

An analysis of the impact of the increase in social security contributions approved in 2023

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Rationale

The latest pension reform, approved in 2023, included three measures to increase social security contributions, aiming to boost social security revenue. This article analyses the impact and calculates the ex ante effect of the changes approved.

Takeaways

- The growth in the maximum contribution base will have an uneven impact on workers and firms, among other reasons because the contributions made by middle-aged and more highly-educated workers and by employees of large firms are more likely to be subject to the cap on contributions.
- The higher social security contributions approved in 2023 will also have an uneven impact across the wage distribution. In particular, effective contribution rates will increase more for high wage levels.
- The recently adopted increase in social security contributions could boost social security revenue ex ante by 0.9% of GDP in 2050. But this revenue growth could be smaller if higher labour costs adversely affect competitiveness, wages or employment.

Keywords

Social security contributions, maximum contribution base, pension reform.

JEL classification

H22, H55.

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Introduction

Pay-as-you-go (PAYG) pension schemes are primarily financed through social security contributions made by employers and workers. In Spain, these contributions are calculated by multiplying the contribution rate for common contingencies by the contribution base.¹ Broadly speaking, the contribution base is the worker's gross pay, although with a cap set by law, which means that any pay over that limit is not subject to social security contributions. As a counterpoint, since these contribution bases are used to calculate the worker's retirement pension, the pension amount is also capped.

The reform approved in March 2023 envisages, inter alia, three measures aimed at gradually raising social security contributions and, ultimately, social security revenue. First, a specific-purpose increase in social security contributions – dubbed the intergenerational equity mechanism – was set in place, which will be operational between 2023 and 2050. Second, it was stipulated that between 2024 and 2050 the maximum contribution base would grow by more than inflation and, in particular, at a faster pace than the maximum pension. Third, a surcharge on wages over the maximum contribution base was introduced, to enter into force in 2025.

This article aims to analyse the impact of all these measures. First, by describing the uneven impact across workers and employers of the cap on the contribution base. Second, by analysing the increase in effective contribution rates across the income distribution as a result of the three legislative changes described.² Third, by quantifying the impact on revenue of the measures approved. This quantification is made ex ante; in other words, it disregards the economic impact that the increase in social security contributions could have (for instance, a reduction in the employment rate), which would detract from its capacity to generate more social security revenue.

The following conclusions may be drawn from the analysis. First, the impact of the maximum contribution base is considerably uneven by gender, age, level of education, economic sector and firm size. Among other characteristics, the contribution bases of middle-aged and more highly-educated workers and employees of large firms are more likely to be capped. Second, the increase in social security contributions approved in 2023 will have an uneven impact across the wage distribution. In particular, effective contribution rates will increase more for high wage levels. For instance, social security contributions on gross annual salaries of around €60,000 will grow

1 Common contingencies include difficult situations stemming from temporary incapacity for work owing to a common illness or non-occupational accident, retirement benefits, disability and survivors' benefits owing to a common illness or non-occupational accident, family support allowances, pharmaceutical and healthcare benefits, maternity and paternity benefits and benefits for risk during pregnancy and breastfeeding.

2 In the context of this article, the effective contribution rate is defined as the percentage of the worker's wage that goes to social security contributions. This effective rate differs from the social security contribution rate, insofar as any part of the wage that exceeds the maximum contribution base is not subject to payment of social security contributions or, as described in the next section of this article, from 2025 will be subject to a lower rate than the general contribution rate.

by a higher proportion under the contribution system established for 2025, whereas contributions on salaries of around €80,000 will grow more, as a proportion of gross pay, under the system established for 2050. Third, a simple quantification shows that the recently approved increase in social security contributions could boost social security revenue by some 0.6% of GDP in 2030 and by around 0.9% of GDP in 2050, disregarding the effects that the higher labour costs could have on employment and wages.³

Description of the measures approved in 2023

Royal Decree-Law (RDL) 2/2023 of 16 March 2023 on urgent measures to enhance pension entitlements, bridge the gender gap and establish a new sustainability framework for the public pension system includes three measures designed to boost revenue from social security contributions.

First, the intergenerational equity mechanism approved in 2021 was modified. Under the new design, the mechanism consists of a specific-purpose increase in social security contributions applicable to all social security regimes and all retirement benefit contributions. The contribution rate was raised by 0.6 percentage points (pp) for 2023. This increase will rise by 0.1 pp per year, reaching 1.2 pp in 2029, at which point it will remain constant up to 2050. Broadly speaking, the distribution of the increase in the contribution rate is proportional to the contribution for common contingencies in place up to 2022, that is, 83% borne by employers and the remaining 17% by workers.

Second, the maximum contribution base will be updated each year, by the same percentage as the increase in contributory pensions; in other words, it is linked to the change in the consumer price index (CPI) over the 12 months up to the December of the previous year. Moreover, between 2024 and 2050 the update of the maximum contribution base will be calculated as the inflation rate plus 1.2 pp. Assuming an inflation rate of 2% in that period, the real increase in the maximum contribution base will be 8.5% in 2030, 22% in 2040 and 37.1% in 2050.⁴ As a counterpoint, the increase in maximum pension is also linked to the change in the CPI, although any excess increase over inflation set up to 2050 will be much less than that set for the maximum contribution base (0.115 pp from 2025) (see Chart 1). From 2051, additional growth in the maximum pension over inflation will be significantly higher.

Third, from 2025 there will be a surcharge on the amount of wages that exceed the maximum contribution base. This is a progressive rate contribution with three brackets, with rising marginal rates up to 2045. Specifically, the rates will range from 0.92% to 1.17% in 2025 and will increase each year, up to a minimum rate of 5.5% and a maximum rate of 7% in 2045. The minimum rate

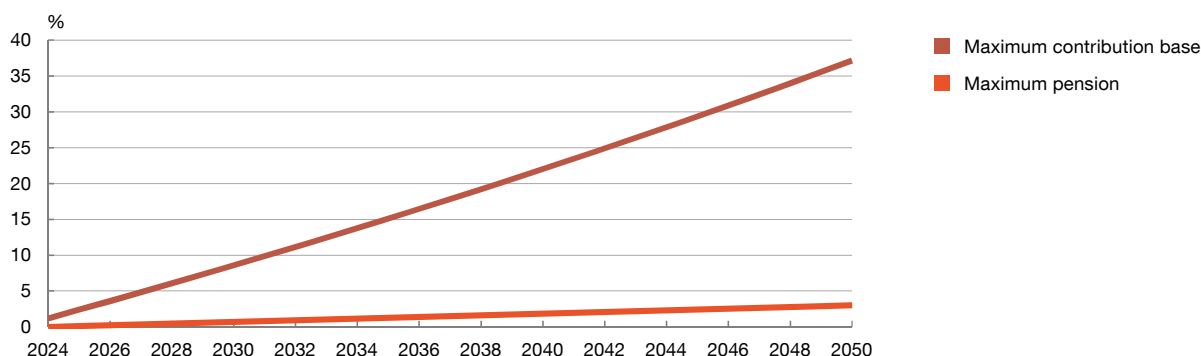
³ See Banco de España (2023) for quantification using a general equilibrium model of the effect of higher social security contributions on employment.

⁴ It is assumed that the additional 1.2 pp is added to consumer price inflation, so the real increase in the maximum contribution base depends on the assumed inflation. With an inflation rate of 1%, the real increase in 2050 would be 37.6%, whereas with an inflation rate of 0% it would be 38%.

Chart 1

The maximum contribution base will grow yearly by 1.2 pp above inflation from 2024

1.a Projected real growth of the maximum contribution base and the maximum pension compared with 2023



SOURCE: Banco de España.

corresponds to wages between the maximum contribution base and that base plus 10%, while the maximum rate will apply to wages more than 50% higher than the maximum contribution base. The new contribution is distributed between employers and workers in the same proportion as the contribution for common contingencies.

Analysis of the heterogeneity of the maximum contribution base across workers and firms

In this section we estimate the level of heterogeneity, across workers and firms, of the cap on the contribution base. For this purpose, we use microdata from the 2021 Continuous Sample of Working Histories (MCVL) and the 2020 Panel of Data on Firms and Workers (PET), as these are the latest waves available.⁵ The analysis relates to the position on the last Thursday of October of both years.⁶

The MCVL data for 2021 show that approximately 1.3 million workers had a maximum contribution base, or 6.8% of all social security registrations.⁷ By characteristics, the maximum contribution base is more prevalent among men than women (8.2% and 5.1%, respectively), and among middle-aged workers than young ones. For instance, more than 8% of workers in the 44 to 63 age group make maximum social security contributions, compared with less than 3% of workers under 30 (see Chart 2.a). By level of education, the cap on contributions applies to 19.3% of

5 Both databases exclude workers covered by social welfare systems other than Social Security, and in particular certain government employees.

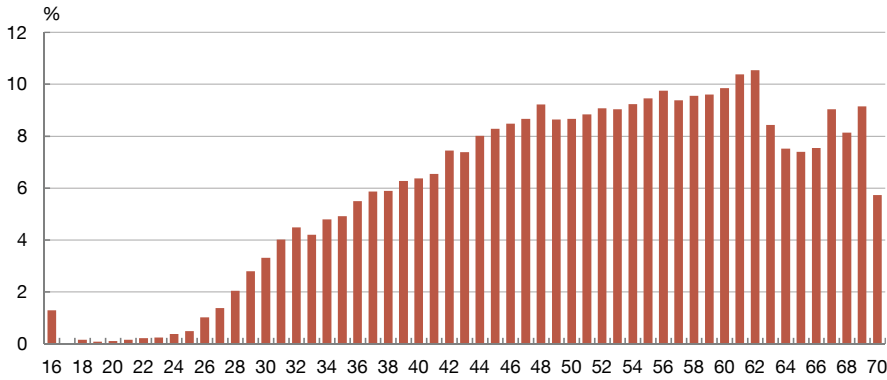
6 According to the [Methodological Report](#) on the Wage Structure Survey of the National Statistics Institute (INE), using the month of October has the advantage that there are no seasonal variations.

7 To avoid possible rounding errors and potential inaccuracies in contribution bases very close to the maximum, in the MCVL data the maximum contribution base used is the maximum base set in 2021 minus €1, and in the PET data it is the maximum base set in 2020 minus €2.

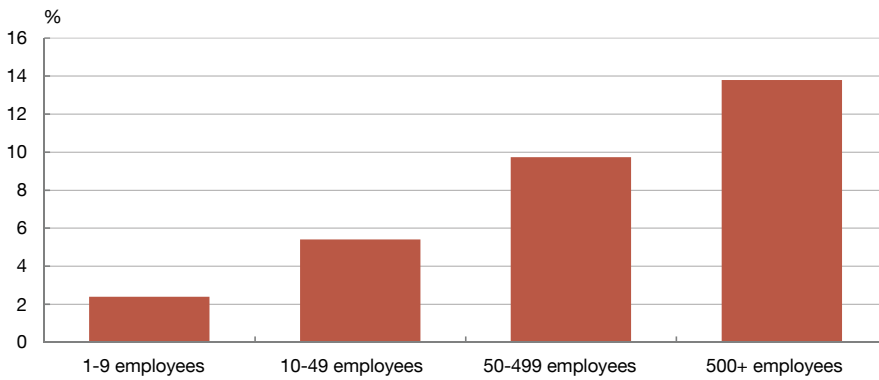
Chart 2

Middle-aged workers and employees of large firms are over-represented among the social security registrations with a maximum contribution base

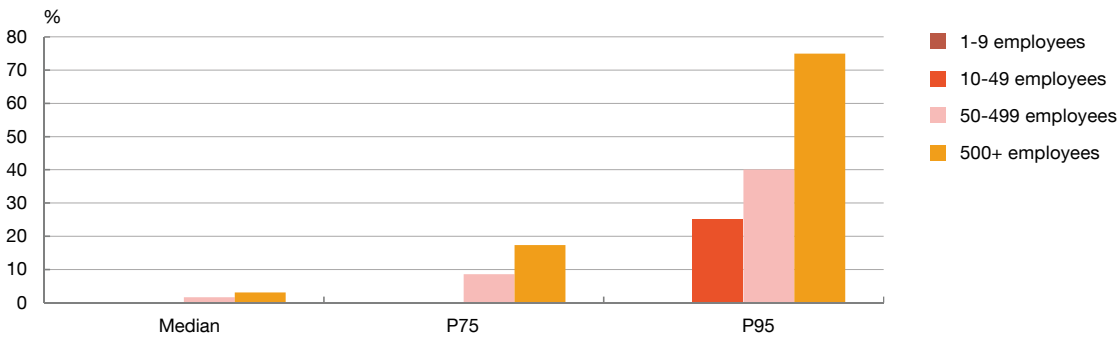
2.a Percentage of workers with a maximum contribution base, by age



2.b Percentage of workers with a maximum contribution base, by firm size



2.c Distribution of the percentage of workers with a maximum contribution base in the total number of employees of a firm, by firm size



SOURCE: Banco de España.



workers with higher education, to 7.5% of those with medium education and to just 1.3 % of those with lower education.⁸

Moreover, in relative terms, there are more workers with the maximum contribution base at large firms.^{9, 10} Specifically, they account for 2.4% of the total in firms with between one and nine employees, for 9.7% in firms with between 50 and 499 employees and for 13.8% in firms with 500 or more employees (see Chart 2.b). By 2-digit economic sector, the highest proportions of workers with the maximum contribution base are in financial service industries (54.4%), management consulting (20.2%), computer services (19.3%) and healthcare services (17%).¹¹

The 2020 PET data allow us to calculate the percentage of workers with the maximum contribution base as a proportion of all employees at firm level. This analysis reveals that, at most firms, especially smaller ones, workers with the maximum contribution base account for a small proportion of the total. For instance, 95% of firms with between one and nine employees and 75% of firms with between 10 and 49 employees have no workers to whom the contribution cap applies.¹² There is, however, a small group of companies where workers with the maximum contribution base make up a significant share of the headcount. For example, they account for around 40% of the total at 5% of firms with between 50 and 499 employees, and for almost 75% of the total at 5% of firms with 500 or more employees (see Chart 2.c). And naturally they account for a higher share of these firms' contribution base; specifically, for almost 50% of the contribution base at 5% of firms with between 50 and 499 employees and for almost 80% at 5% of firms with 500 or more employees. Accordingly, some large corporations will face significantly higher labour costs as a result of the increase in the maximum contribution base and the surcharge on wages that exceed that base.

The increase in effective social security rates

This section offers a simple simulation to cast light on the distribution of the increase in social security contributions as a consequence of the intergenerational equity mechanism, real growth in the maximum contribution base and the surcharge on wages that exceed that contribution base.¹³ These measures will be phased in, such that their impact will increase over time. Also, they will have an asymmetrical effect on income distribution. For instance, wages beneath the

8 The data on level of education are taken from the MCVL municipal population register. Higher education comprises university education (undergraduate and post-graduate studies, Master's and PhD programmes). Medium education includes higher secondary and vocational education and similar. Lower education includes compulsory education or less (including workers who cannot read or write).

9 Firm size in the MCVL corresponds to the total number of workers in the secondary contribution account code at the time of the sample extraction (the spring of the following year). It is important to note that a single employer has just one principal contribution account code but may have more than one secondary contribution account. In consequence, despite the notation "firm" being used in the main text, the unit of analysis may be understood as the "facility", although neither term accurately reflects the secondary contribution account code.

10 Records where the number of workers is zero are excluded as they refer, among others, to dormant contribution accounts and self-employed workers.

11 This calculation excludes 2-digit economic sectors with fewer than 100,000 workers in the MCVL on the specified date.

12 As in the MCVL, firm size corresponds to the total number of workers in the secondary contribution account code.

13 See also Box 2 of AIReF (2023).

maximum contribution base will only be affected by the intergenerational equity mechanism, whereas the highest wages will be subject to the increase in contributions stemming from the three measures described.

The simulation exercise consists in calculating the increase in effective contribution rates in 2025 and 2050, compared with 2022, for different gross wage levels. This is calculated as the ratio of the increase in contributions at each wage level to the 2022 wage level. The increase in contributions linked to the increase in the maximum contribution base is calculated by applying the various contribution rates – for common contingencies (28.3%), unemployment (7.05%), the Wage Guarantee Fund (0.2%), vocational training (0.7%), the intergenerational equity mechanism (0.8% in 2025 and 1.2% in 2050) and occupational accidents or disease (1.5%, the minimum stipulated by economic activity) – to the difference between the maximum contribution base updated in line with inflation (assumed as 2% up to 2050) plus 1.2 pp and the maximum contribution base updated only in line with the increase in the CPI.¹⁴ The rates set in RDL 2/2023 are used for the contribution rates for the intergenerational equity mechanism and the surcharge on wages that exceed the maximum contribution base.

The results show that the increase in the effective social security contribution rate will range from 0.8 pp to 1.6 pp in 2025 and from 1.2 pp to 11.3 pp in 2050.¹⁵ The largest increases are concentrated at the top end of the income distribution. In particular, the social security contributions for gross wages around €60,000 will increase by a higher proportion under the contribution system established for 2025, whereas those for gross wages around €80,000 will grow proportionately more under the contribution system established for 2050 (see Charts 3.a and 3.b). These increases for salaries of €60,000 and €80,000 will be higher than in the right-hand tail of the distribution, because at those levels a larger *proportion* of pay will be subject to the intergenerational equity mechanism and to the additional contribution as a result of the increase in the maximum contribution base, while the surcharge on wages that exceed that base will not be sufficient to fully offset both those measures.

Chart 3.c shows how the phased-in increase in effective contribution rates will affect a selection of wage levels over time. Effective contribution rates grow virtually linearly, although the slope depends on the wage level. Where wages remain below the maximum contribution base, the effective contribution rate ultimately steadies at a constant value. For instance, according to the projections, the maximum contribution base (€53,946 in 2023) would be over €60,000 in real terms in 2033. Thus, from that year, wages of €60,000 would no longer be over the maximum contribution base, meaning that the effective contribution rate, which had risen owing to the gradual increase in that base, would rise no further.

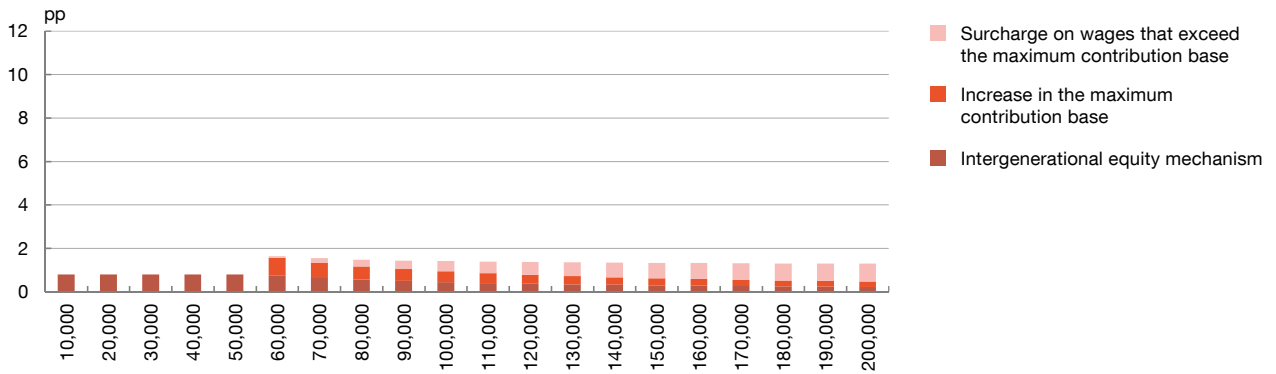
14 Previous to the publication of RDL 2/2023, the maximum contribution base was set discretionally each year in the State Budget Law. Over the last two decades, the CPI-deflated maximum contribution base rose by 5.4% in cumulative terms. Accordingly, in view of this limited growth (equivalent to 0.3% per year), to evaluate the measure that sets the annual growth in the maximum base as inflation plus a certain amount, the benchmark used (which is a forecast, in the absence of a specific measure) is a maximum base that will remain constant in real terms.

15 The effective contribution rate under the system in force until 2023 ranged from 10.2% for wages of €200,000 to 37.75% for wages under the maximum contribution base. The first figure is calculated by multiplying the maximum contribution base in 2023 (€53,946) by 37.75% and dividing the result by €200,000. The second is the sum of the concepts listed in the previous paragraph.

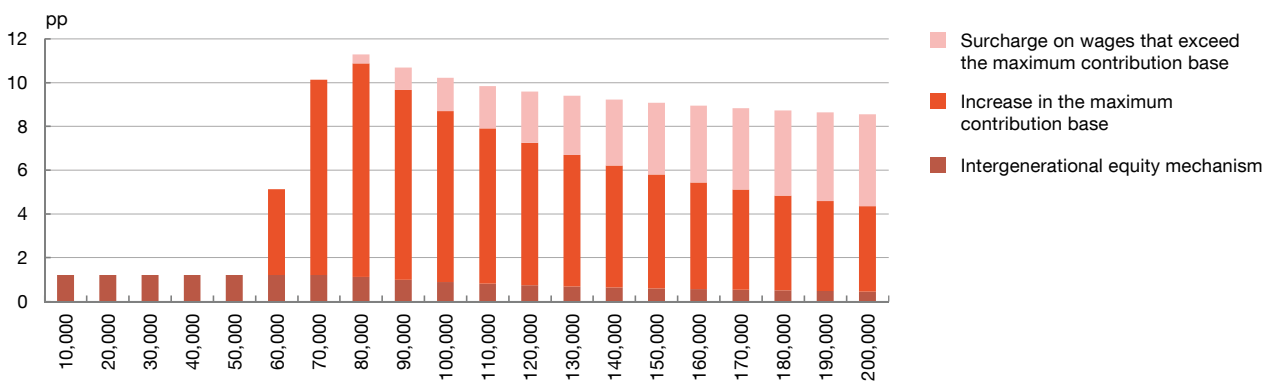
Chart 3

The increase in the effective social security contribution rate will range from 0.8 pp to 1.6 pp in 2025 and from 1.2 pp to 11.3 pp in 2050

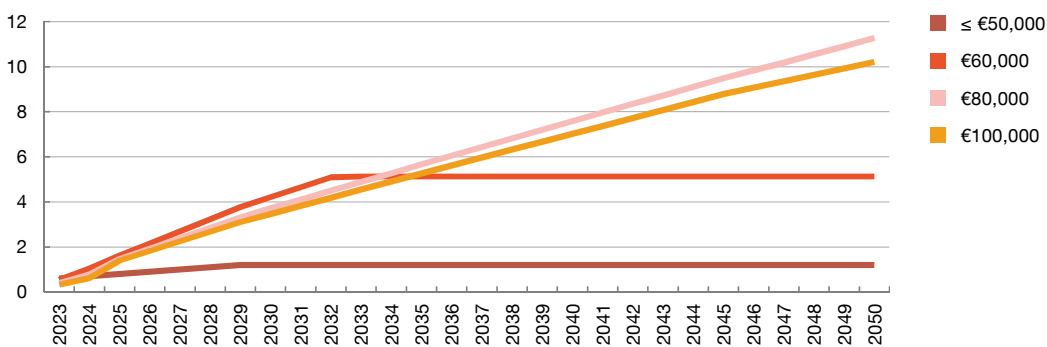
3.a Increase in effective rates, by wage level: 2025



3.b Increase in effective rates, by wage level: 2050



3.c Increase in the effective rate for different wage levels



SOURCE: Banco de España.

Lastly, it is important to note that RDL 2/2023 introduced an adjustment clause that could elevate the intergenerational equity mechanism from 2026, if projected future average pension expenditure were to deviate from a reference value and no additional measures were adopted to contain expenditure or boost revenue growth. If that were the case, the increase in effective contribution rates would be higher in the wage brackets below the maximum contribution base.¹⁶

Quantification of the ex ante impact on revenue of the changes implemented

In this section we quantify the potential increase in revenue between 2023 and 2050 resulting from the approved increase in social security contributions. First, we estimate the impact of the established growth path on the maximum contribution base, compared with one where growth remains constant in real terms (i.e. CPI-deflated). Second, we calculate the effect of the surcharge on the portion of the wage exceeding such maximum contribution base. Third, we calculate the effect of the intergenerational equity mechanism.¹⁷ As mentioned in the introduction, the assessment of these measures is based on a *ceteris paribus* assumption; i.e. it ignores the possible consequences of the stipulated increase in labour costs for employment, wages and competitiveness.

The first two simulations involve applying the estimated changes stemming from implementation of the first two measures in the preceding paragraph to the contribution bases of workers in the MCVL data for 2021 projected up to 2050. Based on their actual distribution in 2021, we project the contribution bases that would result from the social security contributions framework established under RDL 2/2023 for each year between 2023 and 2050.¹⁸ These simulations thus yield the changes in revenue that would arise in each year of the projection horizon as a result of the increase in the maximum contribution base and the surcharge on wages above (and for the portion exceeding) the maximum contribution base, compared with a scenario where the

16 The adjustment mechanism, established to guarantee the financial sustainability of the pension system, works as follows. From March 2025 and every three years, the Independent Authority for Fiscal Responsibility (AIReF) will calculate the average annual impact in the period 2022-2050 of the revenue-raising measures approved since 2020. If AIReF finds that these measures amount to 1.7% of GDP, no fresh actions will be needed, provided that in 2022-2050 on average pension expenditure will not exceed 15% of GDP. This reference level will increase or decrease by the same number of percentage points as those by which the impact of the revenue-raising measures deviates from 1.7%. The pension expenditure path against which the reference level will be compared is that projected in the latest Ageing Report. Should pension expenditure exceed the reference level, the Government must submit a proposal to correct the deviation, which may envisage revenue or expenditure measures, or both, to the Toledo Pact Committee. If Parliament does not reach an agreement to approve the corrective measures, the intergenerational equity mechanism will automatically increase, on 1 January of the following year, by the amount required to offset 20% of the deviation, and will continue to increase every year by the amount required to make a 20% annual correction, until such time as new measures are adopted or the deviation is eliminated.

17 Thus, compared with the previous section, in which we calculated the increase in effective contribution rates for reference wage levels, here we use the actual distribution of the contribution bases in order to quantify the increase in revenue resulting from such higher effective rates.

18 In other words, we determine the new maximum contribution bases (one for each year between 2023 and 2050) in two steps. First, we calculate the difference between a contribution base that increases by 1.2 pp plus inflation (i.e. 1.2% plus the 2% inflation rate used throughout the horizon) and one that only grows by 2% (in other words, assumed inflation). Second, we apply this difference to the maximum contribution base in force in 2021. For the surcharge on wages above the maximum contribution base, we apply the rates established in the legislation. Quantifying the impact this way entails implicitly assuming that wages and GDP (both expressed in current prices) grow at the same pace as inflation in both scenarios (with and without the March 2023 reform), while the maximum contribution base also grows at the same pace without the reform.

maximum contribution base grows at the same rate as the CPI (proxying the no-reform scenario), and in both cases under the simplifying assumption that workers' actual wages in 2021 and GDP remain constant in real terms.¹⁹ Logically, the ultimate or ex post effect of these measures will depend on the future dynamics of the economic variables that determine how the contribution bases are distributed, a circumstance not factored into the quantifications in this article.²⁰

Specifically, in order to estimate the revenue-raising potential of the increase in the maximum contribution base, we generate new contribution bases for the workers who will be affected by this measure, as they were subject to the cap in 2021.²¹ The effective social security contributions rate is applied to the difference between the new contribution bases and the original contribution base,²² aggregating the increases in the contributions of the workers affected and expressing the result as a percentage of 2021 GDP.

The results are depicted in Chart 4. According to the simulation, this measure's impact on revenue amounts to 0.1% of GDP in 2030 and gradually increases to 0.3% of GDP in 2050.

Turning to the surcharge on wages exceeding the maximum contribution base, we calculate the wages of workers in the MCVL in excess of such amount on the basis of the projected real growth of the maximum contribution base in each year.²³ Once the wages exceeding the maximum contribution base have been calculated, the contribution surcharge rate stipulated for each year between 2025 and 2050 is applied and the additional revenue is aggregated. The result is once again expressed as a percentage of 2021 GDP.

The results of this calculation show that this measure would give rise to a gradual increase in social security funds over the projection horizon, up to around 0.1 pp of GDP (see Chart 4).

Lastly, to estimate the extent of the intergenerational equity mechanism's impact, we multiply the aggregate of the contribution bases drawn from the MCVL by the contribution rate established for each year between 2023 and 2050. The product is expressed as a percentage of GDP. The increase in social security funds arising from this mechanism is estimated to amount to just under 0.5% of GDP from 2029, when the contribution rate will reach a constant 1.2% (see Chart 4).

19 Thus, the results can be deemed to be a quantification of the changes in revenue were the measures adopted for each year between 2023 and 2050 to be applied to workers in 2021.

20 For example, the distribution of real wages has narrowed as a result of the recent inflationary shock. This effect means that the results presented in this section are skewed upwards, insofar as the wages above the maximum contribution base have fallen in real terms.

21 To do so, we use information from the MCVL on the personal income tax withholdings made by employers that are not subject to the caps on the contribution base. The new contribution base of each worker in the MCVL whose 2021 contribution base was subject to that year's cap is calculated using the lower of the new maximum contribution base and the withholdings made by the employer. However, where the withholdings are lower than the actual (maximum) contribution base, the latter is used. Workers making maximum social security contributions for whom no tax information is available are assigned either the original base or the higher base, resulting in two hypothetical contribution bases for them and, therefore, two scenarios in the simulation. The results show the average of the two scenarios.

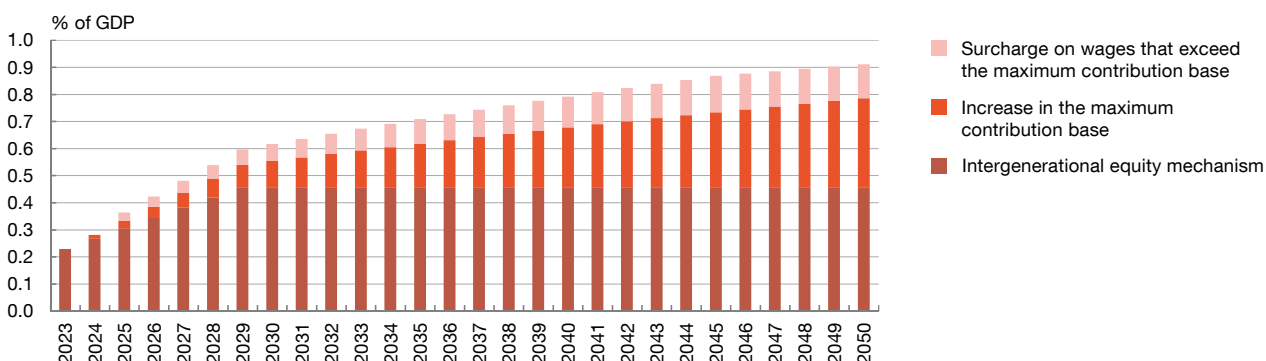
22 28.7%, drawing on 2021 MCVL data.

23 The calculation is as follows. For employees whose contribution base is capped and whose personal income tax withholdings are above the maximum base, the excess is the difference between these last two figures. For workers whose contribution base is capped and whose withholdings are below the maximum base, the excess is zero. Lastly, for those for whom no personal income tax information is available, the excess is the median of that corresponding to the first group.

Chart 4

The estimated ex ante impact of the increase in social security contributions adopted in 2023 amounts to 0.6% of GDP in 2030 and 0.9% in 2050

4.a Quantification of the increase in revenue resulting from the measures adopted



SOURCE: Banco de España.



Thus, on our estimates, the sum of the three measures described in this section amounts to 0.6% of GDP in 2030 and 0.9% in 2050. The estimate for 2050 coincides with that provided by AIReF and Fedea and is somewhat lower than the calculations of the Ministry of Inclusion, Social Security and Migrations, which raise the impact of the legislative changes to 1.1% of GDP in that year (AIReF, 2023; De la Fuente, 2023; and Escrivá, 2023). In any event, the exact effect of the legislative changes analysed is highly uncertain, largely owing to the considerable length of the quantification horizon. Accordingly, changes in the labour market and how agents themselves respond will require the impact of the measures to be reassessed in the future.

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