

# The impact of population ageing on the labour force participation rate in Spain

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## Rationale

Population ageing is one of the greatest structural challenges facing the Spanish economy. Foremost among its multiple effects is its contractionary impact on labour supply, which will foreseeably have major implications on both the functioning of the labour market and the potential growth or sustainability of public finances.

## Takeaways

- Population ageing over the past decade has had an estimated negative impact of around 3.4 percentage points (pp) on Spain's participation rate in 2022. This impact has been uneven by regions, with a sharper fall in the Cantabrian regions (Asturias, Cantabria and the Basque Country).
- According to the latest National Statistics Institute's population projections, the participation rate is set to drop a further 2.8 pp by 2030 owing to the continuing ageing process. Excluding the support of net immigration flows, the drop would be 1.6 pp greater.
- In addition, the impact of ageing may deepen regional divergences, since the regions that have an older population and lower GDP per capita may be expected to experience the sharpest falls in the participation rate.

## Keywords

Labour force, participation rate, demographic ageing, Spanish regions.

## Códigos JEL

J21, E24, R11.

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## Introduction

Population ageing poses a major social and economic challenge for the main developed economies. The baby boom generation reaching retirement age, the low fertility rate and the ongoing rise in longevity are reducing the working age population as a proportion of the total population, especially in Spain, despite the strong net immigrant inflows. Indeed, population ageing will gather pace in Spain over the coming decades, growing at a faster rate than in the EU and the euro area as a whole (Banco de España, 2023). Far from being a temporary phenomenon, this will become a permanent trend, as illustrated by a dependency ratio that will remain above 50% from 2045.

The economic implications of ageing are highly diverse, ranging from potential changes in the consumption basket and in saving and investment patterns to declines in productivity and in labour supply, not only in terms of labour force size (such as the employment rate or hours worked per employee)<sup>1</sup> but also of human capital quality (Banco de España, 2019).

This article aims to analyse the impact of these demographic changes on the labour force participation rate in Spain.<sup>2</sup> First, it analyses retrospectively the effect of ageing on labour force participation, using a counterfactual path constructed under the assumption that the population ageing observed between 2012 and 2022 had not taken place. Specifically, a significant effect associated with the greater share of older population groups is estimated, since had there been no such increase, the participation rate in 2022 would have been 3.4 percentage points (pp) higher than that observed (rising from 58.7% to 62.1%). Also, this effect would have been uneven across regions, with a greater impact on the Cantabrian regions (Asturias, Cantabria and the Basque Country) and a lesser impact on the Balearic Islands, Castile-La Mancha and Extremadura.

Moreover, this article also uses the latest demographic projections of the National Statistics Institute (INE), published in October 2022, to approximate the effect on the future course of the participation rate in the coming decade of the changes in the population composition deriving from ageing and the net migration flows expected. It is estimated that the aggregate participation rate could be nearly 3 pp lower in 2030 if the participation rates by age group remain steady at their current levels. Under alternative scenarios with lower net immigration, the decline could be as much as 4%. Besides, the drop in the participation rate would be steeper in the regions that have an older population and lower GDP per capita, since migratory inflows will also be lower in the regions with a greater proportion of elderly individuals. Thus, not only will ageing accentuate

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1 See Section 2.2.3 of Banco de España (2023).

2 The participation rate measures the percentage of the working-age population – defined as individuals aged 16 and over – that is willing to participate in the labour market.

the negative effects on labour supply observed in the past decade, but regional divergences are also expected to broaden over the coming years. This downside pressure on labour supply is an obstacle to Spain's potential economic growth.

## Recent changes in the participation rate in Spain, by age group, and the effect of demographic ageing

The importance of population ageing has grown over the last 15 years. In the population distribution by age group, the share of the more elderly groups rose between 2007 and 2022, as Chart 1.a shows. Indeed, the ratio of the population aged over 65 to the working-age population increased continuously during this period, from 19.5% to 23.8%. This growing share of the older cohorts has translated into an increase in the median age in Spain, which rose by seven years during this period, from 38 to 45.

In terms of the labour market, one of the main impact channels of ageing is the participation rate, since this variable fluctuates substantially throughout the life cycle, as shown in Chart 1.b. Labour market participation tends to be lower in the younger cohorts (those between 16 and 24 years old), which are still highly influenced by education-related decisions. In Spain, this group experienced a notable decline in its participation rate during the 2007-2022 period, standing at around 36% in 2022, considerably below the euro area average.<sup>3</sup> Labour market participation is also particularly low among those aged over 55; indeed, despite having increased substantially over the last 15 years, it has remained slightly below the euro area average. These differences by age group automatically give rise to a composition effect on the participation rate as the population structure by age changes. Thus, while the most numerous population cohorts (the baby boomers) approach retirement age, the aggregate participation rate decreases owing to a mere composition effect. This ageing effect would explain part of the almost 2 pp decrease (to 58.7%) observed in the Spanish participation rate between 2012 and 2022, which stands in contrast to the broadly flat developments in the euro area's participation rate in the decade.<sup>4</sup>

To assess the potential impact of ageing on the aggregate participation rate, a counterfactual path has been constructed maintaining the share of each age group in the population (in 5-year cohorts) constant at its 2012 level and applying the participation rate changes in each group until the end of the period considered.<sup>5</sup> This simple exercise allows us to estimate the changes in the aggregate participation rate, discounting the ageing effect observed since 2012. As shown in Chart 2.a, the labour market participation of those aged over 16 would have been 3.4 pp higher (62.1%, rather than the 58.7% recorded) had the population structure by age in 2012 remained

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3 An accurate comparison cannot be made owing to the existence of some discrepancies between Eurostat and the INE regarding the definition of certain population groups. Thus, in the population group aged 15-24, the Spanish participation rate would be 10 pp below the euro area average.

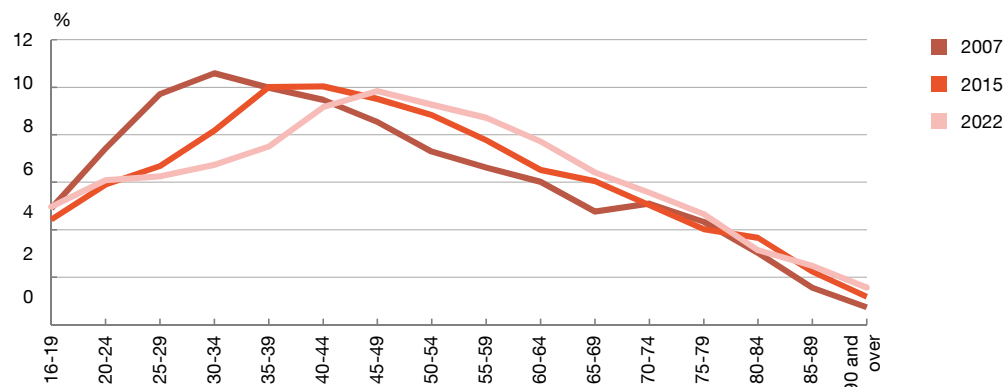
4 Euro area participation rate measured on the population aged 15 or more.

5 A similar counterfactual exercise is conducted in Banco de España (2016) using data up to 2016.

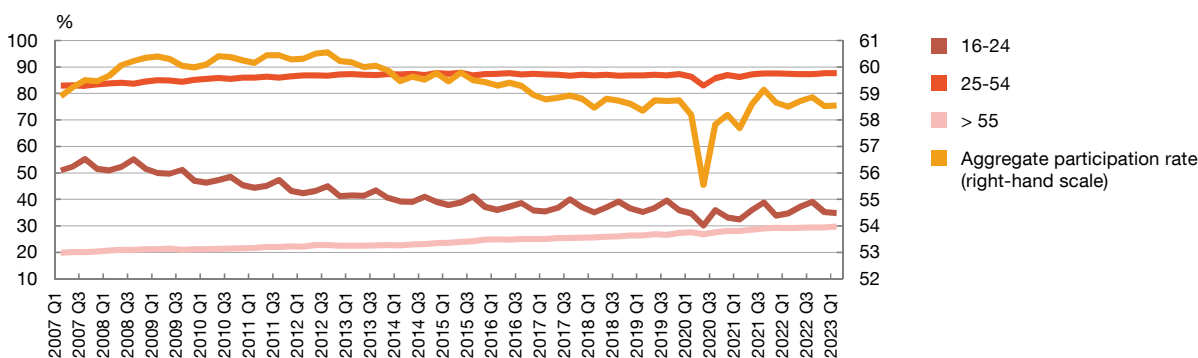
Chart 1

The population distribution by age group shifted to the right between 2007 and 2022, and the age cohorts with lower labour market participation gained share, leading to a decline in the participation rate owing to the composition effect

1.a Population distribution by age group



1.b Participation rate by age group (a)



SOURCES: INE and Banco de España.

a The participation rate by age group is calculated as the ratio of the labour force to each group's total population. The aggregate participation rate is the result of aggregating the participation rates by group, weighted by their respective population weights.



unchanged, which would represent a very significant impact on the total number of potential workers (around 790,000 more). The impact of population ageing on the participation rate would have been 2 pp lower had participation been measured on the basis of the population aged between 16 and 64, which is the metric that is commonly used in international comparisons.

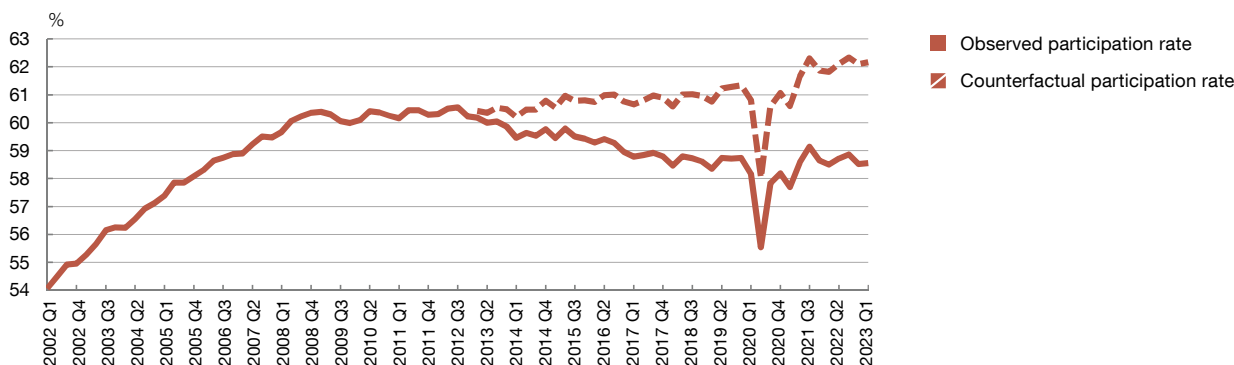
Besides ageing, another important demographic factor during the period 2012-2022 was the increase of slightly more than one million people in the over-16 age group in the foreign population.<sup>6</sup> Since, on average, this population group is younger and has higher labour force participation rates, the foreign population appears to have partially offset the impact of ageing on the participation rate. A simple way of approximating this effect is to repeat the aforementioned

6 Understood as people who are foreign nationals or who have dual Spanish and foreign citizenship.

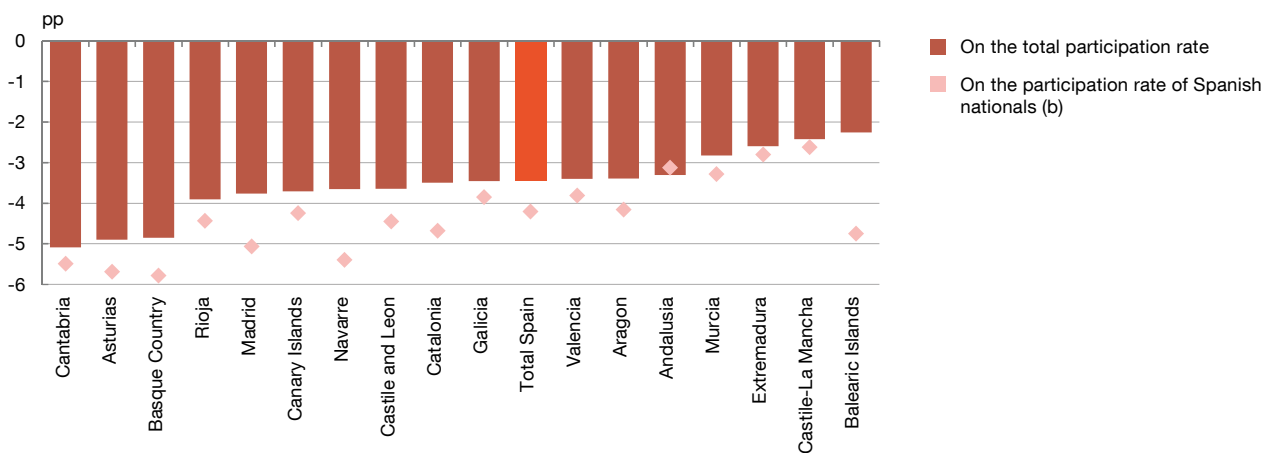
Chart 2

The participation rate declined by 3.4 pp between 2012 and 2022 owing to population ageing. However, immigration appears to have had a cushioning effect on this impact

2.a Observed participation rate compared with counterfactual participation rate (a)



2.b Average effect of ageing on the participation rate in 2022, by region



SOURCES: Instituto Nacional de Estadística and Banco de España.

- a The counterfactual participation rate is calculated by setting the population weights (by five-year age group) at their average level in 2012 and applying the observed participation rate for each population group quarter by quarter.
- b The counterfactual exercise is carried out by region, considering the labour force and resident population and excluding persons with dual citizenship.



counterfactual exercise, but only taking into account the Spanish population. In this case, a counterfactual participation rate 4.2 pp higher than that observed in 2022 would be obtained (60.7%, rather than 56.5%). In other words, the foreign population’s labour market participation would have helped mitigate the impact of ageing on the aggregate participation rate by around 0.8 pp since 2012.

Given the current cross-regional differences in population structure by age group, it is worth asking whether the impact of ageing on labour supply was homogeneous at regional level. To this end, the two foregoing counterfactual exercises were repeated, but for each of the regions. The results are shown in Chart 2.b, where an appreciable regional heterogeneity is confirmed. Specifically, when considering both the Spanish and the foreign population, the greater

contractionary effect of ageing on labour market participation is noteworthy in the Cantabrian regions (Asturias, Cantabria and the Basque Country), with effects of around 5 pp. This higher impact of ageing is largely the result of a greater increase in the share of the population over 65 years old in these regions. Conversely, the regions with the lowest impact include most notably the Balearic Islands, Castile-La Mancha and Extremadura, where the share of the elderly population has increased less.<sup>7</sup> Chart 2.b shows the results of the second counterfactual exercise, which considers only the Spanish population in each region. Immigration appears to have helped soften the impact of ageing observed on the participation rate during the last decade across all regions, except Andalusia. This cushioning effect of immigration was more clearly evident in Madrid, Catalonia and the Balearic Islands, which recorded the highest immigrant inflows in proportion to their population in the last decade.

## Scenarios of the potential impact of ageing on the future course of the participation rate

After analysing the impact of ageing over the last decade, this section analyses its effect over the coming years, on the basis of the latest demographic projections published by the INE in October 2022. These projections are used to estimate the effect of the changes in the population composition on the participation rate over the rest of the current decade (2022-2030). To this end, in this simulation the participation rates are set at the 2022 level for each group and the changes in the projected demographic structure are applied (Cuadrado and Izquierdo, 2019). Also, since maintaining fixed participation rates over the projection horizon may be overly restrictive, an alternative exercise was also carried out which assumes some convergence of labour market participation towards higher levels.

The INE's projections reflect that the demographic ageing process in Spain is expected to gather pace. Specifically, the population aged over 15<sup>8</sup> is expected to increase by 3.4 million by 2030, while the 65 or over population group alone is expected to do so by nearly two million (see Chart 3.a). As a result, a continuous rise in the dependency ratio (defined as the ratio of the population aged 65 or over to the population aged between 15 and 64) is projected, to 35.1% in 2030, almost 5 points higher than in 2022. Another highly significant aspect of these projections is that the increase in total population, and particularly in the working-age group (see Chart 3.b), would be explained by the increase in the population born abroad. This would more than offset the stagnation of the working-age population born in Spain, while the total population would even decrease significantly. Specifically, the population born in Spain would decline by nearly 800,000

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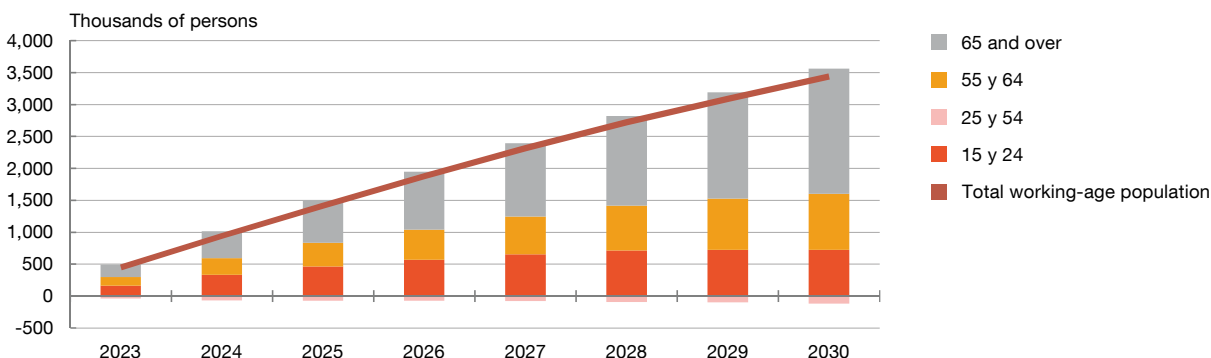
7 Between 2012 and 2022 the ratio of the population over 65 to the working-age population increased by 1.7 pp, 1.9 pp and 2.2 pp in Castile-La Mancha, the Balearic Islands and Extremadura, respectively, compared with increases of 5 pp, 4.5 pp and 3.8 pp in Asturias, Cantabria and the Basque Country, respectively. The lower growth in the first three regions of the older cohorts, whose participation rate is lower than that of other age groups, explains, owing to a composition effect, the lower impact of ageing on the participation rate in the period considered.

8 Individuals can start working in Spain at age 16. However, since the statistical data used are disaggregated by 5-year age groups, the analysis is conducted for age groups over age 15.

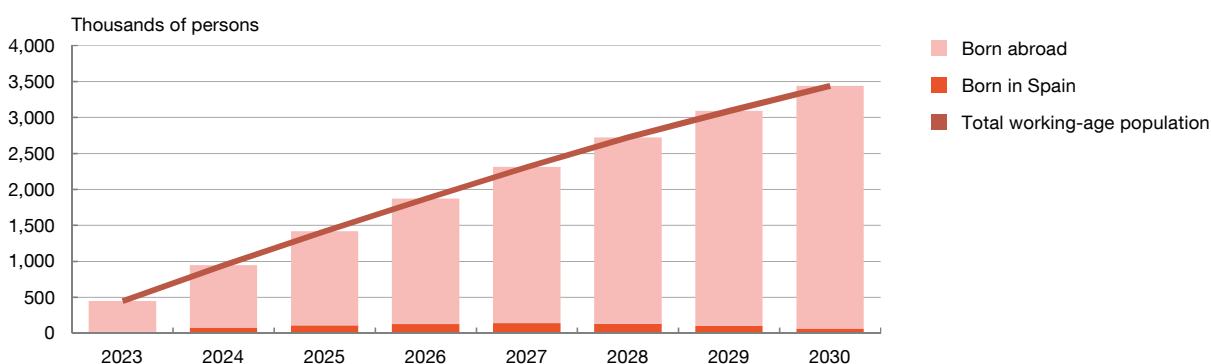
Chart 3

**Population projections suggest that the ageing process will continue to gather pace, despite the notable support from immigration**

3.a Cumulative change in the population aged over 16, by age group



3.b Cumulative change in the population aged over 16, by place of birth



SOURCES: INE and Banco de España.



persons by 2030,<sup>9</sup> compared with the 3.5 million increase in persons born abroad. Thus, the INE projects a strong replacement of persons born in Spain by those born abroad, which, according to our calculations, will take place in the central age brackets between 25 and 54 years old, also known as “prime age”, which is the group with the highest relative labour market participation.<sup>10</sup> Underlying these dynamics is the INE’s assumption that the net migratory balance will be especially buoyant (given the strength of inflows), with average net inflows of 446,000 persons per year, in contrast to the average of 68,500 persons during the 2012-2019 period.

This assumption about migratory flows is of particular importance, in terms of the aggregate participation rate, given the appreciable differences in participation trends based on the country of birth, since persons born abroad have, on average, a higher participation rate than those born

9 According to the INE’s projections, the total population born in Spain is estimated at 39.9 million in 2022 and will drop to 39.2 million in 2030.

10 Although the INE’s projections are not available with this level of detail, an approximation can be made to the disaggregation by sex, age and country of birth, by incorporating the assumptions used by the INE in its fertility, mortality and external migration projections.

in Spain.<sup>11</sup> Accordingly, the projection exercise includes not only the sex and age dimensions (the latter to capture the effects of population ageing), but also the demographic structure by country of birth.

The results of this simulation are shown in Chart 4.a, where it can be seen that, due to population ageing, the composition effect, by age and country of birth, of the demographic structure projected by the INE on labour market participation would further reduce the participation rate by 2.8 pp with respect to its current level, taking it to 55% in 2030, despite the positive effect deriving from the projected migratory flows. Indeed, if zero immigrant inflows and outflows were assumed as from 2023, the participation rate would be 4.4 pp lower by 2030. Accordingly, the positive effect of the migratory flows projected by the INE could be quantified at 1.6 pp.

Nonetheless, the high degree of uncertainty surrounding migratory flow forecasting advises that sensitivity exercises be conducted, considering alternative scenarios. Specifically, the net immigration balance assumptions included in the latest demographic projections published, in March, by Eurostat (2023) and by the Independent Authority for Fiscal Responsibility (AIReF, 2023), were used. The differences in the migration assumptions are significant, since the INE projects net migration inflows of around 446,000 persons on average per year up to 2030, while Eurostat projects around 335,000 and AIReF some 277,000. In the latter cases, as a result of the lower positive effect of immigration, the fall in the labour market participation rate by 2030 would be higher than under the scenario based on the INE's migration assumptions (3.1 pp and 3.7 pp, respectively). In addition, Eurostat's demographic projections can be used to replicate this counterfactual exercise for the euro area aggregate. In this case, the participation rate would be 2.6 pp lower, at 54.9%, in 2030, a decrease in participation 0.5 pp lower than that projected for the Spanish economy.

As in the previous section, it is worth asking if the projected falls in the participation rate caused by the composition effect of the demographic structure envisaged by the INE are homogeneous at regional level. A priori, it could be expected that the regions with more population ageing problems would also be the ones recording greater declines in the participation rate. To assess this, we used the INE's latest projections by region for the population resident in Spain. Thus, the effect of changes in the population composition on the participation rate until 2030 were estimated, setting the participation rates by age group and sex for each region at their average 2022 levels. Chart 4.b shows that labour market participation would, indeed, decline more in the north-western regions and Castile-La Mancha and Castile and Leon, which in general have the more elderly populations. Also, as these regions tend to have lower participation rates and lower GDP per capita levels, this exercise predicts that ageing would contribute to widening the economic differences between the Spanish regions.

As mentioned earlier, the assumption of maintaining participation rates by groups at their 2022 level throughout the projection horizon may be overly restrictive. Specifically, the fall in the

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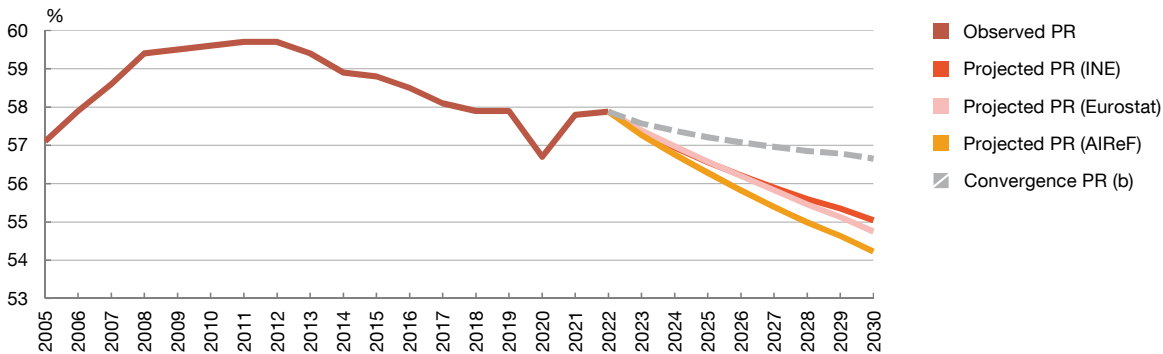
<sup>11</sup> The differentials in favour of those born abroad become evident at the extremes of the distribution by age group, as they exceed 10 pp among those over age 55 and reach almost 15 pp among those below age 25.



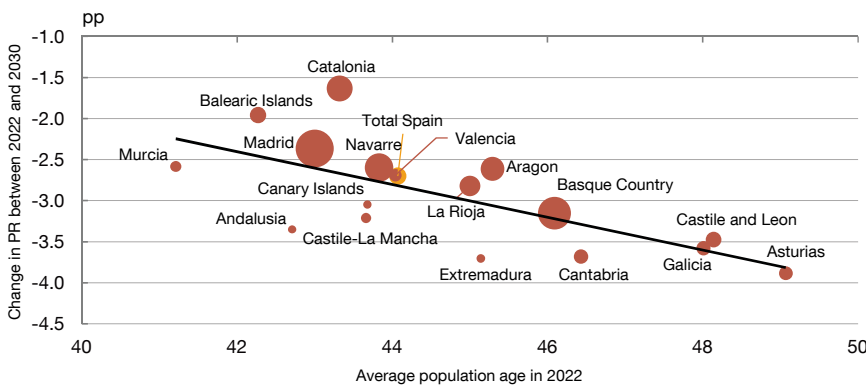
Chart 4

It is estimated that population ageing will further reduce the participation rate by between 2.8 pp and 3.7 pp by 2030, with notable regional heterogeneity, which could contribute to widening the economic differences between the Spanish regions

4.a Observed and projected participation rate (PR) (a)



4.b Correlation between the change in the participation rate in the period 2022 to 2030 and average age (the size of the dots denotes GDP per capita in 2021)



SOURCES: AIReF, Eurostat, INE and Banco de España.

- a The projected participation rates are calculated by setting the participation rates at their average level in 2022 and applying, quarter by quarter, the change in the population weights based on the different demographic projections considered.
- b The convergence participation rate is calculated assuming that the difference in 2022 between the participation rates of Spain and Germany declines by 50% on a linear basis up to 2033.



aggregate participation rate deriving from the composition effect owing to ageing could be offset by an increase in that rate for the different groups, especially the population groups whose labour market participation is lower than that observed in other European countries, such as Germany and the Nordic countries (Denmark, Finland, Norway and Sweden). As shown in Chart 5.a, which depicts changes in the participation rate for the group aged 15-64,<sup>12</sup> the labour market participation differential was 5.4 pp in 2022 (74.1% vs. 79.5%) between Spain and Germany and nearly 7 pp (74.1% vs. 81%) between Spain and the Nordic countries.

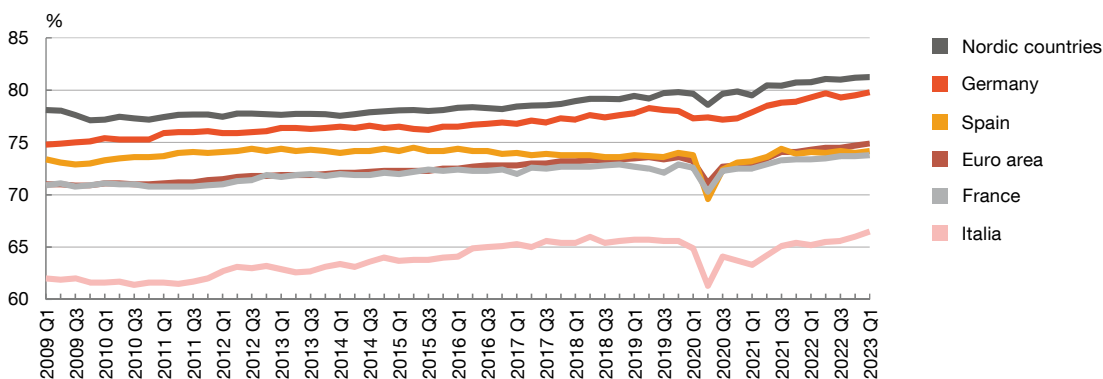
Taking the German economy as a reference (although the results would be similar to the average for the Nordic countries), the participation differentials are very high at the beginning and end of

<sup>12</sup> This is the definition of participation rate that is commonly used in international comparisons, due among other reasons, to issues regarding statistical harmonisation across countries.

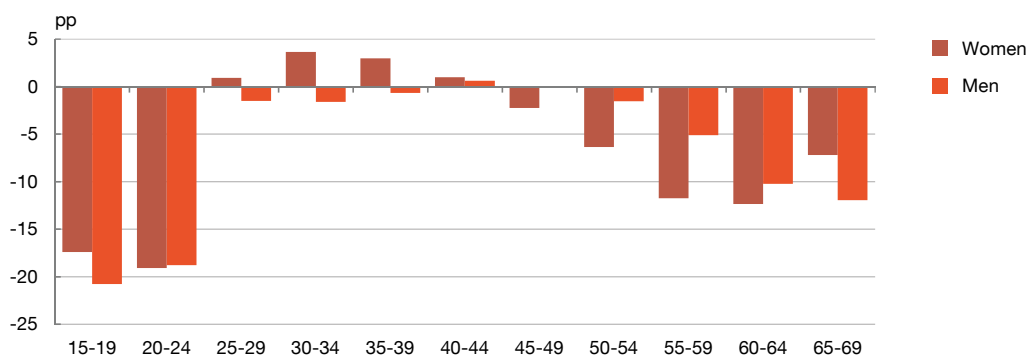
Gráfico 5

Over the past decade the pace of convergence of labour force participation in Spain towards the economies with higher participation rates was interrupted. The participation differentials are highest at the beginning and end of the working life

5.a Participation rates (15-64) in the euro area (a)



5.b Participation rate differentials between Spain and Germany, by age group, in 2022



SOURCES: Banco de España and Eurostat.

a The Nordic countries aggregate comprises the simple average for Denmark, Finland, Norway and Sweden.



the working life (see Chart 5.b). The participation rate in Spain of those under age 24 is between 17 pp and 21 pp lower, depending on the specific group by age and sex. Noteworthy among the older groups are men over age 55 and women over 60, whose participation rate is between 10 pp and 12 pp lower. Conversely, labour market participation in the central age groups is reasonably similar.

To illustrative the sensitivity of the results obtained previously in the simulation where participation rates by age group remained stable, compared with another case where they increased, an alternative scenario was constructed consisting in a partial and gradual convergence of Spanish participation rates by sex, age and country of birth to German participation rates. Specifically, it is assumed that the gap between the different groups considered narrows gradually, to half its size over ten years. Obviously, this is only one among many possible examples, but it illustrates

the challenge facing the Spanish economy, given that in the past decade not only has the pace of convergence towards Germany's participation rates by age group slowed, but in some cases, such as for younger workers (aged 15-24), the gap has widened. In other words, closing 50% of the difference could, a priori, seem to be a slightly optimistic assumption. In Chart 4.a, the broken line, which represents the projected participation rate under this convergence scenario, points to a reduction in labour market participation of 1.2 pp by 2030. This reduction is significantly lower than that which would be obtained from an automatic application of the INE's projections (2.8 pp). This example shows the need to continue to adopt different types of policies to promote labour market participation among the different demographic groups in order to avoid scenarios where the fall in the participation rate deriving from population ageing gives rise to labour shortages and acts as a brake on economic growth in the medium and long term.

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