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Approved By
European Department

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DISSECTING SPAIN'S SOARING TAX REVENUES AND THEIR IMPLICATIONS FOR PROJECTIONS[1]

A. Introduction

1. Since the COVID-19 pandemic, Spain has seen one of the largest increases in general government revenues relative to GDP among euro area countries (Figure 1, left panel). This revenue boom has been instrumental to finance the government's extensive support measures to counter the economic effects of both the pandemic and the inflationary wave of 2022-2023 while containing the rise in public debt. Despite a partial reversal staring in 2022, by the end of 2023 the revenue increase remains substantial, especially for income taxes, with the ratio of total revenues to GDP about 3 percentage points above its 2019 level.

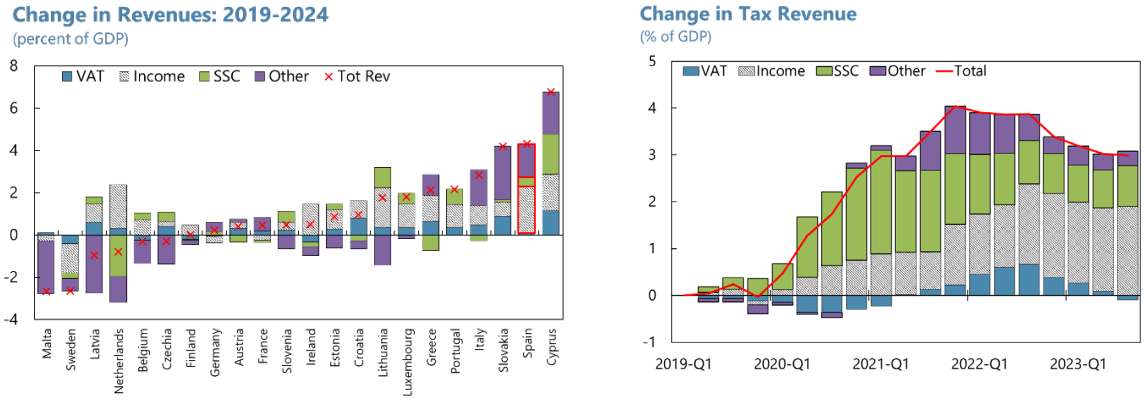
2. The trajectory and composition of the post-COVID tax revenue boom warrants deeper analysis. Strikingly, aggregate revenues as a share of GDP did not decline despite a large output contraction during the pandemic. This contrasts with the Global Financial Crisis (GFC), when revenues declined sharply both in absolute terms and as a share of GDP, and took several years to fully recover. This resilience of revenues during the first years of the pandemic was broadly unexpected (García Miralles and Martínez Pagés, 2023). Another development that needs to be explained is the evolving composition of the revenue boom over time (Figure 1, right panel). In 2020, the rise in revenues was driven mainly by social security contributions (SSCs) and income taxes (both personal and corporate), accounting for a 2-percentage point increase in the overall revenue-to-GDP ratio by the end of 2021.[2] In 2022, there was a significant increase in the value added tax (VAT) of 0.5 percentage points, alongside continued growth in income taxes and "other taxes"—which include excise duties among others. By 2023, VAT revenues declined, the rise in SSCs revenues stabilized, and income taxes continued to grow, representing two-thirds of the revenue growth since 2019 by year-end.

3. Understanding the drivers of the boom is key to projecting future revenues and debt dynamics, and thereby to designing a medium-term consolidation plan. Given Spain's need to re-build fiscal space and bring down elevated debt, two questions are of relevance. The first is whether the dynamics of tax revenues during the downturn are mostly explained by regular cyclical dynamics, factors specific to the COVID-19 pandemic, or instead by discretionary policies enacted by the government. The second question is the extent to which the tax revenue boom is permanent versus temporary, and thus whether the level of revenues to GDP at the end of 2023 can be considered structural.

[1] Prepared by Carlo Pizzinelli (EUR)

[2] Although not all social security contributions may be considered as taxes, for the remainder of the paper, the term "tax revenues" refers also to revenues from these sources.

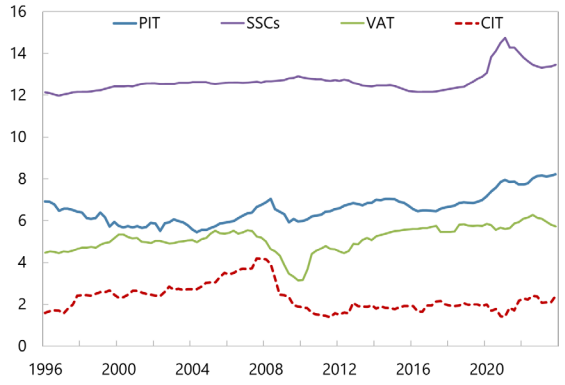
Figure 1. Spain's Revenue Boom



Sources: Eurostat and IMF staff calculations.

4. Providing answers to these questions requires combining an analysis of the historical behavior of tax revenues in Spain with an analysis of macroeconomic factors specific to the 2020-2023 period while accounting for the effect of enacted policies. Although historical relationships between the business cycle and different revenue sources exist, they may not have been the only forces behind the dynamics of revenues over the last four years. The COVID-19 pandemic was a supply-side shock of unprecedented nature, to which the Spanish government responded with large fiscal support to households and hard-hit sectors. This intervention was not only unprecedented in size but also leveraged policy instruments not used in previous downturns, such as the extension of job retention schemes like the *Expediente de Regulación de Trabajo* (ERTE). The robust labor market recovery of 2021-2023, partly underpinned by large immigration flows, brought Spain's employment to its highest historical level. Finally, the inflationary wave caused by supply-chain disruptions, fast demand growth, and the energy crisis triggered by Russia's war in Ukraine solicited new policy interventions through targeted VAT rate cuts to energy and food products, as well as temporary cuts in excise taxes to energy production.

Figure 2. PIT, SSCc, VAT and CIT Revenues
(Percent of GDP)



Sources: INE, AEAT, and IMF staff calculations.

5. This paper sheds light on these questions by focusing on four revenue sources for Spain: the personal income taxes (PIT), social security contributions (SSCs), the value added taxes (VAT), and the corporate income tax (CIT). Collectively, these accounted for 28 percent of

GDP on average between 2000 and 2019 (Figure 2) and 82 percent of total revenues. Over the 25 years preceding the pandemic, they were characterized by different long-run trends and cyclical fluctuations, reflecting both their intrinsic relationship with the business cycle and changes in the country's tax policy. The paper therefore examines the dynamics of tax revenues in Spain in the post-COVID period, appraising the relevance of historical cyclical patterns, conjunctural factors, and policy changes. In doing so, the analysis also assesses the extent to which the 2019-2023 change in revenues is the result of temporary or permanent factors, which in turn informs medium-term projections on the structural ratios of tax revenue to GDP.

6. To this end, the paper combines an econometric approach based on historical time series with a more detailed analysis of relevant developments for each tax over the post-COVID period. The econometric analysis centers around the concept of "buoyancy", capturing the short- and long-run relationships between a given tax item and either i) aggregate macroeconomic developments, ii) those developments in the economy that are most directly relevant for the tax's outturn—known as the "macroeconomic base"—or iii) the actual administrative base recorded by the tax authority. Error Correction Models (ECMs) estimated until 2019 are used to dynamically forecast the outturn of each of the four taxes over 2020-2023. The ability of historically estimated buoyancy parameters to explain post-COVID dynamics is in turn the starting point for a case-by-case discussion of specific developments relevant to each tax, including labor market fluctuations, policies enacted during COVID, the role of inflation, and permanent reforms. Together, these two approaches inform the final appraisal of the likely medium-term path of each tax.

7. The analysis finds that several factors contributed to the 2020-2023 revenue boom, including large employment gains and the so-called "fiscal drag," among others. Throughout the period, the robust performance of the labor market, with only a small contraction in employment in 2020 followed by three years of sustained growth, was a key driver of PIT and SSCs revenues. The presence of an extended national job retention scheme particularly cushioned the fall in households' incomes during 2020 and early 2021, thus sustaining the PIT and SSCs bases. Starting in late 2021, the rise in inflation was the main driver of growing PIT revenues due to the so-called fiscal drag phenomenon, whereby higher nominal income growth mechanically raises revenues, including by pushing some workers into (unchanged) higher marginal tax brackets and to the upper bound of various tax deductions and allowances. For the VAT, estimations based on historical regularities predicted a large fall in revenues during 2020-2021, which did not materialize. This discrepancy originates from the very pronounced dynamics exhibited by the VAT in the post-GFC years, when sluggish aggregate demand and filing compliance issues drove a persistent fall in revenue. More tentatively, a partial shift from cash to electronic payments might have contributed to bringing a larger share of transactions into the formal economy.

8. A portion of the post-2019 rise in the revenue-to-GDP ratio, in the range of 2 – 2.5 percentage points, can be expected to persist in the medium term. A particularly persistent component of this outstanding boom relates to the increased effective PIT rate caused by fiscal drag. This will remain as long as the central government and autonomous communities do not adjust their marginal rate schedules, a process that may happen only progressively. Meanwhile, SSCs

revenues are expected to continue to grow gradually over the next decade, by about 1 percent of GDP, as the 2021-2023 pensions reforms are phased in. VAT revenues are also expected to remain at high levels, as the anti-inflationary measures introduced in 2022-2023 are phased out.

B. Tax Buoyancy: Econometric Specification and Data

9. Tax buoyancy has been widely used to study the relationship between income growth and revenues (e.g., Dudine and Jalles, 2018). Importantly, the concept of buoyancy differs from that of tax elasticity. The former represents the reduced-form nexus between revenues and nominal GDP, which captures both the structural links between the two and discretionary policy changes which may be related to aggregate fluctuations. For instance, in a downturn, PIT revenues could fall due to a decline in income but also because of a historical propensity of tax credits to be introduced by the government to stabilize the economy. On the other hand, elasticity focuses solely on the structural relationship between taxes and output, abstracting from discretionary policy changes. While differentiating between structural relations and policy changes is important and informative, doing so in an econometric specification is challenging, as it requires possessing a long time series of precisely measured effects of the latter. For this reason, studies estimating elasticity parameters generally focus on a single tax and leverage the impact of reforms that took place at precisely identified times to estimate structural relationships.[3] The approach taken in this analysis, instead, is to discuss how the main reforms and temporary measures taken with regards to each tax may affect the estimated buoyancy parameters and the implied dynamics of revenues over 2020-2023.

10. A second important remark is that the behavior of revenues over the business cycle may differ from their long-run relationship with growth. For this reason, several papers, such as Cornevin et al. (2023), model short- and long-term buoyancies as separate parameters to be jointly estimated. This distinction is made by specifying a co-integrating relationship in the log levels of GDP and tax revenues within an Error Correction Model as follows:

$$\Delta \ln Tax_t = \gamma\, \Delta \ln GDP_t + \lambda\, (\ln Tax_{t-1} - \theta \ln GDP_{t-1}) + \mu + \epsilon_t$$

where Tax_t is the revenue at time t for a given tax (PIT, SSCs, VAT, CIT). The coefficients γ and θ represent short- and long-run buoyancies, respectively. Assuming yearly frequency, the former relates yearly fluctuations in revenues to growth in nominal GDP. A coefficient above one implies that log tax receipts would fall relatively more than log GDP during a downturn, leading to a decline in the revenues-to-GDP ratio. Meanwhile, the latter reflects the long-run trend of the ratio. A value above one implies that revenue collection as a share of GDP grows over time, reflecting increased collection efficiency, base expansion and/or policy choices to increase taxation (e.g., through higher rates). Given the focus of the paper, the short-term buoyancy is the more relevant concept for understanding tax revenue dynamics over 2020-2023. However, including long-run buoyancy in the specification is important to control for long-term trends as they may affect the estimation of short-

[3] In the case of Spain, for instance, Almunia and Lopez-Rodriguez (2019) study the elasticity of households' taxable income in response to three reforms of the PIT structure over 1994-2014.

term parameters and because they would also drive the trajectory of revenues in the post-COVID period.

11. The analysis expands the above ECM specification in several ways, particularly to better capture the actual base of each tax. First, to increase the sample size and examine in more detail some of the sharp dynamics observed during COVID-19, quarterly data at annualized values are used instead of yearly data.[4] Consequently, to account for potential persistence in the dynamics, lags of both the dependent and exogenous variables are included. Second, two alternative specifications are examined in which nominal GDP is replaced by a variable that relates more closely to each specific tax, namely the macroeconomic base or the administrative base.

$$\Delta \ln Tax_t = \sum_{h=0}^{H} \gamma_h \, \Delta \ln X_{t-h} + \sum_{k=1}^{K} \eta_k \, \Delta \ln Tax_{t-k} + \lambda \left(\ln Tax_{t-1} - \theta \ln X_{t-1} \right) + \mu + \epsilon_t$$

where *H* and *K* are the numbers of lags on the explanatory variable of interest *X* and the dependent variable, respectively. *X* represents either nominal GDP, the macroeconomic base, or the tax base. For each tax, the number of lags is chosen to be 3 or 4 for the dependent variable and 1 or 2 for the explanatory variable (see Annex I for details).

12. The main data sources for the analysis are national accounts statistics and time series on revenues and the administrative base of each tax. National accounts series, produced by the *Instituto Nacional de Estadística* (INE)—the national statistical office—include nominal GDP as well as the individual series used to compute the macroeconomic base of each tax, while data on revenues and administrative bases are produced by *Agencia Estatal de Administración Tributaria* (AEAT)—the tax administration agency.[5] For each tax, the macroeconomic base is constructed as defined in García Miralles and Martínez Pagés (2023) (see Annex I for details). Broadly speaking, the macroeconomic base refers to those components of national accounts that more closely reflect the economic activity linked to each tax. Approximately, for the PIT, the macroeconomic base includes all sources of household income while for SSCs it is comprised of households' earnings from work. The macroeconomic base of the VAT captures the sale of goods and services, excluding final consumption by the public sector. For the CIT, it comprises firms' gross operating margins.

13. Finally, counterfactual revenue series for 2020-2023 are constructed to exclude the contribution of key discretionary policy measures taken during the period. The quantitative impacts of policy changes are taken from estimates reported by the authorities in the annual Stability Program Update and Draft Budgetary Plan documents, as well as AIReF's reports on these

[4] The annualization—that is, summing four quarters of data—is undertaken to avoid seasonality patterns in the time series for revenues and the base. Undertaking a seasonal adjustment of the quarterly series proved challenging as in many cases the seasonal patterns changed over time, likely due to changes in the filing and collection of the taxes.

[5] Note that the revenue from each tax reported by the tax administration may slightly differ from those compiled in national accounts statistics.

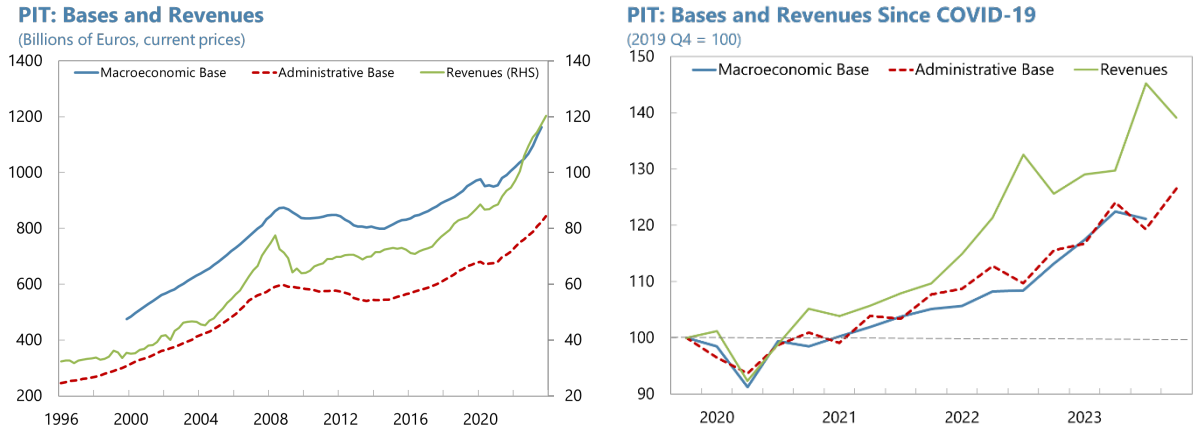
budget plans. Overall, these policies were quantitatively small and do not affect the main results presented below.

C. Results

Personal Income Taxes

14. Since the onset of the pandemic, the PIT macroeconomic base, the tax base, and revenues all recovered to 2019 levels by the end of 2020 and grew steadily over 2021-2023 (Figure 3). Starting from late 2021, however, revenues grew at a faster pace than both the macroeconomic and administrative bases. These dynamics contrast with the GFC, when the sharp and persistent contraction in PIT revenues was closely aligned with the drop and subsequently sluggish recovery in the PIT base.

Figure 3. PIT: Revenues, Macroeconomic Base, and Administrative Base



Sources: INE, AEAT, and IMF staff calculations.
Note: The left panel reports revenues (green), the macroeconomic base (blue), and the administrative base (red) in current prices and in annualized values at quarterly frequency. The right panel reports quarterly values, normalized to 100 in 2019 Q4, after seasonal adjustment.

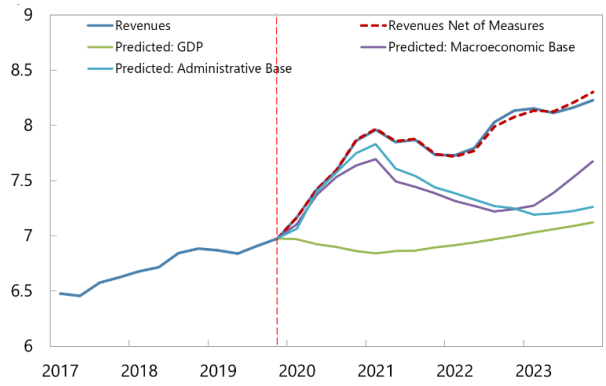
15. Dynamic forecasts show that the macroeconomic and administrative bases better predicted the PIT outturn over 2020-2021 than nominal GDP, but no indicator explains well continued growth in revenues during 2022-2023 (Figure 4). Over 2020-2021, the GDP-based forecast entails a small inflection in the revenue-to-GDP ratio while the two bases predict a rise, indicating revenues falling by a smaller amount than the deep contraction in GDP. This result reflects the dynamics shown in Figure 4, where households' incomes on average held strong throughout the pandemic, supported by the government's job protection schemes and other aid measures, while economic activity contracted. However, by the end of 2021, forecasts from the bases also start diverging from actual PIT outturn.

16. The mounting forecasting gap over 2022-2023 is likely explained by the so-called fiscal drag related to the inflationary wave that began in late 2021. As workers' salaries rise in nominal terms—although not necessarily in real ones (Figure 5, left panel)—while PIT rate schedules and the maximum levels of key tax benefits (i.e., allowances, deductions, and credits) are not re-

adjusted, the average effective tax rate rises (de la Torre Díaz and Victoria Lanzón, 2023). As a result, revenues grow faster than the base (Figure 5, right panel).[6,7,8]

17. A simple decomposition exercise suggests that fiscal drag accounts for most of the revenue boom as of end-2023. During 2020 and early 2021, most of the revenue boom was explained by the rise in the base—in line with Figure 4—holding PIT rates constant. Accordingly, a counterfactual in which the base is fixed to its 2019 level while the effective PIT rate evolves over time explains only a small part of the revenue rise in 2020 and 2021. However, that same exercise accounts for a rise in PIT revenues of about 0.7 percentage points of GDP by end of 2023 (Figure 6, left panel).[9] An alternative data source provides a similar picture and shows that this result is quantitatively in line with what can plausibly be explained by inflation. Tabulations on tax withholdings from salaries based on granular income bands show that workers' income distribution

Figure 4. PIT: Revenues, Historical Outturn and Predictions (Percent of GDP)



Sources: Haven Analytics, INE, AEAT, and IMF staff calculations.
Note: the dark blue line reports the historical yearly revenue as a share of GDP. The dashed red line reports the historical outturn net of policy measures undertaken since 2020. The other lines report the dynamic forecasts from 2020 Q1 to 2023 Q4 from the ECM, using nominal GDP, the macroeconomic base, and the administrative tax base as explanatory variables, respectively.

[6] Three channels contribute to the fiscal drag. First, with a progressive marginal PIT rate schedule, any increase in income is taxed at the marginal tax rate faced by the taxpayer, which by construction is higher than (or at most equal to) the initial average tax rate, and thus leads to an increase in the latter. Second, as income rises, the taxpayer may move into a higher marginal tax rate bracket. Third, many tax benefits (i.e., allowances, deductions, and credits), such as allowances for dependent children or the earned-income allowance, either cover a proportionally smaller part of the taxpayer's income or have upper income limits above which they do not apply.

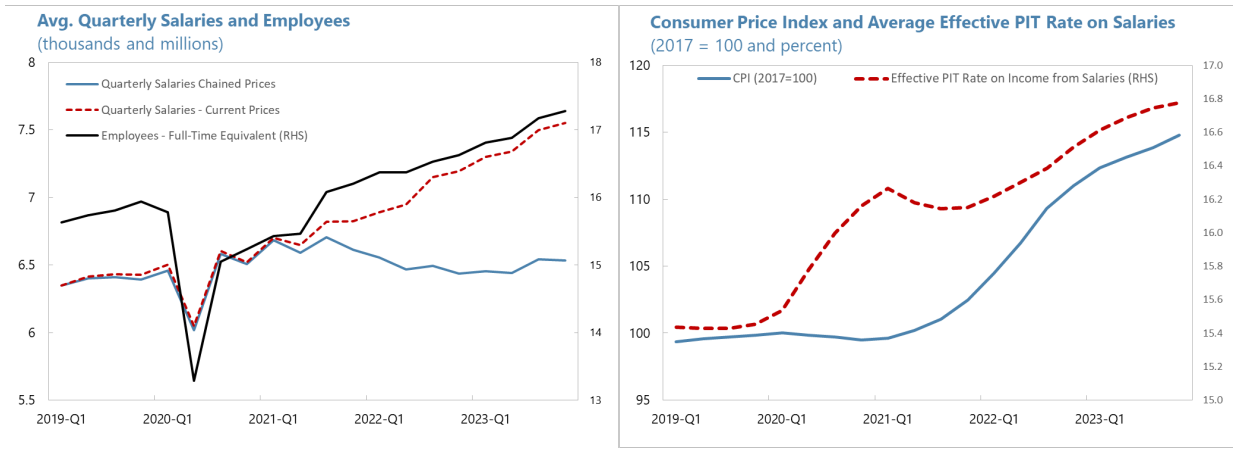
[7] Bank of Spain (2024) estimates the PIT elasticity of revenues to taxable income (ERTI) at 1.85 using microdata and tax parameters from 2019, meaning that a 1 percent increase in all sources of income leads to a rise in revenues from PIT of 1.85 percent. Importantly, the effect of the PIT fiscal drag is very heterogeneous across the income distribution. The bottom three income deciles, who pay close to no PIT, face an ERTI of effectively 0. The middle of the income distribution faces ERTIs above 2, with the fourth decile facing the highest ERTI, above 10, due to the caps in most tax benefits applying to this income segment.

[8] The rise in the effective tax rate in 2020 and early 2021 seen in Figure 5 (right panel), when inflation remained low, is due to the heterogenous effect of the COVID-19 recession. The majority of workers who suffered job and/or income losses from the lockdowns were in sectors with lower average incomes, such as the hospitality industry. Hence, the composition of the tax base over those years was skewed towards workers with higher incomes and thus subject to higher average tax rates.

[9] The revenue elasticity with respect to the base computed using these series over 2019-2023 is 1.57 for total PIT and 1.48 when only considering the PIT revenue accrued on income from workers' salaries. Using social security affiliation to proxy for growth in workers filing PIT, the latter can be adjusted to compute an ERTI of 1.68, close to the 1.85 estimated by Bank of Spain (2024).

shifted upward between 2019 and 2022.[10] Applying a constant growth rate to all 2019 incomes equal to cumulative inflation over 2019-2022 explains most of the shift, especially for salaries above the minimum wage (Figure 6, right panel). Expanding the ECM with the 4-quarter lag of the effective PIT rate improves substantially the fit of the dynamic forecast (Figure 7). Adding consumer price inflation, however, only provides a modest improvement.[11]

Figure 5. Labor Market Developments, Inflation, and Average PIT Rates



Sources: Haven Analytics, INE, AEAT, and IMF staff calculations.

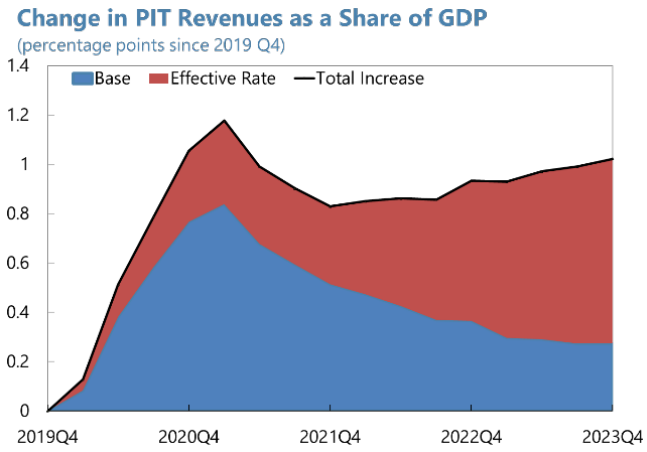
18. Looking ahead, the PIT revenue boom is likely to persist over the medium term. Considering that real wages have not risen (Figure 6), the growth in revenues accounted for by the higher base is mostly underpinned by the sustained growth in employment over the post-COVID period. Given IMF staff's projection of moderate positive employment growth until 2029, this component can be considered permanent in the baseline projection. Likewise, the component related to the rise in the effective average tax rate is likely to persist, although it may not necessarily be fully permanent. While, as of 2024, the central government has not yet updated the marginal rates profile for the portion of the tax destined to national finances, some autonomous communities

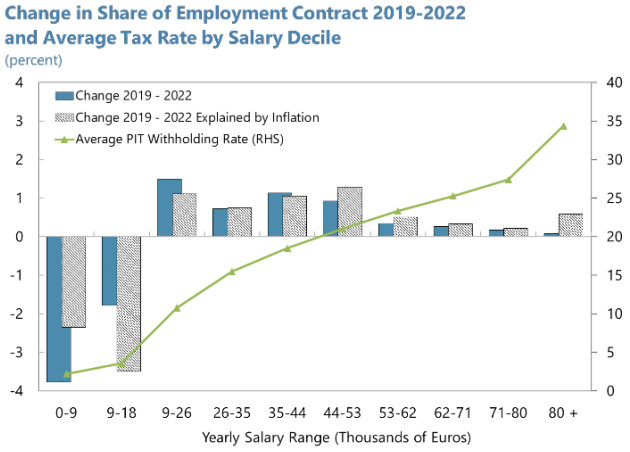
[10] These tabulations, which are published by the tax authorities, contain data on the number of employment contracts in a given year that are within granular income bands as well as the average PIT withholding (*retención*) for that income level. While withholdings are not exactly equal to the tax amount workers are liable to pay at the time of filing, they are generally close approximations since they already take into account key deductions and allowances, such as the number of dependents claimed by the workers. One key difference between withholdings and filing data, however, is that the former is collected at the employment contract level, rather than at the taxpayer level. For workers with multiple jobs, differences between withholdings from each job's salary and their final tax liability could be significant.

[11] For brevity, Figure 7 reports the forecasts only for the administrative base. The one-year lag (t-4) of the effective rate, rather than the contemporaneous one, is used because the rate at time t is constructed as the ratio between revenues and the base at time t, which would introduce reverse causality in the model. The reason why CPI growth does not have strong additional predictive power is likely because it is already largely captured in the growth of tax base to the extent that salary growth tracks inflation.

have already adjusted their regional brackets.[12] In the years to come, it is plausible that more regional governments, and possibly the central government, will update their PIT schedules.[13] This process, however, is unlikely to fully revert the rise in the effective PIT rate and may mostly halt its continued growth as workers' wages rise further to catch up with recent inflation.

Figure 6. Decomposing the PIT Revenue Boom and the Role of Fiscal Drag





Sources: AEAT and IMF staff calculations.
Note: Left panel: The blue area reports the increase in PIT revenues since 2019 Q4 as a share of GDP explained by the increase in the administrative base of the PIT while keeping the average effective PIT rate constant at its 2019 Q4 level. The red area reports the increase in PIT revenues since 2019 Q4 as a share of GDP explained by the increase in the average effective PIT rate while keeping the administrative base constant at its 2019 Q4 level. Right panel: The blue bars report the change in the share of employment contracts in each yearly salary band between 2019 and 2022. The grey bars report the counterfactual change in the share of employment contracts in each salary band if each contract from the 2019 distribution increased by 11.2 percent, corresponding to the rise in consumer prices between 2019 and 2022 using yearly averages of the Consumer Price Index. The green line plots the average PIT withholding rate in each income band in 2019.

[12] In Spain, individual income is taxed both by the central government and the autonomous communities. Taxpayers are thus subject to a national component of the PIT, with a tax rate schedule equally applied across the country, and to a regional PIT with a schedule set by the autonomous community governments.

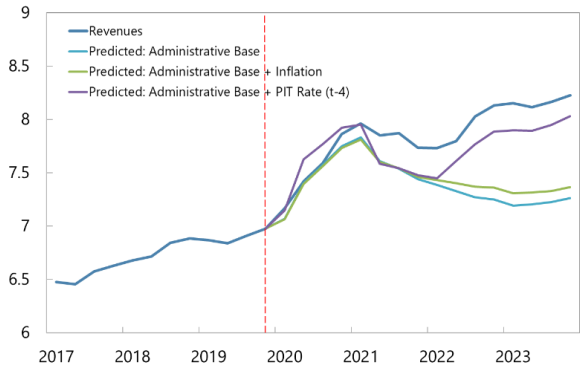
[13] In 2022 and 2023, the central government did update some parameters relating to one tax allowance and its automatic withholding from workers' paychecks. First, the profile of the variable component of the earned-income tax allowance (*reducción por rendimientos del trabajo*) was updated so that the tax allowance fully phases out at €19,747.5 instead of €16,825. Second, the minimum income level for automatic PIT withholding was raised from €14,000 to €15,000. As explained by de la Torre Díaz and Victoria Lanzón (2023), these changes were necessary to avoid taxing a large fraction of the €1,000 increase in the minimum inter-professional salary. This measure was thus narrowly targeted to low-income workers but did not address the rise in average tax rates over the entire income distribution.

Social Security Contributions

19. For SSCs, the macroeconomic base and the administrative base grew steadily and in parallel over 2021-2023, but the macroeconomic base experienced a deeper contraction than revenues and the administrative base during 2020 (Figure 8). The likely reason for the gap between the macroeconomic base and the administrative base over the first quarters of COVID-19 is that the former focuses on compensation of individuals at work, which may not capture well revenues suffered the smallest contraction in 2020 and by the end of 2023 they had grown by a larger extent than both bases in relative terms. This pattern seems consistent with the GFC. Although the post-2008 downturn was deeper and longer, revenues contracted less than the macroeconomic base in relative terms.

Figure 7. PIT: Revenues, Historical Outturn and Predictions with Extended Specification Using the Administrative Base

(Percent of GDP)

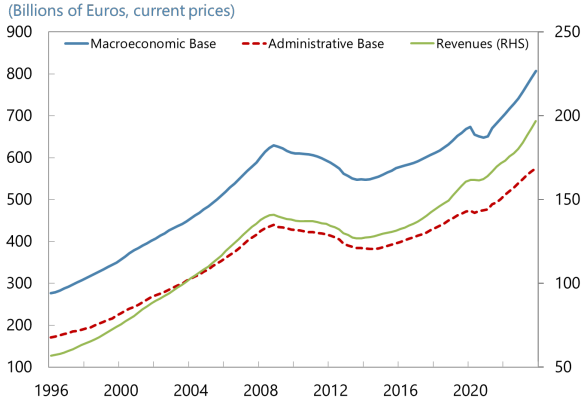


Sources: Haven Analytics, INE, AEAT, and IMF staff calculations.
Note: the dark blue line reports the historical yearly revenue as a share of GDP. The other lines report the dynamic forecasts from 2020 Q1 to 2023 Q4 from the ECM, using the administrative tax base as an explanatory variable, and extending the specification by including either yearly inflation or the one-year lag of the average effective PIT rate as controls.

Figure 8. SSCs: Revenues, Macroeconomic Base, and Administrative Base

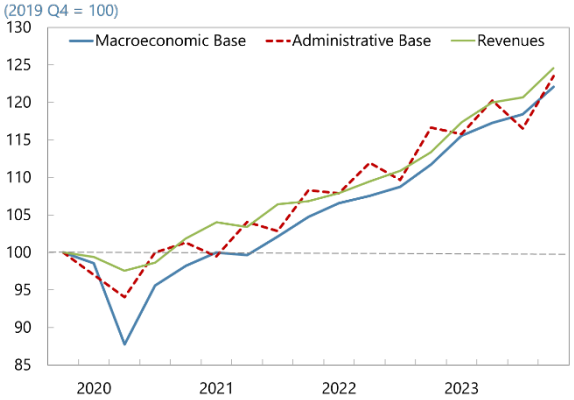
SSCs: Bases and Revenues

(Billions of Euros, current prices)



SSCs: Bases and Revenues Since COVID-19

(2019 Q4 = 100)



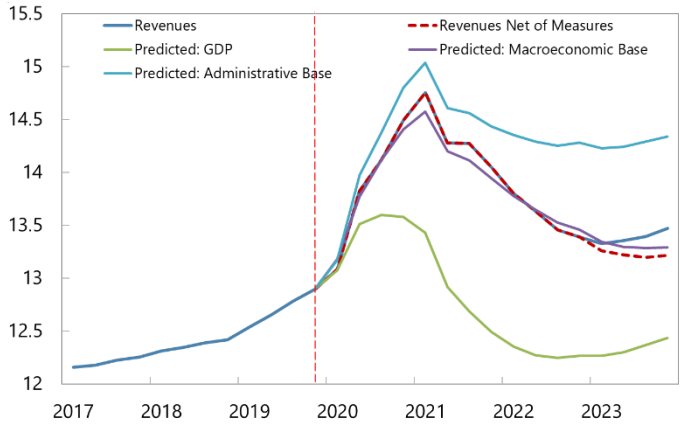
Sources: INE, AEAT, and IMF staff calculations.
Note: The left panel reports revenues (green), the macroeconomic base (blue), and the administrative base (red) in current prices and in annualized values at quarterly frequency. The right panel reports quarterly values, normalized to 100 in 2019 Q4, after seasonal adjustment.

20. The dynamic forecasts from the macroeconomic and administrative bases track the actual outturn of SSCs over 2020-2023 better than GDP (Figure 9). In particular, both bases pick up the rise in SSCs-to-GDP in 2020 and until mid-2021, as revenues held up better than GDP. Over 2022-2023, the forecast from the macroeconomic base continues to capture well the outturn, suggesting that the joint behavior of this base and SSCs over the entire post-COVID period is

broadly aligned with historical patterns. Meanwhile the administrative base overpredicts SSCs in 2022-2023. This divergence could be explained by the fact that the administrative base is only a proxy for the actual SSCs base (see Annex I). For instance, growth in workers' salaries above the upper bound of the retirement pension contributory base would not affect the SSCs base. Moreover, until 2023, self-employed workers could independently choose their own retirement contributions, with a large share opting for the minimum required. This means that correlation between income growth and the proxy for the SSCs administrative base is not perfect.

21. Considering the good fit of the forecast using the macroeconomic base, the revenue boom in SSCs by end 2023 is almost entirely driven by fundamentals. Looking ahead, the effect of the 2021-2023 pension reforms will further increase total revenues over time. The main revenue-generating components from the reforms include the Intergenerational Equality Mechanism, the solidarity contribution above the maximum contributory base, the progressive rise in the upper bound of the contributory base, and the obligation for self-employed workers to make contributions proportional to their income. Additionally, incentives for delayed retirement would indirectly increase revenues by increasing the total number of contributors. While quantifying the impact of these reforms is subject to large uncertainty, estimates from the Ministry of Social Security, Migration, and Inclusion, AIReF, and FEDEA, place the revenue increase at around 1 percent of GDP on average over 2022-2050. As the reforms are phased in gradually, the impact by 2029 is likely to be slightly below 1 percent of GDP.

Figure 9. SSCs: Historical Outturn and Predictions
(Percent of GDP)

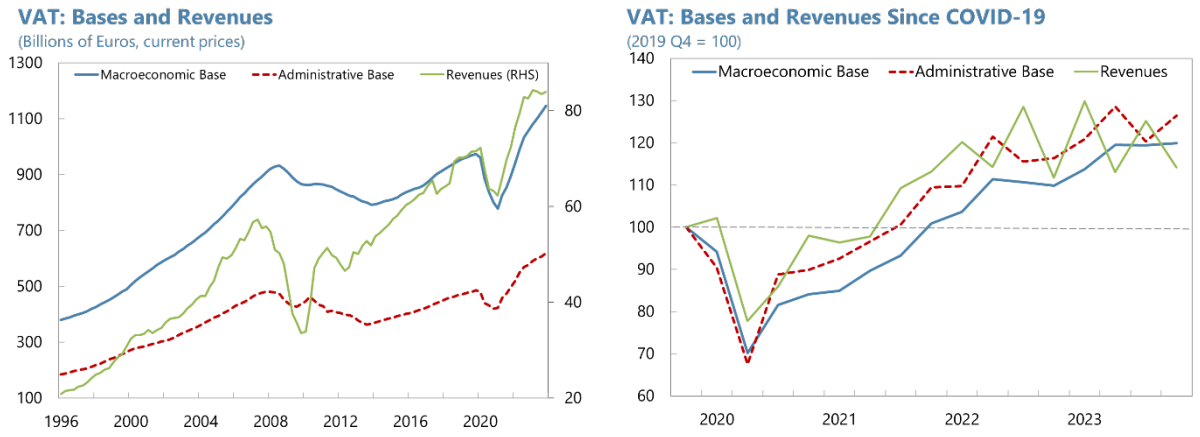


Sources: Haven Analytics, INE, AEAT, and IMF staff calculations.
Note: the dark blue line reports the historical yearly SSCs as a share of GDP. The dashed red line reports the historical outturn net of policy measures undertaken since 2020. The other lines report the dynamic forecasts from 2020 Q1 to 2023 Q4 from the ECM, using nominal GDP, the macroeconomic base, and the administrative base as explanatory variables, respectively.

Value Added Taxes

22. In line with the large and protracted drop in consumption induced by the COVID-19 containment measures, VAT revenues and their base fell sharply at the onset of the pandemic, but they subsequently recovered steadily (Figure 9). VAT collection returned to pre-pandemic levels by mid-2022, while the administrative and macroeconomic bases recouped losses over the following two quarters. By end-2023, the growth of the three series relative to 2019 levels was relatively aligned. During the GFC, revenues also fell sharply although to a larger extent than the base, with a contraction from 2007 to 2009 of almost 50 percent.

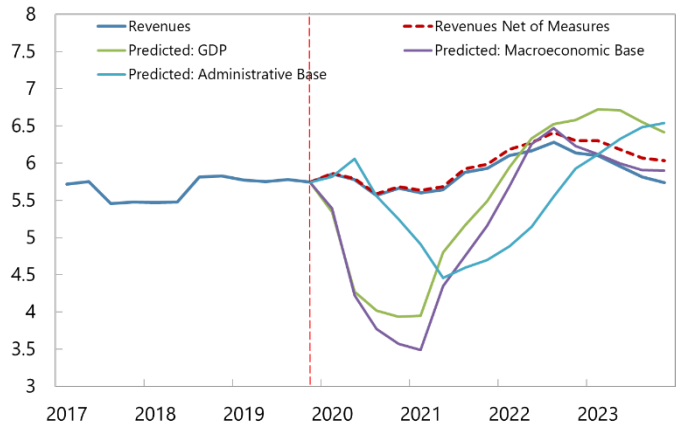
Figure 10. VAT: Revenues, Macroeconomic Base, and Administrative Base



Sources: INE, AEAT, and IMF staff calculations.
Note: The left panel reports revenues (green), the macroeconomic base (blue), and the administrative base (red) in current prices and in annualized values at quarterly frequency. The right panel reports quarterly values, normalized to 100 in 2019 Q4, after seasonal adjustment.

23. All dynamic forecasts predicted a large and substantial contraction in VAT revenues as a share of GDP over 2020-2022 while the actual outturn remained stable, but the forecasts were broadly consistent with the outturn by late 2023 (Figure 10). The predicted drop in 2020-2022 is likely driven by the large role played in the model estimation by the GFC years, when VAT revenues fell to a greater extent than GDP and the tax base. This pattern differs from the post-COVID period, when revenues fluctuated more in line with GDP and the base. However, the fact that by the end of 2023 the forecasts were closer to the outturn suggests that the inability of the historical buoyancy to capture the post-COVID dynamics is more related to cyclical patterns than to permanent developments.

Figure 11. VAT Revenues: Historical Outturn and Predictions (Percent of GDP)

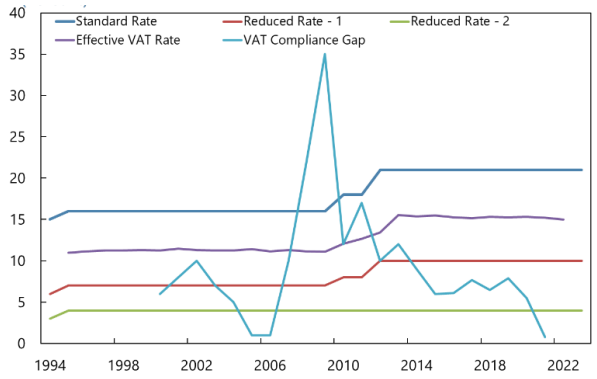


Sources: Haven Analytics, INE, AEAT, and IMF staff calculations.
Note: the dark blue line reports the historical yearly revenue as a share of GDP. The dashed red line reports the historical outturn net of policy measures undertaken since 2020. The other lines report the dynamic forecasts from 2020 Q1 to 2023 Q4 from the ECM, using nominal GDP, the macroeconomic base, and the administrative tax base as explanatory variables, respectively.

24. Compliance with tax collection was a key driver of the post-GFC dynamics in VAT revenues but did not seem to play a role during 2020-2023. Estimates of the "compliance gap"—representing the share of potential revenues lost due to lack of filing compliance—produced by the European Commission show a sharp spike in 2008-2009, resulting in a large loss of revenues,

followed by a gradual decline (Figure 12). This gap was primarily due to changes in the filing system used by the tributary agency, which happened to coincide with the recession.[14] In turn, the crisis likely exacerbated the revenue loss from compliance issues. At the same time, in the later years of the GFC, the statutory and the first preferential VAT rate were raised by several percentage points in efforts to increase revenues.[15] During the pandemic, by contrast, the VAT compliance gap remained low.

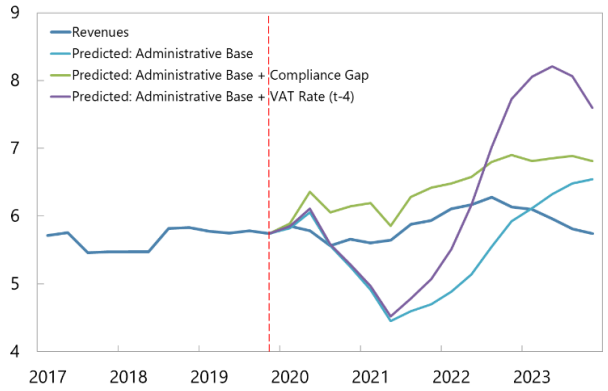
Figure 12. Spain: VAT Rates (Percent)



Sources: OECD, AEAT, European Commission, and IMF Staff calculations.
Note: Effective VAT rate is computed as revenues divided by base. Hence, it does not account for exempted goods. The VAT Compliance Gap is measured as a share of VAT Total Tax Liability.

25. Controlling for the compliance gap markedly improves the dynamic forecast over 2020-2023. Adding the compliance gap to the ECM improves its historical fit, including during the GFC, and reduces the role played by the macroeconomic contraction in predicting post-COVID VAT revenues (Figure 13). Meanwhile, controlling for the one-year lag of the effective VAT rate does not improve the prediction in the first part of the forecast horizon and entails a larger over-prediction in the last two years. Unlike for the PIT, the effective VAT rate does not evolve markedly over the business cycle, because it only varies when either the constant rate of the standard or preferential regimes are changed or

Figure 13. VAT Revenues: Historical Outturn and Predictions with Extended Specifications
(Percent of GDP)



Sources: Haven Analytics, INE, AEAT, and IMF staff calculations.
Note: the dark blue line reports the historical yearly revenue as a share of GDP. The other lines report the dynamic forecasts from 2020 Q1 to 2023 Q4 from the ECM, using the administrative tax base as an explanatory variable, and extending the specification by including either the compliance gap or the one-year lag of the average effective VAT rate as controls.

[14] The European Commission 2013 report on VAT gap states: "Research by the Spanish Tax administration shows that the increase in the Gap after 2008 was heightened by changes to the filing and refund procedures implemented in those years. In particular, the effect of taxpayers taking advantage of new procedures is estimated at Euro 2.8, 5.6 and 7.7 billion for 2009-2011, corresponding to 3.4, 8.1 and 10.7 percent of the VTTL for that period" (European Commission, 2013).

[15] Meanwhile, some goods were moved from the baseline to preferential rates to support particularly hard-hit sectors. For instance, purchases of new houses were moved to a 4 percent rate in 2011 to support the construction industry.

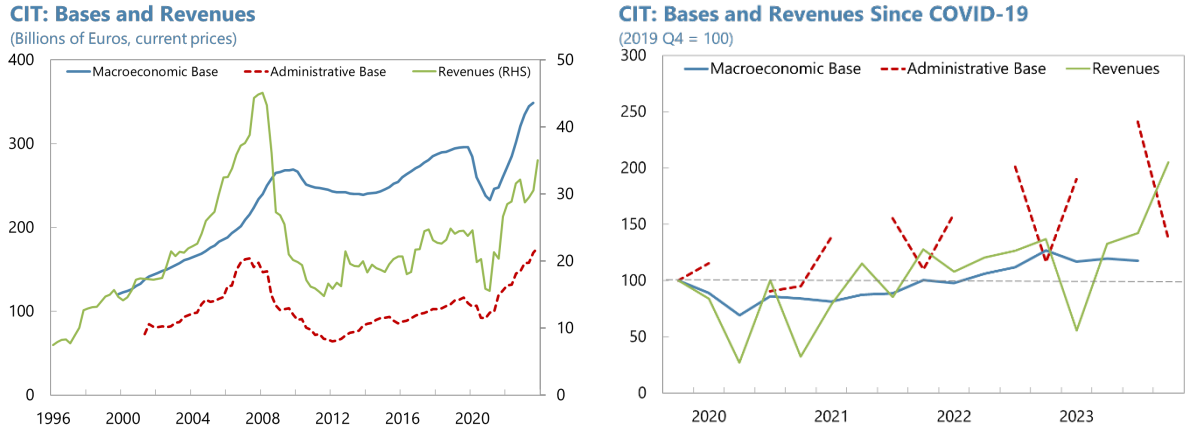
when large quantities of products are moved to different regimes. Hence, this variable does not contain much information to systematically explain short-run revenue dynamics.

26. In 2024, revenues are expected to grow slightly, as the anti-inflationary support measures are phased out, and stabilize above their 2019 values by approximately 0.3-0.4 percentage points of GDP. The temporary VAT rate reductions on electricity, gas, and essential foods—amounting to approximately 0.2 percent of GDP—are set to expire by the of 2024. Furthermore, the slight increase in 2023 revenues relative to 2019 might be linked to the permanent increase in electronic payments and the consequent fall in cash transactions during the pandemic (Ferrando and Posada, 2022; Barreiro et al., 2023). As the former are more likely to be recorded for tax purposes, this behavioral switch would entail a structural increase in revenues. However, the magnitude of this change is difficult to estimate and further increases in the use of cash transactions in future years remain challenging to predict.

Corporate Income Taxes

27. The CIT base and revenues have historically been more volatile than for other taxes (Figure 14). CIT revenues fell by more than 50 percent in the second and third quarters of 2020 relative to 2019 Q4, and had fallen even more sharply, by over two-thirds, during the GFC. CIT revenues fully recovered by 2021, however, and continued to grow in 2022 and 2023.[16] The macroeconomic base, capturing firms' operating margins rather than profits, also fell in 2020 but not to the same extent. Meanwhile, the administrative base did not contract but evinced high quarter-on-quarter volatility.

Figure 14. CIT: Revenues, Macroeconomic Base, and Administrative Base



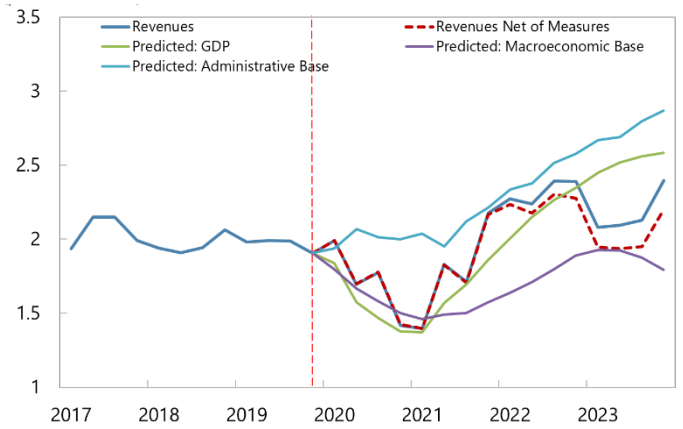
Sources: INE, AEAT, and IMF staff calculations.

Note: The left panel reports revenues (green), the macroeconomic base (blue), and the administrative base (red) in current prices and in annualized values at quarterly frequency. The right panel reports quarterly values, normalized to 100 in 2019 Q4, after seasonal adjustment.

[16] Two material revenue-raising measures were introduced in 2023: a cap in the deductions for losses in the consolidated-firm regime and a 15 percent marginal tax rate on profits above €20 million. The combined impact of the two measures in 2023 was estimated at €1.4 billion (about 0.1 percent of GDP) in the government's October 2023 Draft Budgetary Plans.

28. Nominal GDP and the macroeconomic base both predict the fall in the CIT revenues-to-GDP ratio over 2020 and its ensuing recovery to the current level, which is expected to remain broadly stable in the medium term (Figure 15). By contrast, the administrative base does not capture the initial fall. Similar to the VAT, the experience of the GFC may be the main driver of this forecast error. Between 2007 and 2012 the administrative base shrank by 60 percent, a contraction that was approximately in line with that of revenues. COVID-19 was a shorter-lived downturn than the GFC. Hence, it is likely that the sudden initial slowdown in economic activity was not fully reflected in firms' reported profits. However, at the onset of the pandemic the government introduced a moratorium for tax payments, which may have temporarily lowered the quarterly outturns in 2020. With regards to medium-term projections, the CIT revenues-to-GDP ratio is expected to remain broadly at its current level in the absence of new measures.

Figure 15. CIT Revenues: Historical Outturn and Predictions (Percent of GDP)



Sources: Haven Analytics, INE, AEAT, and IMF staff calculations.
Note: the dark blue line reports the historical yearly revenue as a share of GDP. The dashed red line reports the historical outturn net of policy measures undertaken since 2020. The other lines report the dynamic forecasts from 2020 Q1 to 2023 Q4 from the ECM, using nominal GDP, the macroeconomic base, and the administrative tax base as explanatory variables, respectively.

D. Conclusions

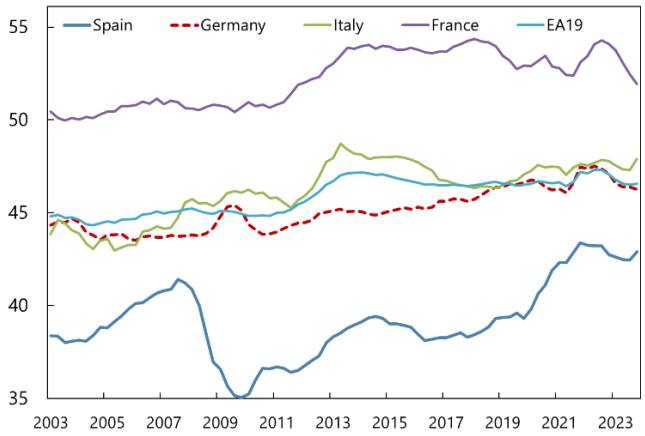
29. The tax revenue boom of 2020-2023 was explained by both structural and policy factors. The strong performance of the labor market, with only a minor contraction in employment followed by sustained growth, avoided a persistent fall in the PIT and SSCs bases. Moreover, the extensive job protection schemes introduced at the onset of the pandemic provided workers with income even when not effectively working. Besides the beneficial impact of this policy for macroeconomic stabilization, it also directly sustained the tax bases of the PIT and SSCs. Throughout 2022 and 2023, the rise in nominal wages in response to high inflation gave rise the so-called fiscal drag effect in the PIT, whereby households automatically faced higher average effective tax rates in the absence of indexation of tax brackets and most tax benefits. Finally, unlike in the GFC, VAT revenues did not fall sharply during COVID-19, thanks to sustained household consumption (whenever allowed by containment measures) and strong collection compliance. By the end of 2023, the remaining part of the post-2019 boom in the revenue-to-GDP ratio mostly reflected the PIT and SSCs components.

30. Over the medium term, the remaining revenue boom can be expected to persist. The part of the increase in the PIT revenues-to-GDP ratio associated with employment growth is likely to persist as long as the labor market remains robust. The component related to the bracket drift

should also largely persist for now, although it may wane partially over time if the central government and more regional governments update their PIT schedules. Finally, social security revenues are expected to rise further through the progressive phasing-in of the contribution increases implied by the 2021-2023 pension reforms.

31. The revenue boom closed almost half of Spain's revenues-to-GDP gap relative to peer countries—from 7.1 percentage points in 2019 to 4 in 2023 (Figure 16). Given the need for sizeable and sustained fiscal consolidation to rebuild fiscal buffers and set debt on a downward trajectory, continued efforts to boost revenues will be needed. In particular, reforms of the tax system in areas not considered in this paper, such as environmental taxation, could raise additional resources while addressing externalities and supporting the green transition. Moreover, enhancing the efficiency of taxes by broadening their base and harmonizing rates, primarily in the VAT, could raise additional revenues while minimizing distortions.

Figure 16. Total Revenues (Percent of GDP)



Sources: Eurostat and IMF staff calculations.

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Annex I. Data Details and Definition of Macroeconomic Bases

Personal Income Taxes

For personal income taxes, the macroeconomic base is comprised of the sum of employees' compensation net of social security contributions, pensions, other benefits, households' gross operating surplus, and income from interests, dividends, and other sources. The administrative tax base includes income reported by households in their tax filings from the following sources: work earnings, pensions, social transfers (e.g., unemployment insurance), business income, interests and dividends, income from rent of properties, gains from the sale of assets.

The time series for revenues and the administrative tax base start in 1995 Q1, while the time series for the macroeconomic base starts in 1999Q1.

The estimation of the ECM uses 1 lag for the explanatory variable and 3 for the dependent variable. The approach used is to apply the same lag lengths to all three specifications (GDP, macroeconomic base, administrative base), choosing a combination of lags that results in low information criteria, although not necessarily the lowest in each specification, while also providing an out-of-sample forecast over 2020-2023 that is reasonably close to the one provided by the best combinations of lags for each specification.

Social Security Contributions

For social security contributions, the macroeconomic base constructed from national accounts series is comprised of employee compensation and the number of self-employed persons multiplied by compensation per employee in the private economy. The administrative base is approximated through tax administration data on the PIT, using the PIT income base from salaries and other non-pension non-capital income—that is, self-employment earnings and unemployment benefits. This measure represents a proxy for the actual base of social security contributions because for employees the actual contributory base is subject to an upper limit and thus may be smaller than the total salary. Moreover, not all unemployment assistance benefits include social security contributions.

The time series for revenues, the administrative tax base, and the macroeconomic base all start in 1995 Q1.

The estimation of the ECM uses 2 lags for the explanatory variable and 4 for the dependent variable.

Value Added Taxes

The VAT macroeconomic base, computed from national accounts, consists of household consumption, government intermediate consumption, general government investment, housing investment, and tourism exports. All time series start in 1995 Q1.

The estimation of the ECM uses 2 lags for the explanatory variable and 4 for the dependent variable.

Corporate Income Taxes

The macroeconomic base of the CIT is comprised of firms' gross operating surplus from the national accounts, with the time series starting in 1999Q1. The administrative base and revenue series from the tributary agency begin in 1995 Q1.

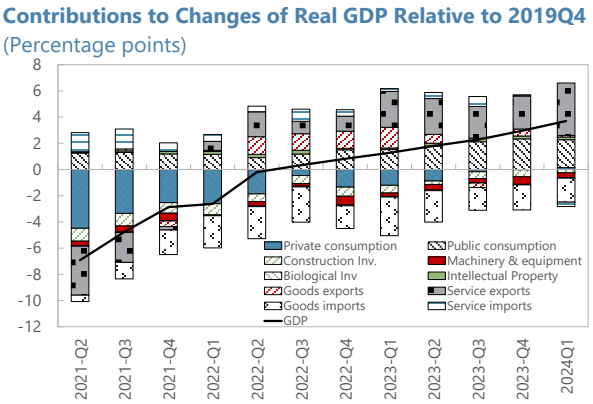
The estimation of the ECM uses 1 lag for the explanatory variable and 3 for the dependent variable.

NON-TOURISM SERVICES EXPORT PERFORMANCE: DRIVERS AND IMPLICATIONS[1]

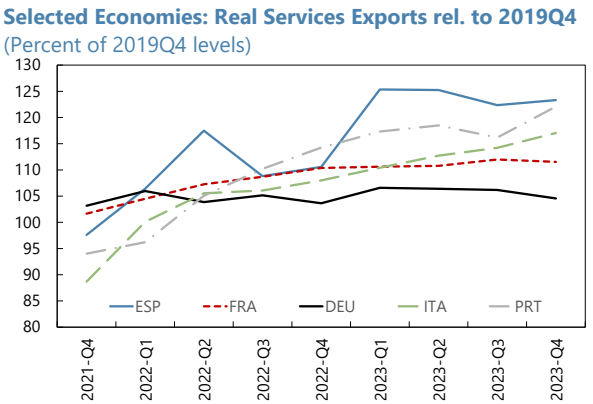
A. Introduction

1. Spain's services export has exhibited strong performance since the pandemic, supporting the recovery and the economy's resilience through Europe's energy crisis. By the first quarter of 2024, Spain was no longer lagging the euro area in its recovery from the pandemic, with real GDP surpassing its end-2019 level by 3.7 percent. A critical factor contributing to this rebound has been the surge in services exports (Machuca and García, 2023), which were 23.3 percent above end-2019 levels by the first quarter of 2024 and compared favorably with European peers. Spain's strong recent export performance is particularly noteworthy given that Spain's main trading partners concentrate within the euro area, which recently experienced a significant economic slowdown due to the energy crisis.

Figure 1. Services Exports and Contributions to Recovery from the Pandemic



Sources: INE and IMF staff calculations.



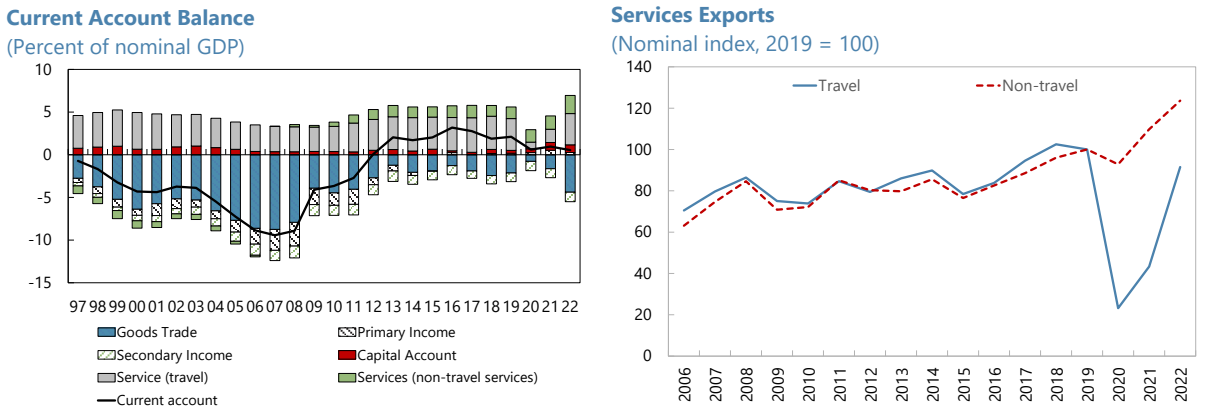
Sources: Eurostat and IMF staff calculations.

2. Non-tourism[2] services have played an important role in the buoyant services export performance. Following the global financial crisis (GFC), Spain transitioned from being a net importer to a net exporter of non-tourism services, which contributed to the improvement of the current account balance. Further, the steady rise in non-services exports has proven to be resilient to shocks. They were only moderately affected by the pandemic, following which they quickly rebounded. This played a pivotal role in sustaining overall services exports performance amid the substantial disruptions in tourism activities.

[1] Prepared by Yu Shi (EUR)

[2] Services activities are classified either as tourism versus non-tourism or travel versus non-travel in different database. In this chapter, we therefore use the two terms interchangeably.

Figure 2. Services Exports and Current Account Balance



Source: Eurostats, Haver Analytics and IMF staff calculation

Sources: WTO and IMF staff calculations.

3. This paper aims to examine the strong performance of non-tourism services exports and identify its main drivers, including improvements in cost and non-cost competitiveness. The first part of the analysis uses the bilateral flows of services trade across various types of services activities for 169 countries from 2000 to 2019. Employing a shift-share approach (detailed further below in section B), this study dissects the overall growth rate of non-tourism services exports into three main components: trend growth of importers demand (geographic specialization effect), trend growth of sectoral demand (sectoral specialization effect), and idiosyncratic performance of the exporting country considered (performance effect). The evolution in estimated exporter performance effects over time is then mapped to changes in country-level cost competitiveness, proxied by the unit labor cost (ULC)-based real effective exchange rate (REER), and other non-cost competitiveness measures, including product market deregulation and services trade liberalization. The second part of the analysis focuses on the post-pandemic period more specifically, documenting further possible forces including the solid productivity growth of non-tourism services sectors.

B. Data and Empirical Strategy

Data

4. The database on bilateral services trade flows trade covers 265 countries and 17 distinct services activities spanning from 2000 to 2019. The microdata originates from the International Trade and Production Database for Estimation (ITPD-E) complied by the US Department of Commerce. The ITPD-E database contains consistent data on international and domestic trade at the industry level covering agriculture, mining, energy, manufacturing, and services. Crucially for econometric analysis purposes, the ITPD-E is constructed using reported administrative data and does not include information estimated by statistical models. In the case of Spain, 66 percent of the data sample was sourced from importer's reports of services imports from Spain, thereby helping address the issue of inadequate statistical reporting of services exports. Also,

the aggregate sectoral trends of Spain's services exports broadly match those reported by the World Trade Organization (WTO).

5. Country-specific indicators for both cost and non-cost competitiveness indicators are collected from a variety of sources. Cost competitiveness is measured using the ULC-based REER index from the IMF's International Financial Statistics. For non-cost competitiveness, we include the following cross-country indicators from various databases: 1) Services Trade Restrictiveness Index from the OECD; 2) OECD Product Market Regulation Index and its subcomponents; 3) Digitalization indicators such as the percentage of firms using internet in their businesses, also from the OECD. The EU-KLEMS database is utilized to quantify services sectoral-level productivity growth and its primary drivers before COVID, while the national accounts data from Eurostat are used to look at productivity trends post-COVID.

Methodology

6. A shift-share analysis is used to separate the exporter-specific performance from other factors affecting the overall growth of a country's non-tourism services exports relative to the world average. Following Cheptea et al. (2012) and Gaulier et al. (2013), we break down the growth rate of exporter i's non-tourism services exports relative to the total growth rate of global exports into: i) the geographic effect—the overall growth in imports of exporter i's trading partners, weighed by the lagged shares of bilateral trade in exporter i's total non-tourism services exports; ii) the sectoral effect—the overall export growth of services activities in which exporter i specializes, weighted by the lagged shares of sectoral exports in total exports; and iii) the idiosyncratic exporter performance effect—the residual term. The two steps for estimating the exporter performance can be summarized as:

Step 1: Estimate exporter ($\boldsymbol{i}$), importer ($\boldsymbol{j}$), and services sector ($\boldsymbol{k}$) fixed effects using the (value) growth rate of bilateral trade flows, $\boldsymbol{g_{ijkt}}$:

$$g_{ijkt} = \lambda^t + \alpha_i^t + \beta_j^t + \gamma_k^t + \epsilon_{ijkt}$$

t: four periods[3] – 2004 to 2007, 2008 to 2011, 2012 to 2015, and 2016 to 2019

Step 2: Estimate **country-specific performance** of exporter i in period t, $Perf_i^t$:

$$g_{it} - g_{world,t} = Perf_i^t + \underbrace{\sum_j \frac{\omega_{ij,t-1}}{\omega_{i,t-1}} \left(\hat{\beta}_j^t - \sum_j \omega_{j,t-1} \hat{\beta}_j^t\right)}_{Geographic_j^t} + \underbrace{\sum_k \frac{\omega_{ik,t-1}}{\omega_{i,t-1}} (\hat{\gamma}_k^t - \sum_k \omega_{k,t-1} \hat{\gamma}_k^t)}_{Sectoral_k^t}$$

ω: export volumes as a share of total world exports

[3]We use data starting from 2004 due to limited data availability for a significant number of countries in the early 2000s. The sample is methodically segmented into four equal periods, each spanning four years. This strategy is used to minimize the influence of outliers on our estimations and to account for the delayed effects that changes in the REER may have on export performance.

7. We proceed by estimating an error-correction model to examine the relationship between country-specific export performance and both cost and non-cost competitiveness factors. We start with a model that captures both the long- and short-run dynamic relationship between country-specific export performance and cost competitiveness. It is estimated in two steps. In the first step, the long-run relationship is formulated as follows:

$$\log Ind_{Perf}^{i,t} = \alpha_1 + \beta_1 \log REER^{i,t} + \tau^i + \epsilon_1^{it}$$

where Ind_{Perf} is the country-specific export performance index normalized to a value of 100 for the first period 2004-2007.

In the second step, we explore the short-term dynamics of the relationship between export performance and cost competitiveness by estimating the following specification:

$$\Delta \log Ind_{perf}^{i,t} = \alpha_2 + \beta_2 \Delta \log REER^{i,t} + \rho_2 \widehat{\epsilon_1^{it-1}} + \kappa^t + \epsilon_2^{it}$$

where $\widehat{\epsilon_1^{it-1}}$ is the 1-period lagged residual term from the first stage of the model, i.e. the error correction term.

We then turn to assessing the impacts of both cost and non-cost competitiveness on export performance, focusing on how non-cost competitiveness factors can affect the response of exports to cost competitiveness. This aims to capture the idea that structural reforms—such as deregulation of network industries that improves the availability and quality of infrastructure in electricity or information, communication and technology (ICT), for example—can enable countries to reap larger export gains from improvements in cost competitiveness, Specifically, we adopt the following specification that incorporates both cost- and non-cost-competitiveness indicators and the interaction term between them:

$$\Delta \log Ind_{perf}^{i,t} = \alpha_3 + \beta_3 \Delta \log REER^{i,t} + \gamma_3 D^{i(,t-1)} + \lambda_3 \Delta \log REER^{i,t} \times D^{i(,t-1)} + \rho_3 \widehat{\epsilon_1^{it-1}} + \kappa^t + \epsilon_3^{it}$$

where D is the one-period lagged indicator of non-cost competitiveness when the latter has a time-series dimension and thereby varies across the sample periods (e.g. OECD indicators of product market regulation); and it is fixed at the earliest available indicator value when there is little or no available variation over time (e.g. indicator of services trade restrictiveness). The key coefficient of interest is λ_3, which captures impact of the non-cost competitiveness indicator on the elasticity of export performance to the REER.

C. Results

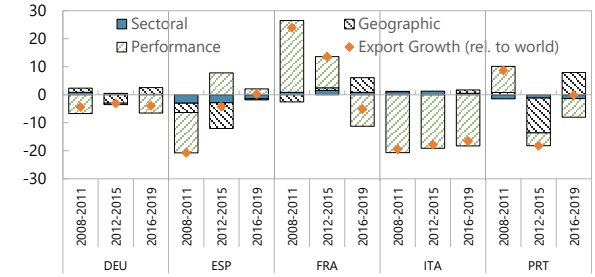
Decomposition of Non-Tourism Export Growth Prior to the Pandemic

8. Spain's performance in non-tourism services exports has been on an upward trajectory since before the pandemic. Following the GFC, Spain's non-tourism services exports growth has been converging with the global average, in contrast to its euro area peers whose market shares declined. The geographic specialization effect had a detrimental impact on the growth of non-

tourism services exports, especially during 2012-15. This reflects Spain's concentration of non-tourism services exports within Europe, in contrast with Germany or France which exported a substantial portion of their services to outside of the EU. The sectoral specialization effect, though smaller, also negatively influenced Spain's non-tourism services export performance, primarily due to global downturns in transportation activities and wholesale and retail trade. These sectors were among the most adversely impacted during the GFC and the euro area crisis. By contrast, the analysis suggests that Spain's own export performance has been positive since the euro area crisis, indicating that Spain could have surpassed the global average if not for the drawbacks from unfavorable sectoral specialization and export market effects during this period. It is also worth noting that sub-periods of positive country-specific export performance typically coincided with periods of REER depreciation, tentatively suggesting that the latter contributed to the former. To examine this connection between export performance and cost competitiveness, we now turn to the estimation of an error-correction model.

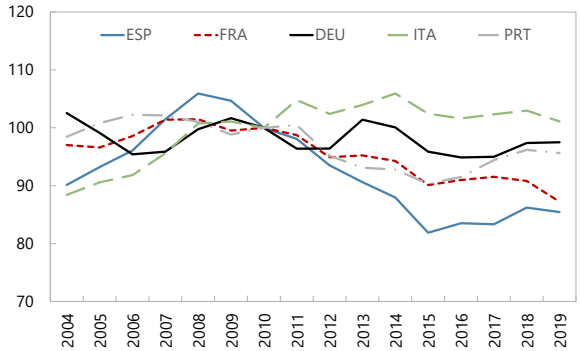
Figure 3. Non-Tourism Services Exports Growth and Drivers

Non-Travel Services Export Performance and Drivers
(Percentage points difference)



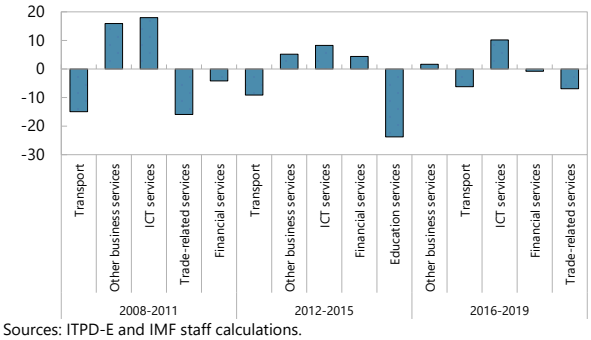
Sources: WTO, IMF WEO, ITPD-E, and IMF staff calculations
Note: The chart shows the difference between country-specific services export growth and world average growth, as well as the decomposition into sectoral (industry specialization), geographic (trading partners), and country-specific export performance (residual) effects.

Real Effective Exchange Rate
(ULC based, 2010 = 100)



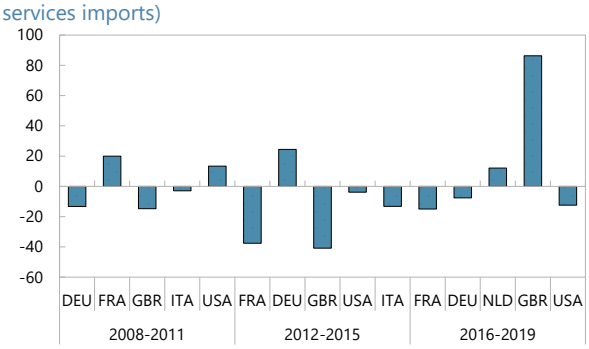
Sources: IMF.

Relative Trend Growth of Key Exporting Services
(Percentage points difference relative to world growth rate of all non-travel services exports)



Sources: ITPD-E and IMF staff calculations.

Relative Trend Import Growth of Key Importers
(Percentage points relative to world growth rate of non-travel services imports)



Sources: ITPD-E and IMF staff calcuations.

The Impact of Improvements in Cost and Non-Cost Competitiveness

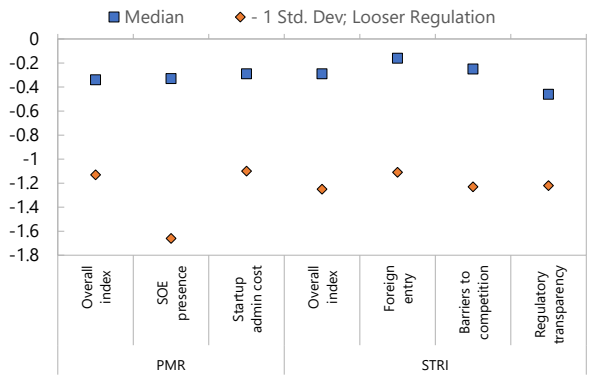
9. The error-correction model indicates that the enhanced performance of Spain's non-tourism services export since the euro area crisis partly reflects improved cost competitiveness. Using a data sample containing euro area countries, a statistically significant negative relationship is identified between the index of ULC-based REER and country-specific non-tourism services export performance, in both the long term and the short term. With all non-time-varying country characteristics controlled for through country fixed effects, the long-term coefficient estimated in the first stage suggests that a 10-percent REER depreciation—indicative of more cost-competitive export activities—is associated with a 10 percent relative (vis-à-vis the world average) increase in exports. In the short term, the elasticity estimated in the second stage comes out at -0.24, suggesting that a 10 percent REER depreciation would lead to an additional 2.4-percentage-point increase in non-tourism services export growth (relative to the world average) during the same period. These findings imply that the substantial depreciation in REER observed in Spain since the GFC has been an important factor driving enhanced non-tourism services trade performance, which explained about three-fourths of the actual improvements from 2008-12 to 2016-19.

Table 1. Spain Non-Tourism Services Export Performance and Cost Competitiveness

Stage 1		Log (Performance Index)
	Log ($REER_{ULC}$)	-1.01**
		(0.24)
	Country FE	Yes
	No. of Obs.	52
	Adj. R-squared	0.48
Stage 2		Δlog (Performance Index)
	Δlog ($REER_{ULC}$)	-0.28*
		(0.16)
	Stage-1 residual, lagged	-0.85***
		(0.12)
	Time FE	Yes
	No. of Obs.	39
	Adj. R-squared	0.24

10. Improvements in non-cost competitiveness, such as through product market deregulation, may have also amplified the non-tourism services export gains from improved cost competitiveness. Using the alternative specification of the second stage of the error-correction model that incorporates non-cost competitiveness measures and their interaction with the ULC-based REER, we find that non-cost competitiveness may affect how export performance reacts to REER changes. When using either product market regulation or services trade restrictiveness indices as indicators for non-cost competitiveness, is the interaction term comes out negative and statistically significant. This indicates that, for a given extent of REER depreciation, countries with less regulated product markets or less restrictive services trade regulations experience greater improvements in export performance. Since the GFC, Spain has undertaken significant product market deregulation; by 2018, the overall index of the stringency of product market regulation, along with indices for various sub-categories, stood below those of the majority of other EU countries. This considerable deregulation, coupled with the REER depreciation, likely played a key role in elevating the country's non-tourism services export growth. At the same time, it is hard to pin down their exact roles given the limitations of the identification strategy adopted here—in particular, the presence of potential omitted variable bias, i.e. other potential significant interactions with other non-cost-competitiveness factors.

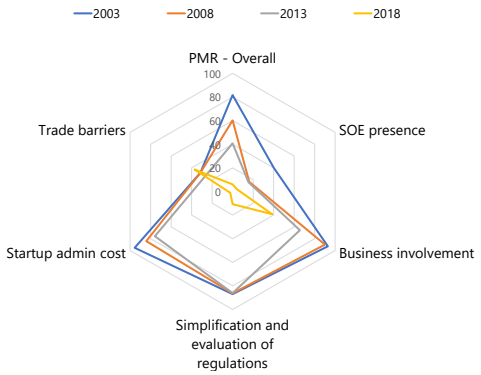
Figure 4. Export Performance Elasticity to ULC-Based REER



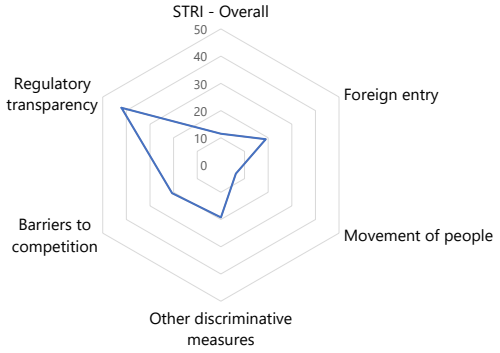
Sources: WTO, IMF WEO, ITPD-E, and IMF staff calculations.

Figure 5. Product Market Regulation and Services Trade Restrictiveness Index

Product Market Regulation Index
(Percentile within EU, least to most restrictive)



Services Trade Restrictiveness Index
(Percentile within EU, least to most restrictive)



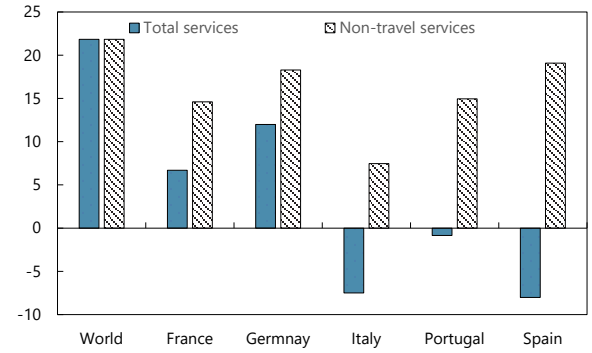
Sources: OECD and IMF staff calculations.

Post-Pandemic Export Performance

11. Spain's non-tourism services export performance has seen further improvement since the pandemic. Overall services export growth in 2021-22 was way below the global average, primarily due to the substantial impact of the pandemic on the tourism sector, which accounted for around 52 percent of the country's total services exports pre-pandemic. However, focusing solely on non-tourism services exports reveals that Spain's export growth since the pandemic onset has aligned closely with the global aggregate growth rate and outperformed euro area peers. Given the adverse geographic effect stemming from the predominance of Europe in Spain's services exports, and the only mildly positive sectoral effect from sectors such as ICT and professional services—areas in which Spain had begun specializing even before the pandemic—Spain'snon-tourism services export performance has been notably robust.

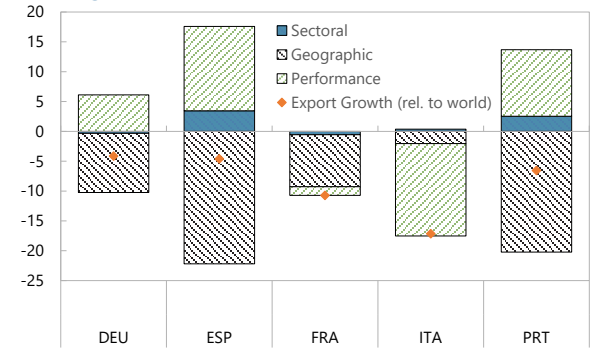
Figure 6. Post-Pandemic Services Export Performance and Drivers

Services Export Growth between 2018-19 and 2021-22
(Percent)



Sources: WTO and IMF staff calculations.

Non-Travel Services Export Performance and Drivers
(Percentage points difference, 2021-22 relative to 2018-19)



Sources: WTO, IMF WEO, ITPD-E, and IMF staff calculations.

D. Productivity Growth in Services Sectors

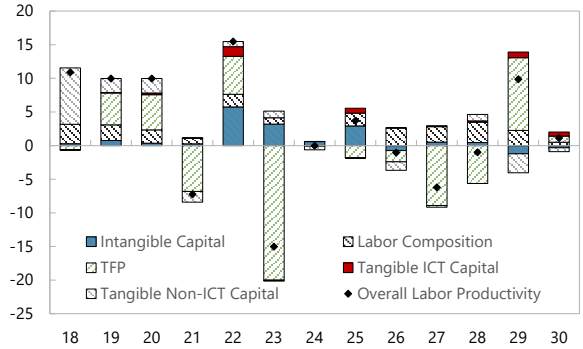
12. Productivity Growth in services sectors can be both a driver and an outcome of strong services export performance. All else equal, high productivity growth in services can lower ULCs and thereby depreciate the ULC-based REER (improvement in cost competitiveness), while also expanding the variety and quality of services (improvement in non-cost competitiveness). Conversely, higher services exports may improve productivity growth in services through various channels including scale or learning-by-doing effects, for example. With this in mind, and without taking a stand on the direction of causality—which can be two-way—here, this section documents recent productivity trends in Spain's key tradable services sectors, including in international comparison.

13. Key tradable services sectors experienced sustained growth in labor productivity alongside the improvement in export performance. Using EU-KLEMS, we quantify the key proximate drivers of sectoral productivity growth across all services sectors before the pandemic. These data suggest that sectors such as wholesale and retail trade and repairs, telecommunications, and professional services, including legal and accounting services, have seen positive labor

productivity growth since 2012, reflecting changes in labor composition, accumulation of intangible capital, and improvements in TFP. This productivity growth performance was typically stronger than in other sectors of the Spanish economy.

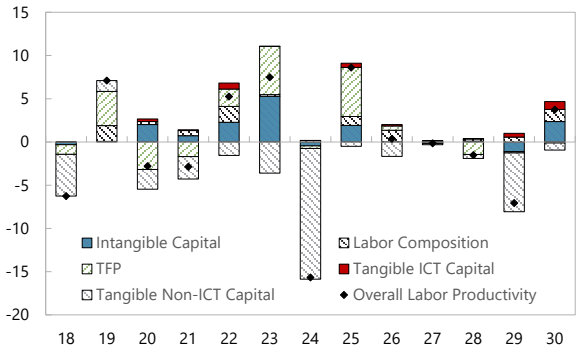
Figure 7. Services Sector Labor Productivity Growth and Contributing Factors

Services Sector GVA/Hour Growth and Contributing Factors
(Percentage points, 2012-15 over 2008-11)



Sources: EU-KLEMS and IMF staff calculations.

Services Sector GVA/Hour Growth and Contributing Factors
(Percentage points, 2016-19 over 2012-15)



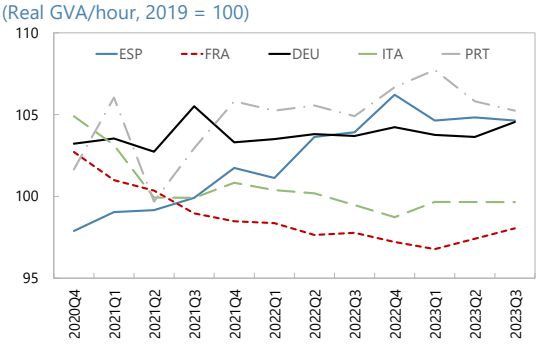
Sources: EU-KLEMS and IMF staff calculations.

Note: The services sectors included in the charts are:
18 – Construction; 19 – Wholesale and retail trade, repair of motor vehicles and motorcycles; 20 – Transportation and storage; 21 – Accommodation and food service activities; 22 – Publishing, audiovisual and broadcasting activities; Telecommunications; IT and other information services; 23 – Financial and insurance activities; 24 – Real estate activities; 25 – Legal, accounting, management, architecture, engineering, technical testing and analysis activities; Scientific research and development; Other professional, scientific and technical activities; Administrative and support service activities; 26 – Public administration and defence, compulsory social security; 27 – Education; 28 – Human health services, social work activities; 29 – Arts, entertainment and recreation; 30 – Other services.

14. Labor productivity in non-tourism services sectors, more specifically, has continued to grow steadily since the pandemic. Spain's labor productivity growth performance in non-tourism services has been among the strongest within the euro area. Concurrently, the terms-of-trade for non-tourism services, as indicated by the ratio of the export price index to the import price index, have experienced a significant decline in recent years. This contrasts with the relatively stable ratio observed in goods trade and tourism sectors.

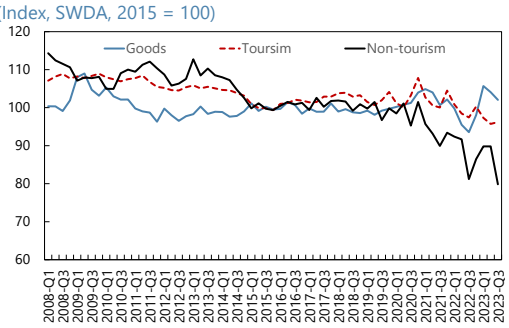
Figure 8. Non-Tourism Services Productivity Growth and Relative Prices

Non-tourism Services Labor Productivity
(Real GVA/hour, 2019 = 100)



Sources: Haver Analytics and IMF staff calculations.

Sectoral Terms of Trade
(Index, SWDA, 2015 = 100)



Sources: INE and IMF staff calculations.

E. Conclusion

15. This paper delves into the performance and drivers of non-tourism services exports in Spain. Since the GFC, Spain's non-tourism services exports have been on an upward trajectory, playing an increasingly important role in enhancing the country's current account balance. This positive trend gained further momentum during and after the pandemic, bolstering Spain's economic recovery despite continued weak domestic demand and sluggish growth in goods exports due to the slowdown in the euro area. A shift-share analysis, which isolates Spain's own export performance from the export market (geographic specialization) effect and the sectoral specialization effect, indicates that Spain has demonstrated robust performance in the non-tourism services export market since 2012, a trend that accelerated further post-pandemic. Econometric analysis suggests that the observed improvements in non-tourism services exports can be attributed to enhancements in both cost competitiveness—as indicated by the significant depreciation in the ULC-based REER following the GFC—and non-cost competitiveness, including a series of deregulatory measures undertaken by Spain in product markets and services trade. Additionally, sustained productivity growth in key tradable services sectors might have also helped bolster Spain's cost competitiveness and, in turn, enhanced non-tourism services export performance might have helped productivity gains.

16. Going forward, continuing to address product market inefficiencies while improving labor productivity growth will be key to sustaining the strong non-tourism services export performance. Given the important role of cost and non-cost competitiveness in supporting the performance of non-tourism exports, it is essential to maintain hard-earned cost competitiveness gains and seize upon the remaining opportunities for enhancing efficiency in product markets. These include addressing the distortions encountered by firms, including reevaluating the extensive array of size-related rules and regulations, persisting in efforts to harmonize the regional regulatory frameworks to build a fully integrated Spanish internal market in which the most productive firms can more easily scale up, and fostering product market competition. Supporting ongoing productivity growth in key tradable services sectors, including by facilitating innovation and talent acquisition, could further improve cost competitiveness in these areas by enabling wages to grow steadily without putting significant upward pressure on ULCs.

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ASSESSMENT OF THE EFFECTS OF SPAIN'S 2021 LABOR MARKET REFORM[1]

A. Introduction

1. The Spanish labor market has suffered from long-standing structural weaknesses (Figure 1). The unemployment rate has been among the highest in the EU and biased towards the young and long-term unemployed (i.e., persons out of jobs for more than a year), with the youth unemployment rate at more than twice the headline rate and the long-term unemployed representing almost 40 percent of total unemployment. Related to this, there has been a considerable skill mismatch in the labor force. Furthermore, until the pandemic, the response of unemployment to economic conditions had been one of the highest among advanced economies, pushing unemployment above 25 percent during the euro area crisis, for example. Among the employed, the shares of temporary workers and involuntary part-timers have long been elevated compared to the rest of Europe, contributing to entrenched labor market duality between these and permanent workers on more protected and more stable jobs. Finally, labor mobility has been low, not only across regions (Liu, 2018), but also across jobs due to high mobility costs.

2. Prior labor market reforms were not able to fully address these issues. The reforms introduced in 2012 included measures to cut structural unemployment, enhance labor market efficiency and improve employment resilience to shocks, such as reducing the gap in firing costs between permanent and temporary workers, giving priority to firm-level over regional- or sector-level agreements, and limiting the automatic extension of expired collective agreements to a maximum of one year (see Staff Report of the 2012 Article IV Consultation for Spain, Annex II, for details). While successful in many dimensions, these reforms did not fully address the aforementioned structural weaknesses in the labor market. Importantly, the excessive use of temporary contracts—particularly of very short duration—continued, including due to a remaining significant gap in firing costs between temporary and permanent contracts.

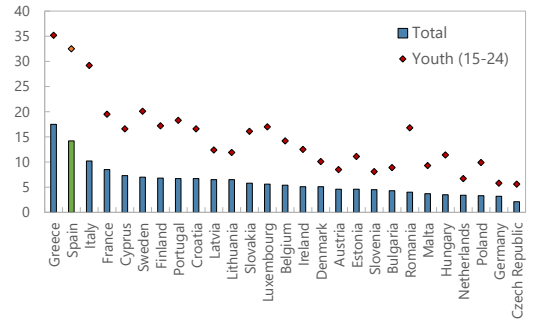
3. The 2021 labor market reform was aimed at addressing some of these weaknesses, particularly the high incidence of temporary employment. The reform, which was the result of an agreement among social partners, was approved by the Council of Ministers in December 2021 and ratified by Congress in February 2022. Its approval was one of the milestones of the recovery plan agreed with the European Commission, which unlocked one of the tranches of NextGeneration EU funds disbursed in 2022. The RDL 32/2021 introduced changes to the Workers' Statute in four areas: simplification of contracts, collective bargaining, subcontracting, and short-time work schemes (see Staff Report of the 2021 Article IV Consultation for Spain, Annex VII, for details). The focus of this paper is on the first of these dimensions, namely the simplification of contracts.

[1] Prepared by Ana Lariau (EUR).

Figure 1. Structural Challenges in the Spanish Labor Market Prior to the 2021 Reform

Headline and youth unemployment were among the highest in EU.

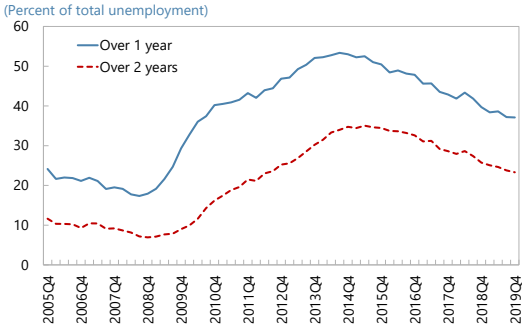
Unemployment Rate
(Percent, 2019)



Sources: Haver Analytics and IMF staff calculations.

Despite declining after 2014, the incidence of long-term unemployment was very high.

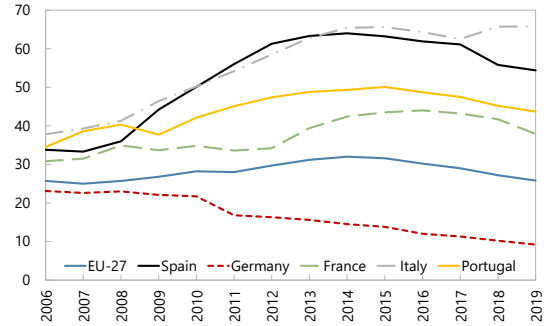
Spain: Share of Long-Term Unemployed
(Percent of total unemployment)



Source: Haver Analytics and IMF staff calculations.

Involuntary part-time employment was high and well above the EU average.

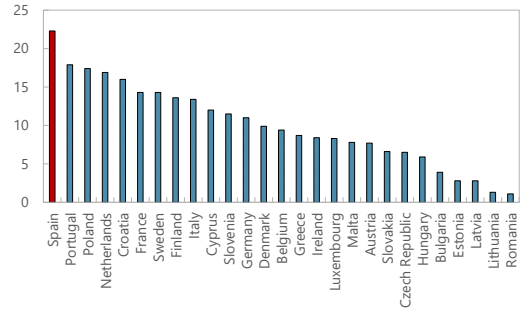
Involuntary Part-Time Employment
(Percent of total part-time employment)



Source: Eurostat and IMF staff calculations.

Spain had the highest employment share of temporary contracts in the EU.

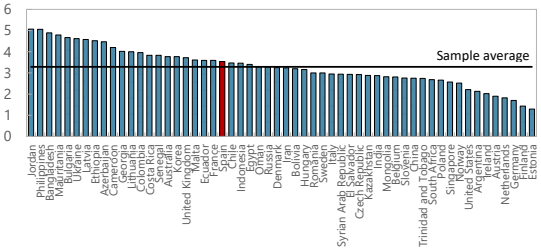
Temporary Contracts
(Percent of total employment, 2019)



Sources: Eurostat and IMF staff calculations.

Switching jobs in Spain may have been difficult due to relatively high mobility costs.

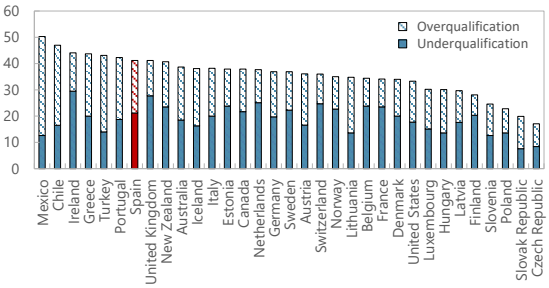
Labor Mobility Costs
(Times the annual average wage)



Source: Artuc et al (2015).
Note: The bars are labor mobility costs estimated based on the UNIDO panel dataset. A sample average of 3.29 means that, when moving across sectors, the workers face a common mobility cost--i.e., the component of the mobility cost that is common to all agents in the economy--that is equivalent to 3.29 times the annual average wage in the economy.

Spain had a significant qualification mismatch compared to its OECD peers.

Qualification Mismatch
(Percent of total number of workers, 2016)



Sources: OECD and IMF staff calculations.
Note: Qualification mismatch arises when workers have an educational attainment that is higher (overqualified) or lower (underqualified) than that required by their job.

4. The approach taken to reduce labor market duality was to strengthen employment protection legislation (EPL) for current temporary workers. This was achieved by limiting the set of circumstances that warrant the use of temporary contracts (the temporary contract for work or service was eliminated), strengthening enforcement, and imposing higher penalties on very short durations and fraudulent contracting.[2] The new regulation also promoted the use of seasonal open-ended contracts ("fixed-discontinuous", FD hereafter) for activities that are seasonal in nature (e.g., agriculture or retail around holidays) and created a new permanent contract for the construction sector.

5. While aggregate data has been tentatively pointing to a positive impact of the reform on contractual stability, thorough analysis based on microdata is required to analyze its full effects. Since the adoption of the reform, there has been a significant shift from temporary to permanent contracts, largely driven by a reduction in the number of contracts with very short duration (one week or less) and concentrated among the young and foreigners. The extent to which this could be attributed to the reform, and the implications of the reform along other dimensions (most notably overall job turnover), require microdata that became available for a long-enough (at least one year) post-reform period only recently. The main micro datasets suitable for such analysis are the *Encuesta de Población Activa* (EPA), which is used for the empirical analysis in this study, as well as the *Muestra Continua de Vidas Laborales* (MCVL) and the social security administrative data, which are used in related literature.

6. Exploiting the EPA microdata, this paper analyzes the effects of the reform with a broad perspective, going beyond its impact on contractual stability. Specifically, the paper aims to shed light on whether the reform: (i) had a positive impact on aggregate employment (after controlling for the economy's position in the cycle); (ii) increased job quality, by promoting a shift from temporary to permanent hiring; (iii) enhanced job stability, including by reducing overall turnover.

7. To go beyond descriptive analysis and get closer to estimating causal impacts of the reform on labor market outcomes, a differences-in-differences approach is followed. It compares outcomes across groups of workers in different region-sector-occupation (*rso* hereafter) cells, before and after the reform. The identification strategy, which was already used in related literature, exploits the fact that an EPL reform should affect disproportionately *rso*-cells with a higher "natural" turnover rate—that is, occupations that, due to technological or demand-side (e.g., seasonal fluctuations) factors, "naturally" involve more frequent job creation and job destruction

[2] Employers of temporary workers on a contract shorter than 30 days must pay an additional social security fee when that contract is terminated, except for workers under special regimes (e.g., carbon mining, housekeeping, and self-employed in agriculture) as well as temporary contracts for substitution. Penalties for the fraudulent use of temporary contracts are now established per contract and not per firm, setting the maximum penalty at €10,000 per fraudulent contract. Temporary contracts are automatically converted to permanent if: (i) the temporary hiring does not comply with the regulation, or (ii) the same worker is hired repeatedly with a temporary contract, within the same firm, for 18 months in a period of 24 months.

than others. Here, the natural turnover rate is approximated by Spain's pre-COVID historical average (2015-19) of the actual turnover rate for each *rso* cell.

8. The main finding is that the reform was successful in lowering the share of temporary employment, although its impact on broader employment stability is less clear. *Rso* cells that were more exposed to the reform—i.e., that had a historically high turnover rate—experienced relative declines in the temporary employment share, especially for the young and migrants, and increases in the shares of permanent and fixed-discontinuous contracts. By contrast, at this stage, the evidence is inconclusive regarding the impact of the reform on key transitions—such from employment to unemployment, and thereby on overall employment stability.

9. These results are preliminary and additional work is needed to make a more definitive assessment of the reform. Ongoing work, to be completed at a later stage, will replace natural turnover rates computed from historical Spanish data by natural turnover rates in the US, where EPL is virtually non-existent and observed turnover rates are therefore closer to their "natural" levels. This will allow the analysis to further address any endogeneity concerns while also drastically increasing the number of observations by exploiting the sector-occupation dimension at the 3-digit level. Alternative specifications will also be considered, including running dynamic regressions to see how the effect of the reform on the different dimensions of labor market performance might have evolved throughout the post-reform period.

B. Stylized Facts

10. The 2021 labor reform was followed by a reduction in the incidence of temporary employment of nearly 10 percentage points. The impact was heterogeneous among population groups. Young workers (15-24 years old) benefitted the most, with a decline in the temporary share of over 20 percentage points between end-2021 and end-2023. The impact on migrants was also large, with a decrease of about 16 percentage points over the same period. The decline in the temporary share was also larger for the low-skilled (educational attainment up to lower secondary education) compared to the high-skilled. Women did not seem to experience a differential impact relative to men.

11. Temporary employment in the public sector has not been affected by the reform so far. The decline in temporary employment in the private sector has been largely driven by the reduction in the number of workers with contracts lasting 1-11 months. By contrast, the composition of temporary employment in the public sector has not changed since the reform and remains biased towards relatively longer contracts, with a large share lasting 1 year or more.

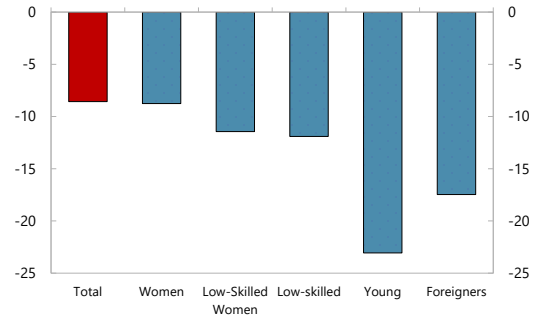
12. While it seems that the reform brought more contractual stability, its effect on overall employment stability is less clear *a priori*. Transitions from employment to unemployment (E→U) increased with the pandemic, though not as much as during the Global Financial Crisis (GFC). Since GFC, the E→U flows have remained on a downward path, reflecting the economic recovery. After a temporary rise during the pandemic, they are now back to their pre-COVID downward trend, with no straightforward impact of the reform. Looking at disaggregated flows by type of contract,

transitions from employment to non-employment seem to have increased for FD workers, and to a lesser extent for regular permanent workers, since the reform.

Figure 2. The Spanish Labor Market After the 2021 Reform

The decline in the temporary employment share was large and heterogeneous across groups.

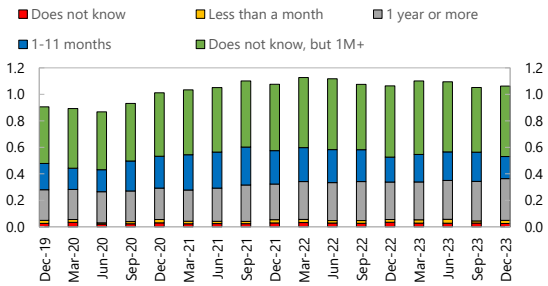
Change in the Share of Workers with Temporary Contracts
(Percentage points, 2023Q4 vs 2021Q4)



Sources: IMF staff calculations from LFS microdata (INE).

Temporary employment in the public sector was not materially affected by the reform.

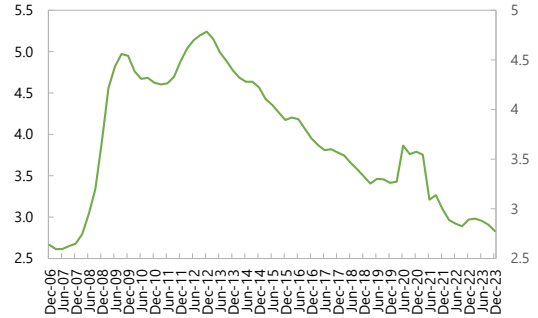
Temporary salaried workers in the public sector, by contract duration
(Millions of persons)



Sources: LFS (INE) and IMF staff calculations.

Transitions from employment to unemployment are back to the pre-COVID trend, with no straightforward impact of the reform

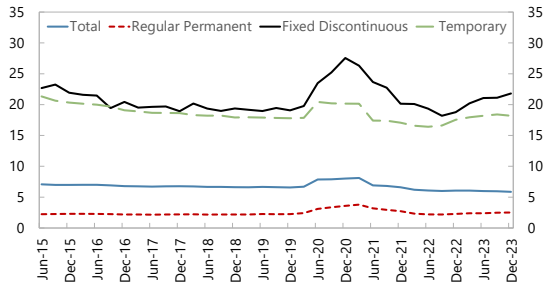
Transitions from Employment in T-1 to Unemployment in T
(Percent of Employment in T-1, 4-quarter MA)



Sources: LFS (INE) and IMF staff calculations.

Transitions from employment to non-employment have increased for FD, and to a lesser extent for regular permanent, workers.

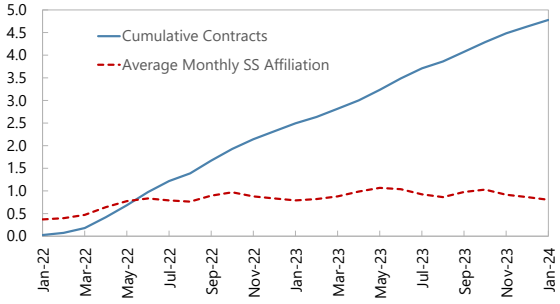
Transitions from Salaried Employment in T-1 to either Unemployment or Inactivity in T, by Type of Contract in T-1
(Percent of Employment in T-1, 4-quarter MA)



Sources: IMF staff calculations based on LFS microdata (INE).

13. While the number of new FD contracts has risen significantly, FD employment has remained broadly stable, pointing to increased FD-job turnover. Since the approval of the 2021 reform, the cumulative number of new FD contracts reached 4.8 million in January 2024. However, the social security affiliation of FD workers remained broadly stable at about 900 thousand persons. This implies that, while there is a lot of FD-job creation, there is also a lot of FD-job destruction, either

Figure 3. Cumulative Contracts and Average Monthly Social Security Affiliation of FD Workers (Millions)



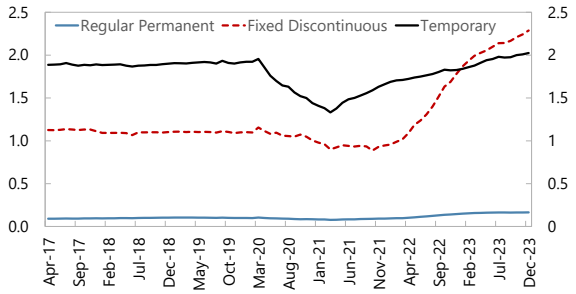
Sources: SEPE, TGSS, and IMF staff calculations.

because many FD workers shift into inactivity or are dismissed.

14. Increased shifts to inactivity may be signaling greater job instability for FD workers. The disenrollment rates of workers with FD contracts increased significantly since the reform, driven by a large increase in shifts to inactivity (although there was also a non-negligible increase in quits/voluntary disenrollments). Unfinished trial periods have increased, but they have not materially increased overall disenrollment for permanent workers.

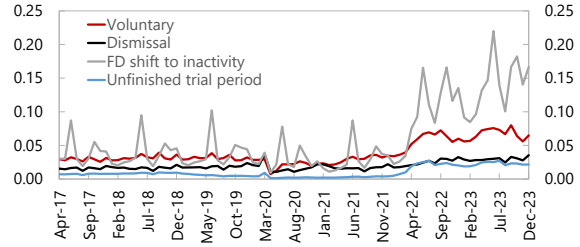
Figure 4. Disenrollment Rates from Social Security by Type of Contract and Reason

Disenrollment Rates from Social Security by Contract Type
(Percent, 12-month MA)



Sources: TGSS and IMF staff calculations.
Note: The disenrollment rates are computed as the ratio of average monthly disenrollments over average number of workers affiliated to the General Regime of social security.

Disenrollment Rates of Permanent Workers from Social Security, by Reason for Disenrollment
(Percent)



Sources: TGSS and IMF staff calculations.
Note: The disenrollment rates are computed as the ratio of average monthly disenrollments over average number of workers affiliated to the General Regime of social security. Permanent workers comprise workers with ordinary permanent contracts and with fixed discontinuous contracts.

C. Related Literature

15. Studies of the 2021 labor reform based on microdata have been scarce so far due to data limitations, and their results are mixed. Using administrative social security data at daily frequency, Conde-Ruiz et al (2023) find that the reform has led to a reduction of contractual temporary employment, but employment stability in terms of duration and job transitions has not improved significantly. Verd et al (2024) focus on the impact of the reform on young workers and, using EPA data up to end-2022, find that the temporary share declined substantially following the reform, but also that temporary employment is now more concentrated among the most vulnerable young people and other forms of precariousness have emerged more prominently, such as involuntary part-time employment. Also using the EPA, Martínez Jorge and Victoria (2022) identify segments of workers more exposed to the reform—where exposure is proxied by the share of workers under the temporary contract for work and service, which was eliminated by the reform—and compare them against segments of workers with similar characteristics (e.g., age, region and sector) but less exposed to the reform. They find that the increase in permanent employment was relatively larger in segments more exposed to the reform, while the effect on temporary and overall employment was not statistically different across segments with different exposure to the reform. Preliminary findings from ongoing work at the Ministry of Economy, applying survival analysis techniques to MCVL data, point to some increase in overall survival rates of job episodes after the reform, despite some decline in the survival rate of open-ended episodes due to partial substitution of temporary contracts by open-ended ones.

16. Preliminary analysis also suggests that the reform might have positive economic and social impacts beyond the labor market. Running micro-simulations using the Household Budget Survey and the Survey of Living Conditions, Anghel et al (2023) find that the shift from temporary to permanent contracts in 2022 may have led to an increase in the spending-to-income ratio ranging between 0.18 and 0.24 percentage points, possibly reflecting reduced precautionary savings due to lower perceived job insecurity. Using data from the Consumer Expectations Survey, Martínez-Carrascal (2023) also finds that the rising share of permanent contracts reduced workers' perceived probability of job loss, lowered their precautionary savings, and raised household spending levels.

D. Empirical Analysis

Data

17. The analysis in this paper focuses on labor market outcomes at the *rso* level computed from the EPA. In the EPA, 1/6th of the sample is renewed every quarter, while the remaining 5/6th is maintained between two consecutive quarters. The part of the sample that is common for two consecutive quarters is used to obtain flow statistics, based on questions regarding the labor market situation of the interviewed person in the present quarter and in the previous one. The flows from the EPA are used to compute the natural turnover rate. Because the public sector was not affected by the reform, the sample is restricted only to salaried workers in the private sector.

18. The sample size is a limitation. The flows from the EPA are only available at 1-digit sectors and occupations, which significantly limits the number of observations. Ongoing work that exploits U.S. data, which will allow to work with sectors and occupations disaggregated at 3 digits, aims to eventually overcome this limitation, in addition to further addressing potential endogeneity concerns. Nevertheless, even with the reduced sample size, the empirical strategy in this paper allows to draw insights from EPA that complement other analyses based on the MCVL and administrative contracts data.

Methodology

19. The paper uses a difference-in-differences approach and looks at the change in various labor market outcomes after versus before the reform. The estimated equation is the following:

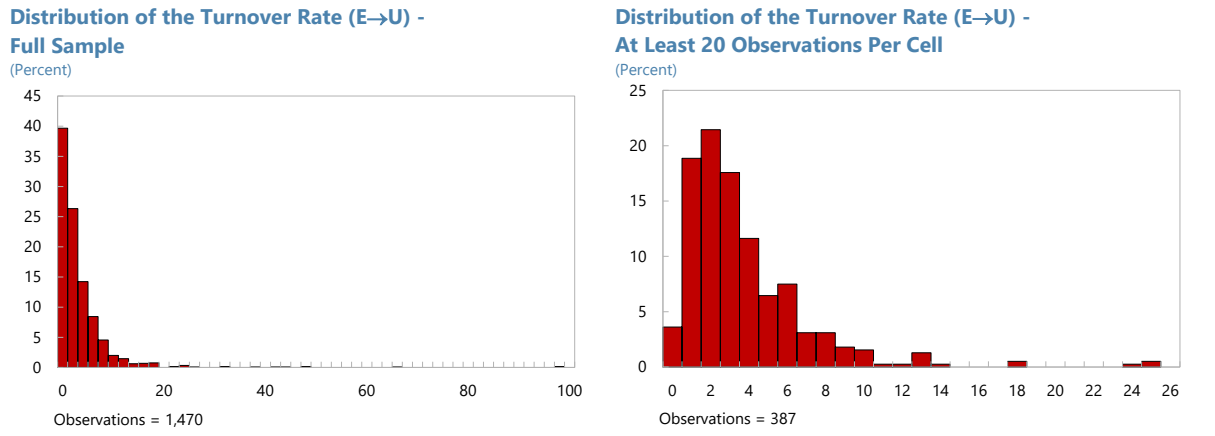
$$\Delta y_{rso} = \alpha + \beta\theta_{rso} + \delta_r + \delta_s + \delta_o + \varepsilon_{rso} \ ,$$

where y_{rso} is the labor market outcome of interest (e.g., employment, hours, temporary employment share, transition rate from employment to unemployment, etc.); θ_{rso} is the degree of exposure of the *rso* cell considered to the change in EPL introduced by the reform; and δ_r, δ_s and δ_o denote fixed effects for region, sector and occupation, respectively, to control for other factors affecting the labor market outcome at the different levels. Δy_{rso} is computed as the (log-)difference in y_{rso} between 2021Q4 and 2023Q4.

20. Exposure to the reform is measured by the "natural" turnover rate. The key idea behind the identification strategy, which has been used previously in the literature (Bassanini et al., 2009; Ciminelli et al., 2022), is that an EPL reform should affect disproportionately *rso* cells with higher natural turnover rates, in which such regulations are more binding. Exposure to the reform is proxied by the Spanish historical turnover rate at the *rso* level, which is computed using data for Spain from 2015 to 2019.[3] Two alternative definitions of turnover are used in the paper: (i) the transition rate from employment to unemployment; and (ii) the transition rate from employment to non-employment (either unemployment or inactivity). These definitions exclude employment-to-employment transitions that entail a change in firm within a given quarter.

21. The analysis is restricted to *rso* cells with a minimum number of observations. When computing the turnover rates at the *rso* level, there are many observations with turnover rates of zero or above 30 percent. This is because, at this level of granularity, some cells have very few observations. To ensure more reliable calculations of the turnover rates, the minimum acceptable number of observations per *rso* cell is set at 20. With such cutoff, the distribution of the turnover rate shows less extreme values and smaller variation overall, with a large mass between 1 and 7 percent. Alternative cutoffs are considered in the robustness exercises, with unchanged key findings.

Figure 5. Distribution of the Turnover Rate for the Full and Restricted Samples

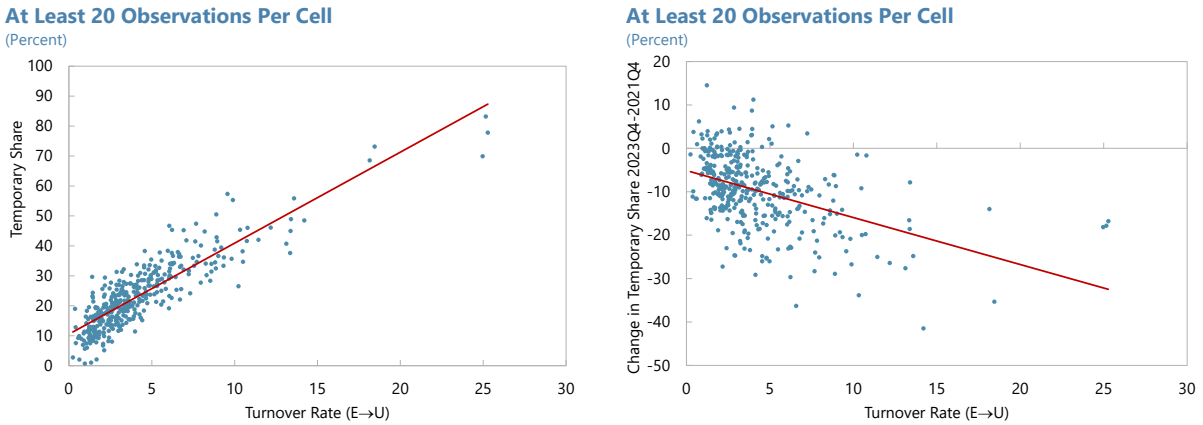


Source: IMF staff calculations based on EPA.

22. The natural turnover rate is positively correlated with the level of the temporary share and negatively with the change in the temporary share since the reform. As would be expected, *rso* cells with a high temporary share tend to have a higher natural turnover rate as derived from Spanish data. In addition, *rso* cells with a higher natural turnover rate experienced a larger decline in the temporary share following the reform, all else equal. This finding, which hints at the impact of the reform on temporary employment, will be validated by the regression results.

[3] An alternative measure to the natural rate of turnover could be the layoff rate, as used in Bassanini et al (2009).

Figure 6. Natural Turnover Rate and Temporary Share



Source: IMF staff calculations based on EPA.

Results

23. The reform has had a positive effect on contractual stability. In the first column of Table 1, the coefficient (β) on the reform exposure variable (θ_{rso}) is negative and statistically significant, implying that those *rso* cells that were more exposed to the reform experienced a larger relative decrease in the temporary employment share. Similarly, the positive and significant coefficients in columns 2 and 3 indicate that those *rso* cells that were more exposed to the reform experienced a relative increase in both the FD and permanent employment shares. The increase in the share of more stable contracts at the expense of unstable temporary contracts is evidence that the reform was successful in improving contractual stability, in line with the observed trends in the raw data. There is no conclusive evidence of an effect on the growth of employment—total or by contract type—and hours worked, with non-significant coefficients.

Table 1. Spain: Baseline Results: Employment Shares and Growth of Employment and Hours

	(1) Change temporary share	(2) Change FD share	(3) Change permanent share	(4) Growth total employment	(5) Growth temporary employment	(6) Growth FD employment	(7) Growth permanent employment	(8) Growth average effective hours worked
Turnover Rate (E-->U)	-1.083***	0.385*	0.698*	-0.776	0.137	-2.549	3.266	0.528
	(0.318)	(0.194)	(0.354)	(0.919)	(2.438)	(14.93)	(2.212)	(0.443)
Obs	387	387	387	387	356	142	387	387
Region FE	yes	yes	yes	yes	yes	yes	yes	yes
Sector FE	yes	yes	yes	yes	yes	yes	yes	yes
Occupation FE	yes	yes	yes	yes	yes	yes	yes	yes

Standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001
Specification details:
Dependent variable: Change in Labor Market Outcome (2023Q4 vs 2021Q4)
Robust standard errors
At least 20 observations per cell

24. The effect of the reform on the temporary employment share has been heterogeneous across groups. *Rso* cells that were more exposed to the reform show statistically significant declines in temporary employment shares for the young and the low skilled (columns 1 and 4 of Table 2). The coefficients on the reform exposure variable in the other regressions shown in Table 2 turned out to be insignificant – with a negative sign for the change in the temporary share for women (column 2) and a positive sign for migrants (column 5).

Table 2. Spain: Baseline Results: Change in Temporary Share by Population Groups

	(1) Change temporary share - low skilled	(2) Change temporary share - women	(3) Change temporary share - women low skilled	(4) Change temporary share - young	(5) Change temporary share - foreign
Turnover Rate (E-->U)	-1.105*	-0.701	0.0176	-2.865*	0.149
	(0.485)	(0.578)	(0.772)	(1.165)	(0.971)
Obs	328	357	239	258	262
Region FE	yes	yes	yes	yes	yes
Sector FE	yes	yes	yes	yes	yes
Occupation FE	yes	yes	yes	yes	yes

Standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001
Specification details:
Dependent variable: Change in Labor Market Outcome (2023Q4 vs 2021Q4)
Robust standard errors
At least 20 observations per cell

25. The broader effect of the reform on employment stability remains unclear. Effects on employment stability are assessed by looking at the impact of exposure to the reform on various transition rates (Table 3). The only coefficient that turns out to be significant is the one in column 6, indicating that the reform had a positive impact on the transitions from temporary employment to FD employment. This result is also in line with prior expectations, especially for specific sectors such as construction or education, and for seasonal occupations. For the other flows, there is no statistical evidence supporting a clear effect of the reform, though this might partly reflect the limited power of the statistical tests given the small sample size.

Table 3. Spain: Baseline Results: Transition Rates

	(1) E-->U	(2) E-->Non E	(3) Temp-->U	(4) Temp-->Non E	(5) FD-->Non E	(6) Temp-->FD	(7) Temp-->Perm
Turnover Rate (E-->U)	0.134	-0.109	0.0745	0.416	1.472	0.522**	0.264
	(0.135)	(0.203)	(0.516)	(0.696)	(1.371)	(0.197)	(0.546)
Obs	387	387	344	339	95	359	354
Region FE	yes	yes	yes	yes	yes	yes	yes
Sector FE	yes	yes	yes	yes	yes	yes	yes
Occupation FE	yes	yes	yes	yes	yes	yes	yes

Standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001
Specification details:
Dependent variable: Change in Labor Market Outcome (2023Q4 vs 2021Q4)
Robust standard errors
At least 20 observations per cell

Robustness

26. The estimated decline in the temporary share resulting from the reform is robust to several alternative specifications. Results from the robustness exercises are reported in the figures and tables in Appendix I. The analysis is re-done for different combinations of fixed effects, including pairs of fixed effects—region-sector, region-occupation and sector-occupation (Table A.1). Also, different cutoffs for the number of observations per cell are considered: instead of 20 observations per cell, which could be a little restrictive, the regressions are re-estimated with samples based on 10 and 15 observations per cell (Figures A.1 and A.2, and Table A.2, columns 1-3). The analysis is also re-run experimenting with a broader measure of turnover, from employment to non-employment, which includes transitions from employment to unemployment or inactivity rather than just to unemployment (Table A.2, column 5). Besides the robust standard errors featured in the baseline regressions, other ways of computing standard errors are used, by clustering at different levels (Table A.3). All baseline regressions are also run again with a different calculation of the post-reform versus pre-reform change: instead of computing it as the difference between observations of the dependent variable in 2023q4 and 2021q4, it is calculated as the difference between the average values of the dependent variable in 2023 and 2021 (Tables A.2 column 4, A.4, A.5 and A.6). The decline in the temporary employment share turns out to be robust to almost all of these robustness exercises. The statistical significance of other coefficients varies depending on the specification. For example, in Table A.4, when computing differently the post-reform versus pre-reform change, the positive impact on the share of permanent employment is no longer significant, while there is a significant effect on hours worked.

E. Concluding Remarks

27. Preliminary evidence in this paper suggests that the 2021 reform reduced the temporary employment share with less clear effects on overall employment stability, but these results are still preliminary. Several extensions to the work done in this study should help lead to a more definitive assessment of the reform's various effects. First and foremost, natural turnover rates derived from US occupational data will be used to further address any endogeneity concerns and overcome the issue of the number of observations by exploiting the sector-occupation dimension at the 3-digit level. The basic rationale is that natural turnover rates in the US are arguably orthogonal to industry- and occupation-level changes in labor market outcomes in Spain. Second, dynamic regressions will be run to quantify how the effect of the reform on the different variables evolved throughout the post-reform period. Finally, the difference-in-differences regression results can be used to derive back-of-the-envelope estimates of the aggregate impact of the reform on labor market performance variables of interest (e.g., temporary work share, permanent work share, etc.) A full paper building on this Selected Issues Paper but featuring the aforementioned extensions will be published at a later stage.

28. By increasing contractual stability, the reform may also yield positive side effects not captured by the analysis in this paper. While the rise in FD contracts raises legitimate employment stability concerns that will need to be analyzed in greater depth, these contracts are still likely to reduce job and income uncertainty for FD workers since they can expect to be recalled by the

employer after the inactivity period and also have access to unemployment benefits in the meantime. Relative to temporary contracts, FD contracts might also entail better access to training, as stronger job attachment might incentivize employers to supply it and workers to demand it. Finally, FD contracts might enhance workers' access to housing and credit insofar as the income prospects of FD workers are perceived to be more stable than those of temporary workers. More analysis will be needed on all these dimensions, which go beyond the scope of the present paper.

29. Other non-EPL dimensions of the 2021 reform—notably short-time work schemes and collective bargaining—are likely to shape firms' ability to respond to shocks, which will only be put to test with an economic downturn. There are currently few workers participating in short-time work schemes (ERTE and the new RED mechanism), which proved effective in mitigating the unemployment impact of the pandemic. It is necessary to continue to assess the effectiveness of the schemes in training and reallocating workers, and making sure that they will effectively be deployed to dampen the employment impact of future shocks without putting undue burden on public finances. In this regard, while the implementing regulation of the RED mechanism is in place, the fund that will finance the scheme has not yet been set up. Regarding collective bargaining, the 2021 reform restored the priority of sectoral agreements over firm agreements on wages, as well as the indefinite extension of prior agreements in case of failure to reach a new one (known as *ultra-activity*). Going forward, it would be important to preserve some wage flexibility at the firm level in the event of adverse shocks and, more broadly, to allow work arrangements—including wages and/or hours—to respond to changing economic conditions.

30. Having achieved positive results in terms of contractual stability, policies going forward should aim at further cutting structural unemployment and improving employment stability. To this end, several broad lines of action discussed in the Staff Report of the 2024 Article IV Consultation for Spain are worth considering. First, boosting active labor market policies and enhancing their coordination with unemployment insurance and assistance. Second, pushing forward the unemployment assistance reform, which is still under discussion, to ensure protection to recipients while strengthening incentives for job take-up. And third, on employment protection legislation, continuing to increase incentives for employers to create regular permanent contracts.

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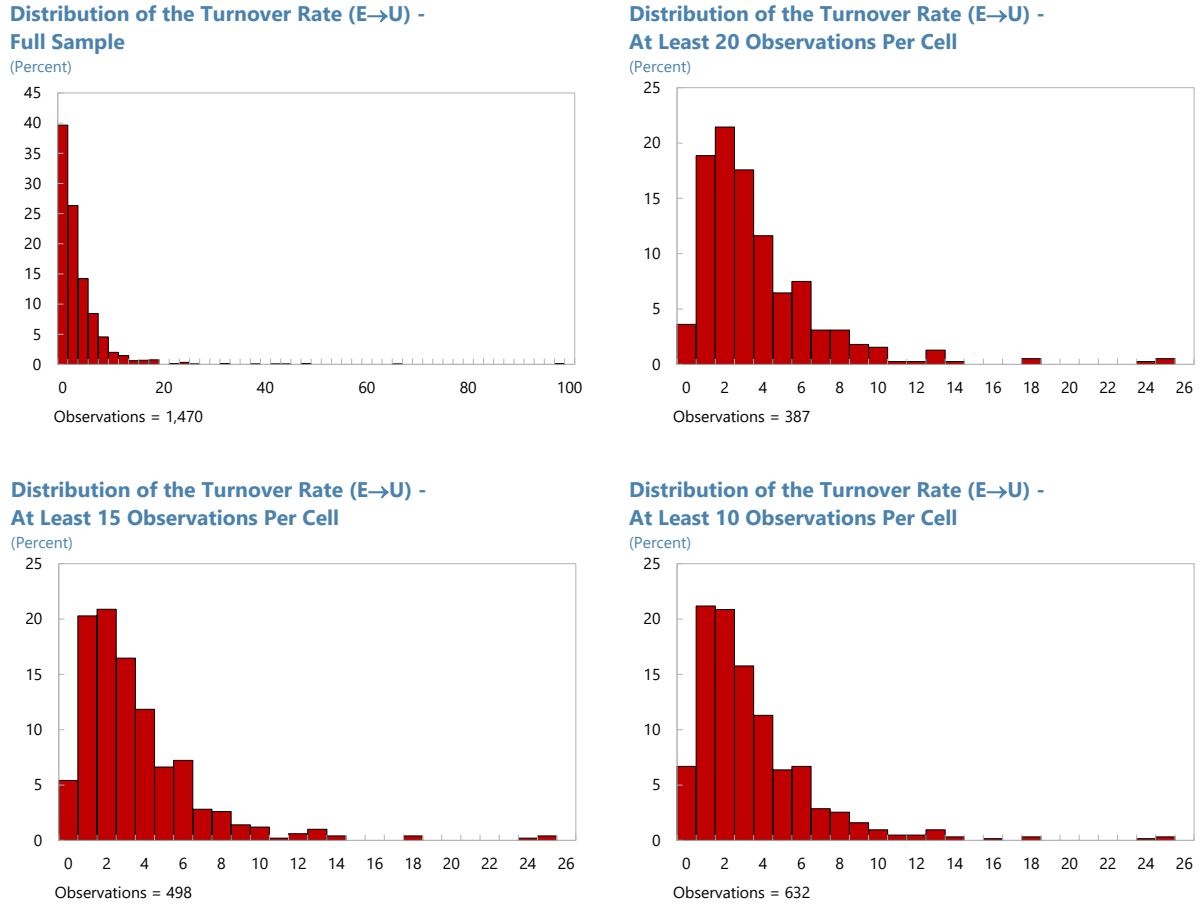
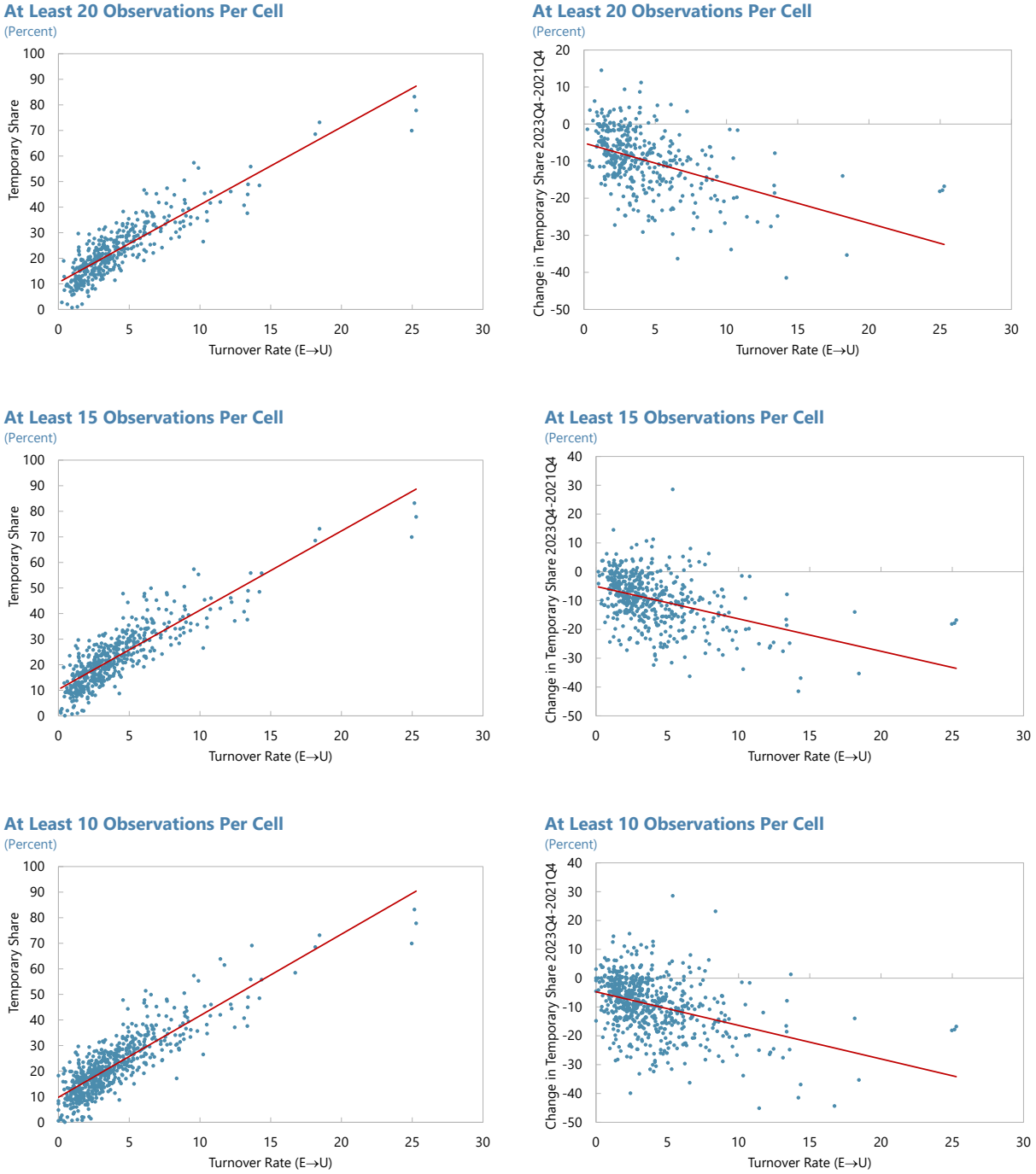
Annex I. Robustness Results

Figure AI.1. Distribution of the Turnover Rate for Different Cutoffs of Observations per Cell



Source: IMF staff calculations based on EPA.

Figure AI.2. Natural Turnover Rate and Temporary Share for Different Cutoffs of Observations per Cell



Source: IMF staff calculations based on EPA.

Table AI.1. Spain: Robustness of Temporary Employment Share Results: Different Combinations of Fixed Effects

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Turnover Rate (E-->U)	-0.993***	-1.264***	-0.947***	-1.083***	-0.736**	-1.591***	-0.716*	-1.236
	(0.225)	(0.237)	(0.248)	(0.318)	(0.281)	(0.344)	(0.300)	(1.002)
Obs	387	387	387	387	387	387	387	387
Region FE	yes	no	no	yes	no	no	no	no
Sector FE	no	yes	no	yes	no	no	no	no
Occupation FE	no	no	yes	yes	no	no	no	no
Industry and Occupation FE	no	no	no	no	yes	no	no	yes
Region and Sector FE	no	no	no	no	no	yes	no	yes
Region and Occupation FE	no	no	no	no	no	no	yes	yes

Standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001
Specification details:
Dependent variable: Change in Temporary Share (2023Q4 vs 2021Q4)
Robust standard errors
At least 20 observations per cell

Table AI.2. Spain: Robustness of Temporary Employment Share Results: Different Cell Sizes, Dependent Variables or Regressors

	(1) Dep: 2023Q4 vs 2021Q4 + At least 10 obs x cell	(2) Dep: 2023Q4 vs 2021Q4 + At least 15 obs x cell	(3) Dep: 2023Q4 vs 2021Q4 + At least 20 obs x cell	(4) Dep: Avg2023 vs Avg2021 + At least 20 obs x cell	(5) Dep: 2023Q4 vs 2021Q4 + At least 20 obs x cell
Turnover Rate (E-->U)	-1.089***	-1.135***	-1.083***	-1.083***	
	(0.293)	(0.280)	(0.318)	(0.318)	
Turnover Rate (E-->Non E)					-0.621**
					(0.213)
Obs	632	498	387	387	387
Region FE	yes	yes	yes	yes	yes
Sector FE	yes	yes	yes	yes	yes
Occupation FE	yes	yes	yes	yes	yes

Standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001
Specification details:
Robust standard errors

Table AI.3. Spain: Robustness of Temporary Employment Share Results: Different Calculations of Standard Errors

	(1) Robust	(2) Cluster Sector	(3) Cluster Occupation	(4) Cluster SectorxOccup	(5) Bootstrap
Turnover Rate (E-->U)	-1.083***	-1.083*	-1.083**	-1.083**	-1.083**
	(0.318)	(0.469)	(0.281)	(0.379)	(0.333)
Obs	387	387	387	387	387
Region FE	yes	yes	yes	yes	yes
Sector FE	yes	yes	yes	yes	yes
Occupation FE	yes	yes	yes	yes	yes

Standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001
Specification details:
Dependent variable: Change in Temporary Share (2023Q4 vs 2021Q4)
At least 20 observations per cell

Table AI.4. Spain: Robustness of Results for Various Dependent Variables: Different Computation of Change Between Pre-Reform and Post-Reform Periods

	(1) Change temporary share	(2) Change FD share	(3) Change permanent share	(4) Growth total employment	(5) Growth temporary employment	(6) Growth FD employment	(7) Growth permanent employment	(8) Growth average effective hours worked	(9) Growth average effective hours worked
Turnover Rate (E-->U)	-0.837***	0.437**	0.400	-0.0483	-2.428	13.14	2.530	0.587*	1.199*
	(0.230)	(0.141)	(0.240)	(0.735)	(1.927)	(12.98)	(1.293)	(0.247)	(0.481)
Turnover Rate (E-->U) x D(Low Permanent Share)									-1.127*
									(0.465)
D(Low Permanent Share)									8.565**
									(3.286)
Obs	387	387	387	387	382	207	387	387	387
Region FE	yes	yes	yes	yes	yes	yes	yes	yes	yes
Sector FE	yes	yes	yes	yes	yes	yes	yes	yes	yes
Occupation FE	yes	yes	yes	yes	yes	yes	yes	yes	yes

Standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001
Specification details:
Dependent variable: Change in Labor Market Outcome (Avg2023 vs Avg2021)
Robust standard errors
At least 20 observations per cell

Table AI.5. Spain: Robustness of Temporary Employment Share Results for Various Groups: Different Computation of Change Between Pre-Reform and Post-Reform Periods

	(1) Change temporary share - low skilled	(2) Change temporary share - women	(3) Change temporary share - women low skilled	(4) Change temporary share - young	(5) Change temporary share - foreign
Turnover Rate (E-->U)	-1.192**	-0.599	-0.999	-0.573	-0.756
	(0.447)	(0.408)	(0.632)	(0.863)	(0.776)
Obs	339	374	291	358	335
Region FE	yes	yes	yes	yes	yes
Sector FE	yes	yes	yes	yes	yes
Occupation FE	yes	yes	yes	yes	yes

Standard errors in parentheses
* p<0.05, ** p<0.01, *** p<0.001
Specification details:
Dependent variable: Change in Labor Market Outcome (Avg2023 vs Avg2021)
Robust standard errors
At least 20 observations per cell

Table AI.6. Spain: Robustness of Transition Rate Results: Different Computation of Change Between Pre-Reform and Post-Reform Periods

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	E-->U	E-->Non E	Temp-->U	Temp-->Non E	FD-->Non E	Temp-->FD	Temp-->Perm
Turnover Rate (E-->U)	0.0459	-0.0448	-0.379	-0.352	0.571	0.318**	0.361
	(0.0779)	(0.126)	(0.385)	(0.475)	(0.879)	(0.116)	(0.362)
Obs	387	387	378	377	178	378	379
Region FE	yes	yes	yes	yes	yes	yes	yes
Sector FE	yes	yes	yes	yes	yes	yes	yes
Occupation FE	yes	yes	yes	yes	yes	yes	yes

Standard errors in parentheses

* p<0.05, ** p<0.01, *** p<0.001

Specification details:

Dependent variable: Change in Labor Market Outcome (Avg2023 vs Avg2021)

Robust standard errors