20201106\\_actualizaciondeindicadores2020\\_final\\_\\_tcm30-516466.pdf](https://www.miteco.gob.es/es/prensa/20201106_actualizaciondeindicadores2020_final__tcm30-516466.pdf).

<sup>15</sup>Percentage of population exposed to an annual average concentration of particulate matter (PM<sub>2.5</sub>) above 10 micrograms per cubic metre (WHO recommended limit). The objectives for years 2030-2050 are in line with the analyses included in the European Union's *Second Clean Air Outlook* presented in 2021. In this regard: European Environment Agency. "ECT/ATNI reports." European Topic Centre on Air Pollution, transport, noise and industrial pollution, <https://www.eionet.europa.eu/etcs/etc-atni/products/etc-atni-reports>; European Commission. *Report from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions. The Second Clean Air Outlook*. Brussels, 2021. <https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=COM%3A2021%3A3%3AFIN>; and WHO. *Air quality guidelines for particulate matters, ozone, nitrogen dioxide and sulphur dioxide. Global update 2005*. Geneva: World Health Organisation, 2005. [http://www.who.int/phe/health\\_topics/outdoorair/outdoorair\\_aqg/en/index.html](http://www.who.int/phe/health_topics/outdoorair/outdoorair_aqg/en/index.html).

<sup>16</sup>Unquantified public expenditure items are assumed to maintain the same weight in GDP. As mentioned above, many of the public policy measures contained in this Strategy are aimed at achieving efficiency gains in spending. Between 2015-18, public expenditure in the EU-8 averaged 50.4% of GDP, although with relevant differences by country (e.g. in France it was 56.5% of GDP and in the Netherlands 43.2%).

<sup>17</sup>Eurostat. *General government expenditure by function (COFOG) [gov\_10a\_exp]*. <https://ec.europa.eu/eurostat/data/database>.

<sup>18</sup>Objective 13 of this Strategy.

<sup>19</sup>Objective 4 of this Strategy includes both public and private R&D expenditure. The increase in the public component would result approximately from applying to the targets set for Spain the share of public expenditure in total R&D expenditure that the EU-8 currently has. Therefore, the target of 4% of GDP set for 2050 should not be interpreted as a target for public R&D expenditure. This, following the above criteria, would be in the order of 1.5% of GDP, as opposed to the current 0.5%.

<sup>20</sup>Objective 29 of this Strategy. Excludes expenditure on long-term care

<sup>21</sup>Objective 30 of this Strategy

<sup>22</sup>Social protection expenditure includes, among other items, public spending on pensions, unemployment benefits, active employment policies (including training and guidance policies) and other social assistance. For further details, see: European Commission. *Manual on sources and methods for the compilation of COFOG statistics*. Luxembourg: Publications Office of the European Union, 2019. <https://ec.europa.eu/eurostat/documents/3859598/10142242/>

[KS-GQ-19-010-EN-N.pdf/ed64a194-81db-112b-074b-b7a9eb946c32?t=1569418084000](https://ec.europa.eu/eurostat/documents/3859598/10142242/KS-GQ-19-010-EN-N.pdf/ed64a194-81db-112b-074b-b7a9eb946c32?t=1569418084000).

<sup>23</sup>Cabrales, Antonio, *et al.* *Public spending preferences of citizens*. Fundación Cotec, 2021. <https://cotec.es/proyecto/preferencias-de-gasto-publico-en-la-ciudadania/>.

<sup>24</sup>Please note that the scoreboard quantifies some public expenditure and revenue items, but not all of them. Thus, there are no changes in expenditure items such as defence, public order, security, recreation and culture, interest on the debt, or others; nor are there any changes in the part of public revenue that does not come from tax collection and social contributions. Therefore, a mere subtraction between the public expenditure and revenue items presented here cannot be interpreted in terms of long-term public deficit or surplus. For more details on the structure of general government revenue and expenditure, see: European Commission. *Manual on sources and methods for the compilation of COFOG statistics*. Luxembourg: Publications Office of the European Union, 2019. <https://ec.europa.eu/eurostat/documents/3859598/10142242/KS-GQ-19-010-EN-N.pdf/ed64a194-81db-112b-074b-b7a9eb946c32?t=1569418084000>; European Commission. *Taxation Trends in the European Union*. Luxembourg: Publications Office of the European Union, 2019. [https://ec.europa.eu/taxation\\_customs/sites/taxation/files/taxation\\_trends\\_report\\_2019.pdf](https://ec.europa.eu/taxation_customs/sites/taxation/files/taxation_trends_report_2019.pdf); and Eurostat. "Glossary: Total general government revenue." Eurostat, [https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Total\\_general\\_government\\_revenue](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Total_general_government_revenue).

<sup>25</sup>Objective 47 of this Strategy

<sup>26</sup>For reference, among other studies, see the following: Bouabdallah, Othman, *et al.* "Debt sustainability analysis for euro area sovereigns: a methodological framework." *ECB Occasional paper series*, n.º 185, 2017. <https://www.ecb.europa.eu/pub/pdf/scpops/ecbop185.en.pdf>.

<sup>27</sup>Between 2015 and 2019, Spain recorded a government deficit of 3.6% of GDP (average for the period); a level well above the EU-27 and EU-8 average (deficits of 1 and 0.4% of GDP, respectively). Part of this imbalance is explained by the larger structural deficit (that which is not determined by the evolution of the economic cycle) of our country. According to European Commission estimates, this stood at 3% of potential GDP for the years 2015-19. Alternative estimates such as those made by the IMF also point to similar levels of structural deficits, in the order of 2.5% of potential GDP in the same years. Refer to: AMECO. *General Government. Excessive Deficit Procedure. Net lending [UBLGE]; y Cyclical adjustment of Public Finance Variables. Based on Potential GDP (ESA 2010). Structural balance, % GDP [UBLGAPS]*. [https://ec.europa.eu/economy\\_finance/ameco/user/serie/SelectSerie.cfm](https://ec.europa.eu/economy_finance/ameco/user/serie/SelectSerie.cfm); and World Economic Forum. *Fiscal Monitor. Policies for the recovery*. Washington, D.C., 2020. <https://www.imf.org/en/Publications/FM/Issues/2020/09/30/october-2020-fiscal-monitor>.

<sup>28</sup>For further details, see: Eurostat. *General government expenditure by function (COFOG) [gov\_10a\_exp] y Government revenue, expenditure and main aggregates [gov\_10a\_main]*. <https://ec.europa.eu/eurostat/data/database>.