ECONOMIC BULLETIN

MARCH 2025

BANCO DE PORTUGAL
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Contents

I Projections for the Portuguese economy: 2025-27

1 Projections for the Portuguese economy: 2025-27

The Portuguese economy is projected to grow by 2.3% in 2025 (1.9% in 2024) and slow down to 2.1% in 2026 and 1.7% in 2027 (Table I.1.1). Economic growth in 2025-26 benefits from the easing in financial conditions and is underpinned by an acceleration in external demand and a more concentrated rate of implementation of European funds in 2026. Lower growth in 2027 is largely the result of the end of the Recovery and Resilience Plan (RRP). Consumption and investment may benefit from increased confidence. albeit requiring a reduction in domestic and external uncertainty to materialise. After peaking in 2024. employment is projected to increase and the unemployment rate is expected to stabilise. Inflation is expected to fall to 2.3% in 2025. reaching 2% in 2026-27. The Portuguese economy is expected to continue to grow above the euro area. with the inflation differential remaining close to zero.

Table I.1.1 • Projections of Banco de Portugal for 2025-27 | Annual percentage change (unless otherwise stated)

	Weigths 2023	EB March 2025				EB December 2024			
		2024	2025 (p)	2026 (p)	2027 (p)	2024 (p)	2025 (p)	2026 (p)	2027 (p)
Gross domestic product (GDP)	100.0	1.9	2.3	2.1	1.7	1.7	2.2	2.2	1.7
Private consumption	61.6	3.2	2.8	1.8	1.8	3.0	2.7	1.9	1.8
Public consumption	16.7	1.1	1.1	0.8	0.4	1.1	1.1	0.8	0.3
Gross fixed capital formation	20.1	2.3	3.9	4.4	0.1	0.5	5.4	4.6	0.1
Domestic demand	98.9	2.5	2.3	2.2	1.2	2.2	2.9	2.3	1.2
Exports	47.5	3.4	2.7	2.9	3.0	3.9	3.2	3.3	3.2
Imports	46.4	4.8	2.8	3.0	2.0	5.2	4.7	3.4	2.1
Employment (a)		1.6	1.3	0.7	0.4	1.3	0.8	0.7	0.4
Unemployment rate (b)		6.4	6.4	6.4	6.4	6.4	6.4	6.4	6.4
Current and capital account (% of GDP)		3.3	4.5	4.6	3.7	3.6	4.0	3.9	3.3
Trade balance (% of GDP)		2.3	2.4	2.5	3.0	2.4	2.0	2.0	2.6
Harmonised index of consumer prices		2.7	2.3	2.0	2.0	2.6	2.1	2.0	2.0
Excluding energy and food		2.7	2.5	2.2	2.2	2.7	2.4	2.2	2.1
GDP deflator		4.3	2.9	2.5	2.3	4.9	3.3	2.5	2.2

Sources: Banco de Portugal and Statistics Portugal. | Notes: (p) – projected. The cut-off date for the projections occured on March 10. For each aggregate. this table shows the projection corresponding to the most likely value. conditional on the set of assumptions. (a) According to the national accounts concept. (b) In percentage of the labour force.

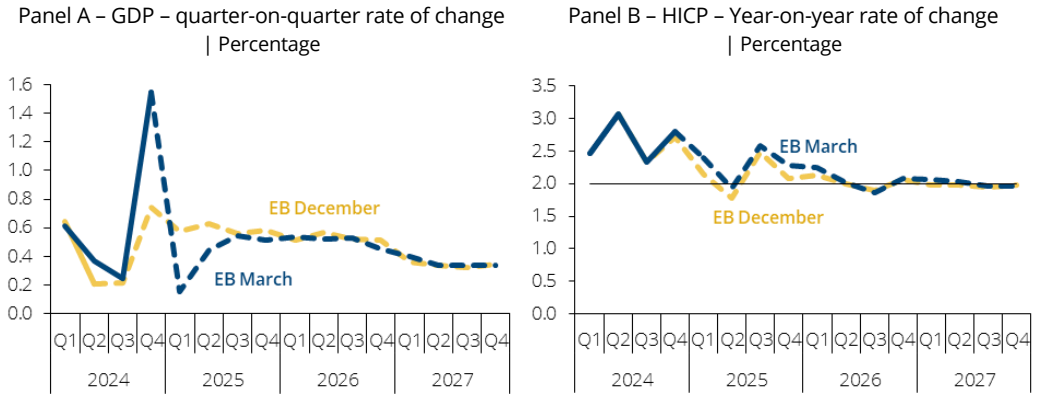
Downside risks surrounding the projection for economic activity have increased and there is high uncertainty over developments in the global economy (Box 1: External environment, financing conditions and policies). In addition to the already existing risk factors – related to the Russian military invasion of Ukraine and conflicts in the Middle East – new factors have emerged, with a focus on changes in US geostrategic and trade policy stance. The materialisation of these risks may lead to commodity price increases, supply chain disruptions, lower growth in global trade and marked exchange rate changes, with a destabilising impact on activity. The index of global economic policy uncertainty reached values close to historical peaks in early 2025, which alone could constrain global activity growth.[1] This uncertainty may lead economic agents to postpone or cancel investment decisions, increase precautionary saving or demand higher risk premia, reducing asset prices and

[1] Davis, Steven J., 2016. "An Index of Global Economic Policy Uncertainty," *Macroeconomic Review*, October.

raising financing costs. The materialisation of a scenario of an increase in US tariffs on EU imports, involving retaliation and increased uncertainty/lower confidence, would have a significant negative impact on economic activity in Portugal (Box 2: Impact of a scenario of higher tariffs on activity in Portugal). Conversely, the expected increase in military spending in the context of the European defence capacity-building plan may boost the economy. For inflation, the identified external risks have the potential to generate higher-than-assumed inflationary pressures, through increases in commodity prices or import prices due to the impact of tariffs. Buoyancy in wages may also persist, reflecting in services prices and undermining the projected pace of inflation reduction, with negative consequences for external competitiveness.

Economic activity accelerated in the fourth quarter of 2024, growing by 1.5% quarter on quarter from 0.2% in the previous quarter. The acceleration was noticeable in private consumption (the quarter-on-quarter rate rose from 0.8% to 2.9%), but exports of goods and services also recovered (from -0.2% to 0.7%), while investment (including in inventories) declined (by 6%, following an increase of 4.5% in the third quarter). The increase in consumption reflected a significant acceleration in disposable income in the fourth quarter (5% estimated quarter-on-quarter change), mainly as a result of changes in personal income tax (PIT) with a retroactive effect from the beginning of the year, reflected in specific withholding tax tables in September and October[2] and the payment of the extraordinary pension supplement in October. As a whole, these fiscal policy measures represented an increase of around €2 billion in household income (equivalent to almost 4% of quarterly income). However, in the first quarter of 2025, nominal disposable income is expected to decline by 1.2% – partly reversing the increase of the fourth quarter – and be reflected in a downturn in private consumption, which is already visible in the available short-term indicators. Private consumption is also expected to be constrained in the second quarter by the impact of the expected reduction in PIT refunds resulting from lower withholding tax amounts levied in September and October 2024. Thus, the quarter-on-quarter rate of change in GDP is estimated to stand at 0.2% in the first quarter of 2025 and to recover to 0.4% in the second quarter and 0.5% in subsequent quarters (Chart I.1.1 – Panel A). These quarter-on-quarter GDP changes in 2025 are lower than projected in December so the upward revision to the annual rate of GDP in 2025 reflects the higher carry-over effect on growth from the fourth quarter of 2024.

Chart I.1.1 • Quarterly GDP and inflation projections



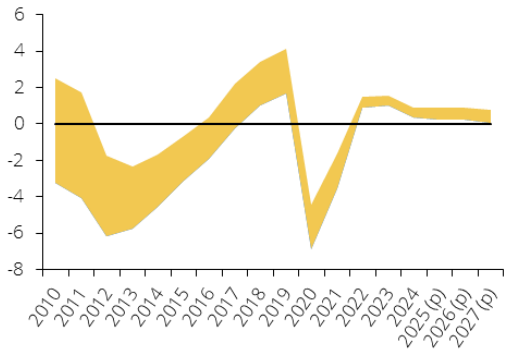
Sources: Banco de Portugal and Statistics Portugal. | Note: The dashed lines correspond to the projected values in the EB of December 2024 and March 2025.

[2] PIT withheld is transferred by companies to the State in the following month and is recorded in the national accounts without any time lag.

Inflation increased in the fourth quarter of 2024 but is expected to fall to 2.4% in the first quarter of 2025 (Chart I.1.1 – Panel B). The increase to 2.8% at the end of last year reflected base effects in energy goods and volatility in accommodation services. The year-on-year rate of change in the HICP excluding food, energy and volatile tourism-related components remained stable at around 2.5% throughout the quarters of 2024 and early 2025. In 2025, volatility is expected to remain the same, with quarterly figures for total inflation projected to be between 1.9% and 2.6%, leading to a 2.3% annual inflation (2.7% in 2024).

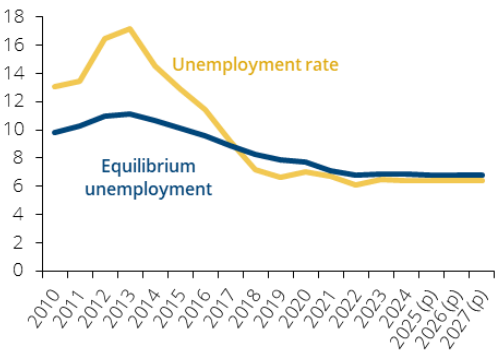
Some factors have contributed to moderating price pressures, with the economy functioning above potential (Chart I.1.2). Disinflation dynamics stemming from external factors were more pronounced than expected and unit labour cost pressures – which maintained high growth in 2024 (7.6%) – were counteracted by reduced profit margins. In turn, the impact on consumption from the strong increase in real disposable income in 2024 (7.8%) was dampened by the rise in the household saving rate to 12%, above the average for the period 2015-19 (7.1%). Finally, labour supply has responded to economic growth, reflecting higher participation rates and immigration flows. The output gap is projected to remain positive in 2025-27 (around 0.5% of potential output) and, in the labour market, the unemployment rate is projected to remain below the equilibrium rate (Charts I.1.2 and I.1.3).

Chart I.1.2 • Output gap: range of alternative estimates | As a percentage of potential output



Sources: Bank of Portugal and INE. | Notes: The output gap is the difference between GDP and potential output. Five alternative estimates for potential output are considered, calculated using different methods: statistical filters, such as the Hodrick and Prescott, Baxter and King, and Christiano and Fitzgerald (CF) filters; the production function method, based on the Cobb-Douglas function; and an unobserved components model described in Duarte, Maria and Sazedj, S. (2020). 'Trends and cycles under changing economic conditions.' *Economic Modelling*, 92, 126-146.

Chart I.1.3 • Observed and equilibrium unemployment rate | Percentage



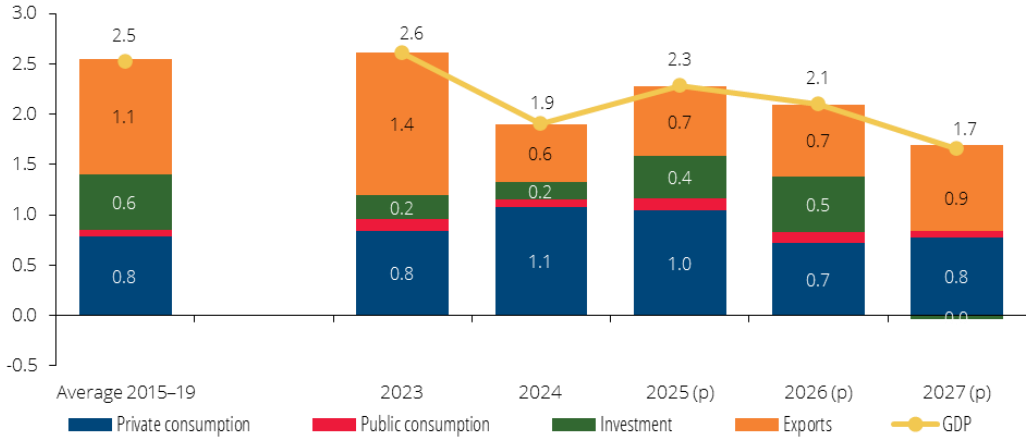
Sources: Bank of Portugal and INE. | Note: The equilibrium unemployment rate is the unemployment rate compatible with full employment and the stabilisation of wage growth. For details on the calculation methodology see Duarte, Maria and Sazedj (2020).

With GDP above potential and with the ECB monetary policy becoming less restrictive, the role of fiscal policy gains relevance in maintaining macroeconomic stability. It is crucial that the fiscal policy stance does not boost excess aggregate demand and ensures scope to deal with business cycle reversals. This stance is also important from a long-term and structural perspective. The growth rate of potential output is estimated to decline over the next 10 years, reflecting a reduction in the working-age population (Box 3: Outlook for potential output developments). To ensure that the well-being of the population maintains an upward trend, output per worker needs to increase, which requires more investment in physical and human capital and structural reforms that contribute to a more productive allocation of resources and foster innovation and competition.

Over the projection horizon, a gradual return to a growth pattern more based on investment and exports is expected. In 2024, the factors underpinning growth were different from those of the previous

year and the period 2015-19 (Chart I.1.4). Private consumption (net of import content) contributed 1.1 p.p. to the economy's 1.9% growth. Conversely, the contribution of exports declined to 0.6 p.p., reflecting less buoyant services, which was expected as the post-pandemic boost of international tourism faded. Investment remained weak in the context of high interest rates and elevated uncertainty (0.2 p.p. contribution to the change in GDP). In 2025-26, more balanced growth is expected, with an increase in the contribution of investment (particularly from the public component) and a reduction in the contribution of private consumption. In 2027, the contribution of investment becomes zero due to the reduction in the public component with the end of RRP funds.

Chart I.1.4 • GDP rate of change and contributions of components (net of import content)
| Percentage and p.p.



Sources: Banco de Portugal and Statistics Portugal. | Notes: (p) – projected. For information on the methodology for calculating import-content net contributions, see Cardoso and Rua (2021), "Unveiling the real contribution of final demand to GDP growth", *Banco de Portugal Economic Studies*, Volume VII, no. 3.

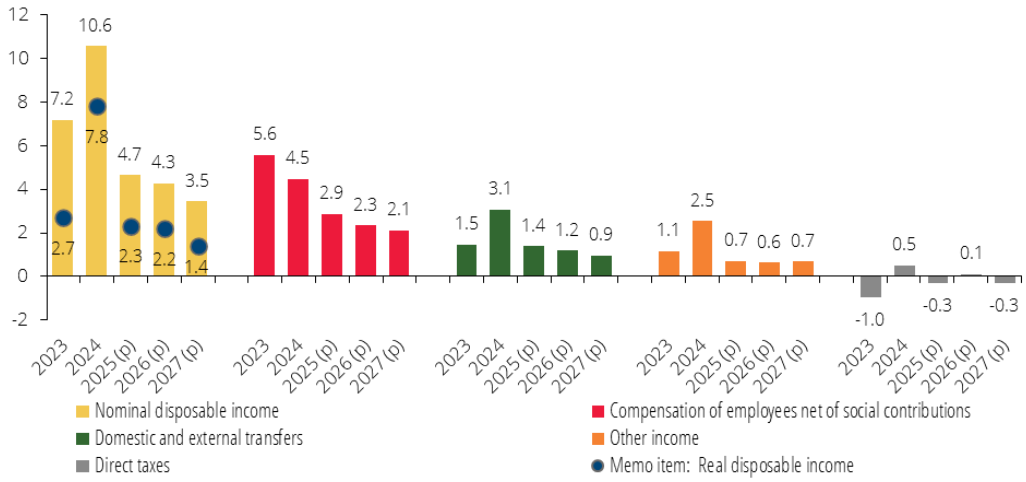
Private consumption is expected to decelerate and grow in line with real disposable income, with the saving rate remaining high (Table I.1.1). After rising by 3.2% in 2024, private consumption is projected to grow by 2.8% in 2025 and 1.8% in 2026 and 2027. In 2024, disposable income is estimated to have increased by 7.8% in real terms, a historically high level. The increase in disposable income, which is estimated to have amounted to 10.6% in nominal terms, reflected growth in the wage bill, pensions and other transfers, a significant contribution from other income (covering compensation of self-employment, interest, dividends and rents) and the impact of the reduction in PIT (Chart I.1.5). Real disposable income is projected to decelerate gradually – to a growth of 2.3% in 2025, 2.2% in 2026 and 1.4% in 2027 –, with a more contained increase in employment and wages, fading and, in some cases, reversal of the effects of fiscal measures and the slowdown in corporate and property income, partly associated with lower interest rates.

The household saving rate has increased over the past two years, with high interest rates encouraging more saving and less consumption. Prevailing uncertainty and recent shocks have also been a relevant factor, leading households to increase their precautionary saving. The rise was likely reinforced by the composition of the increase in disposable income in 2024, which was larger for some groups of households or types of income for which there is evidence of a greater propensity to save.[3] The European Commission's consumer survey shows that saving intentions over the next 12 months remain on an

[3] Box 4 – "The effect of changes to personal income tax and social benefits on income distribution in 2024 and 2025" and Box 5 – "The distribution of household saving in Portugal" in the December 2024 issue of the *Economic Bulletin*.

upward trend – broadly based across all income quartiles, but stronger at the highest quartiles – supporting the projection that the saving rate will remain high in 2025-27 (11.7% on average).

Chart I.1.5 • Disposable income rate of change and contributions of components | Percentage and p.p.



Sources: Banco de Portugal and Statistics Portugal. | Note: (p) – projected

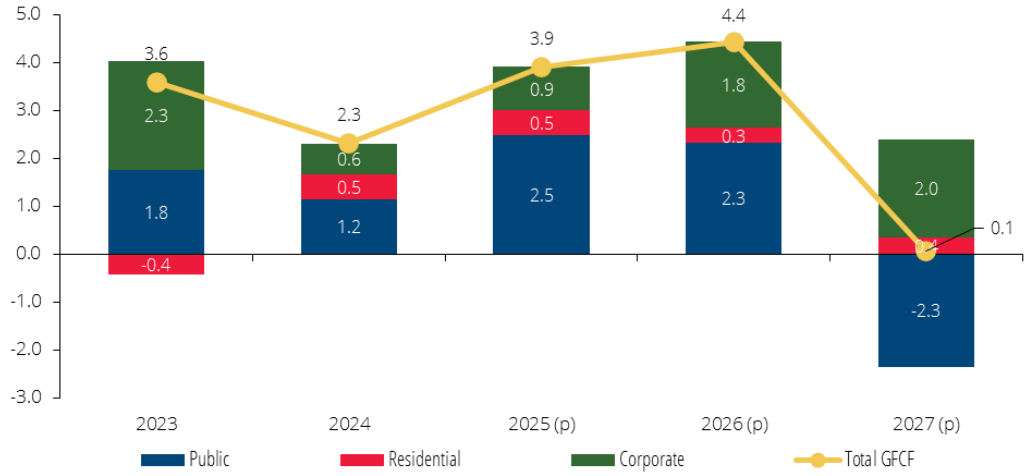
The weak investment growth in the recent period limits the productive capacity of the economy. The reaction of labour supply to demand conditions has not been accompanied by a similar response from GFCF. Corporate and residential investment grew by 2.1% and 0.3% on average in the last two years, in contrast to the growth observed between 2015 and 2019 (7.7% and 5.3% respectively) and is likely to be related to the impact of tighter financial conditions and higher uncertainty. By contrast, public investment grew more significantly over the same period, despite decelerating in 2024 compared with the previous year and falling short of expectations (Chart I.1.6). The need to strengthen investment is crucial to bring the Portuguese economy's capital stock, assessed as a ratio to GDP or employment, closer to that of European counterparts, which should also be reflected in the convergence of productivity (Box 4: Stock of capital excluding dwellings in the Portuguese economy).

Investment is expected to accelerate in 2025-26 in reaction to improved financing conditions and demand and to a higher inflow of European funds. The recent improvement in business confidence and the favourable financial situation of the sector favour a pick-up in corporate investment, which is expected to be more gradual than projected in December, given rising uncertainty. In 2024 firms' profit margins declined, but remained elevated, contributing to the self-financing of investment and to the maintenance of the downward trend of indebtedness. Public investment is expected to maintain high growth in 2025-26 (16% on average), which coincides with the highest volume of EU transfers, and to decline in 2027. Residential investment is expected to grow by 2.1% on average in 2025-27, following a 2.7% recovery in 2024 (Chart I.1.6). Supply reacted to the incentive of rising selling price and moderating costs, with an increase in the number of new building permits in 2024. On the demand side, growth prospects reflect increases in population and disposable income and declining interest rates.

Exports will grow at an average rate of 2.9% in 2025-27, lower than in recent years, in a context of expected acceleration in external demand and lower market share gains (Chart I.1.7). In 2024, exports of goods recovered, increasing by 3.4%, while services exports decelerated markedly, with the tourism component growing by 5.1% and other services by 2%. Developments in exports of

goods and services were more favourable than in most euro area countries. Over the projection horizon, the main export components are expected to grow at a similar pace and close to that assumed for external demand. The assumption of an acceleration in foreign demand reflects the projected import behaviour of euro area trading partners. Prospects of an increase in US tariffs on EU imports of goods entail downside risks to growth in goods exports, in particular from sectors with a higher share of firms exposed to this market (Box 5: Average effective tariff and exposure of Portuguese exports to the US market). The negative impact of increased protectionism on global trade is likely to overlap possible opportunities that processes to redirect trade flows to locations with closer geographical and institutional proximity may bring to the Portuguese economy.

Chart I.1.6 • Rate of change of total GFCF and contribution of components | Percentage and p.p.

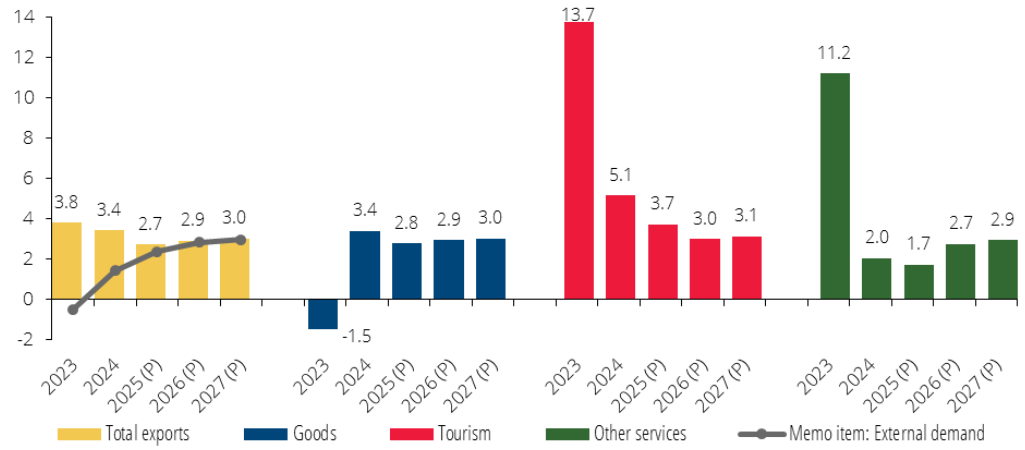


Sources: Banco de Portugal and Statistics Portugal. | Note: (p) – projected.

The economy will show a historically high net lending capacity, due to inflows of European funds and the maintenance of a surplus in the goods and services account (Chart I.1.8). In 2024, the current and capital account balance increased to 3.3% of GDP (2.0% in 2023), reflecting a narrowing deficit in trade in goods (from 9.4% to 8.9% of GDP) and, to a lesser extent, the widening of the services account surplus (from 10.9% to 11.2% of GDP). The increase in the goods and services balance resulted from a further gain in terms of trade, as imports in volume grew above exports.[4] Net transfers with the EU stabilised at 1.3% of GDP. In 2025-26, the goods and services balance is projected to remain at 2.4% of GDP, while net transfers with the EU are projected to reach 2.8% of GDP on average.

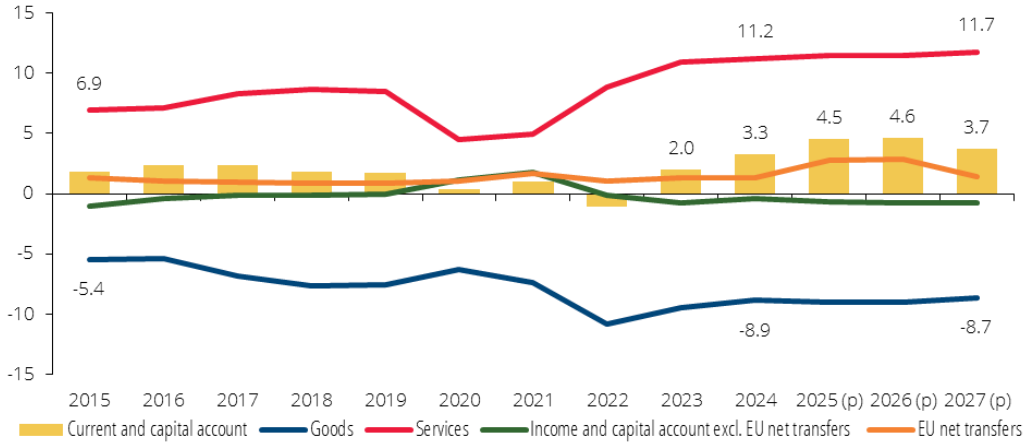
[4] Box 2 – "Terms of trade in goods" in the June 2024 issue of the *Economic Bulletin*.

Chart I.1.7 • Total exports and components | Annual rate of change in percentage



Sources: Banco de Portugal, ECB and Statistics Portugal. | Note: (p) – projected. The external demand indicator for the Portuguese economy consists of an average of imports from trading partners, weighted by their weight in Portuguese exports.

Chart I.1.8 • Current and capital account and components | Percentage of GDP



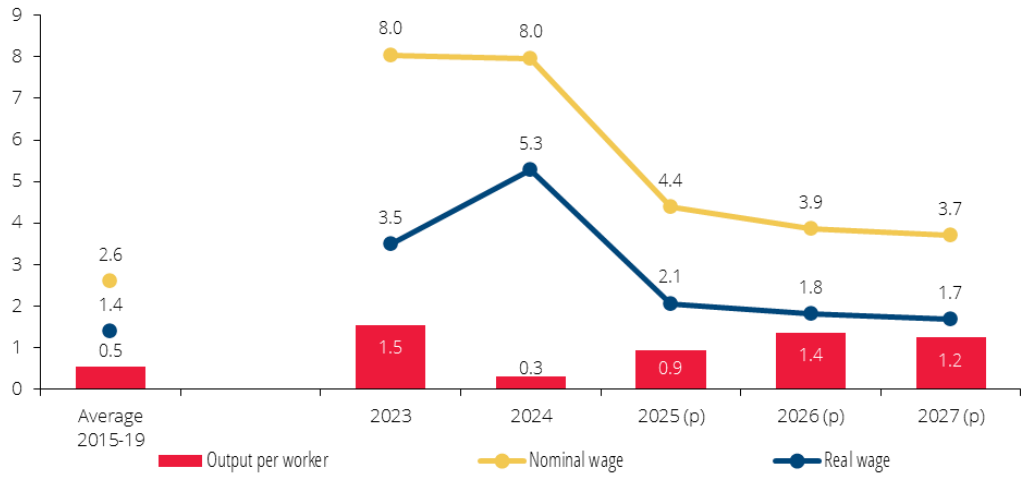
Sources: Banco de Portugal and Statistics Portugal. | Note: (p) – projected.

In the labour market, progressively smaller increases in employment and real wages are projected, as well as a stable unemployment rate (Table I.1.1 and Chart I.1.9). In 2024, employment grew by 1.6%, above the historical relationship with output growth. These developments were made possible by the rise in the participation rate and net immigration flows. The participation rate increased by 1.5 p.p. over the past two years, reaching 68.6% in 2024, considering the population aged 16 to 74. The average employment of foreign employees registered with Social Security increased by 22.6% in 2024, totalling 653 thousand (out of 3,985 thousand jobs). Average compensation per employee maintained high nominal growth (8.0%), helped by the increase in the minimum wage (7.9%) and a component of compensation for past inflation in wage negotiations. This led to an real gain of 5.3%. Over the projection horizon, employment growth is expected to be more in line with the historical relationship with GDP (1.3%, 0.7% and 0.4%). The projected deceleration in nominal wages in 2025 is corroborated by the indications from the ECB consumer survey and the ECB/EC survey to enterprises.[5]

[5] CES – Consumer Expectations Survey e SAFE – Survey on the access to finance of enterprises.

In 2026-27, real gains in the average wage are expected to be more contained, moving closer to the growth projected for output per employee (1.2% on average).

Chart I.1.9 • Average wage and output per worker | Rate of change in percentage



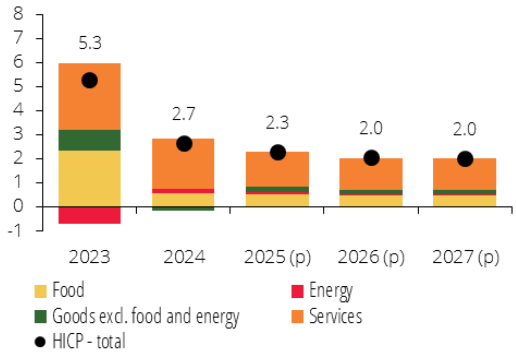
Sources: Banco de Portugal and Statistics Portugal. | Notes: (p) – projected. Wages per worker in real terms computed using the private consumption deflator.

In 2024, the decrease in inflation to 2.7% mainly reflected the behaviour of goods prices, while inflationary pressures in services remained elevated. Non-energy food and industrial goods prices eased – their contribution to total inflation fell from 3.2 p.p. to 0.4 p.p. –, offsetting an increase in the contribution of energy (from -0.7 p.p. to 0.2 p.p.) (Chart I.1.10). For food, evidence of online prices of large retailers shows that prices of cheaper products rose faster during the recent inflationary outbreak, but this process partially reversed in 2024 (Box 6: Behaviour of different food segment prices in e-commerce). The contribution of services prices to total inflation amounted to 2.1 p.p. (2.8 p.p. in the previous year). Regarding the main HICP components of services, the contribution of leisure and personal care services, and package holidays and accommodation services to total inflation decreased (from 2.0 p.p. to 1.1 p.p.), while that of the other services remained unchanged or increased. In the latter, persistence may partly reflect the lagged adjustment of prices of some items due to an indexation component, such as rents.

Inflation is projected to decline to 2.3% in 2025 and to 2% in 2026-27, benefiting from the slowdown in services prices (Chart I.1.10). The contribution of services is expected to fall to 1.5 p.p. in 2025 and 1.3 p.p. in 2026-27. The contribution from goods – particularly from the component excluding food and energy – is projected to increase in 2025 and decline in 2026, in line with the assumptions of recovery and subsequent deceleration in import prices.

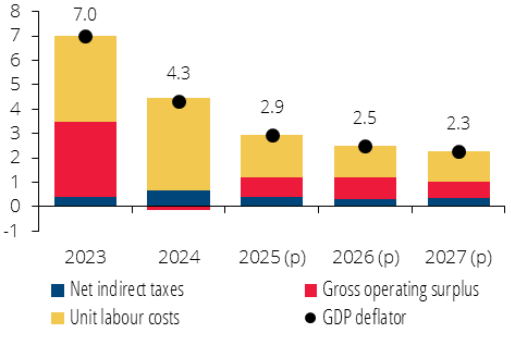
The GDP deflator, a proxy for pressures from wages and profit margins, rose 4.3% in 2024, after a 7.0% increase in 2023 (Chart I.1.11). This slowdown was the result of a decline in firms' gross operating surplus, while contribution of wages adjusted for productivity remained significant. In 2025-27, the lower contribution from labour costs is expected to lead to a slowdown in the GDP deflator.

Chart I.1.10 • HICP - total and main components | Annual rate of change in percentage and contributions in p.p.



Sources: Banco de Portugal and Statistics Portugal. | Note: (p) – projected.

Chart I.1.11 • Breakdown of the GDP deflator annual rate of change from an income perspective | Percentage and p.p.



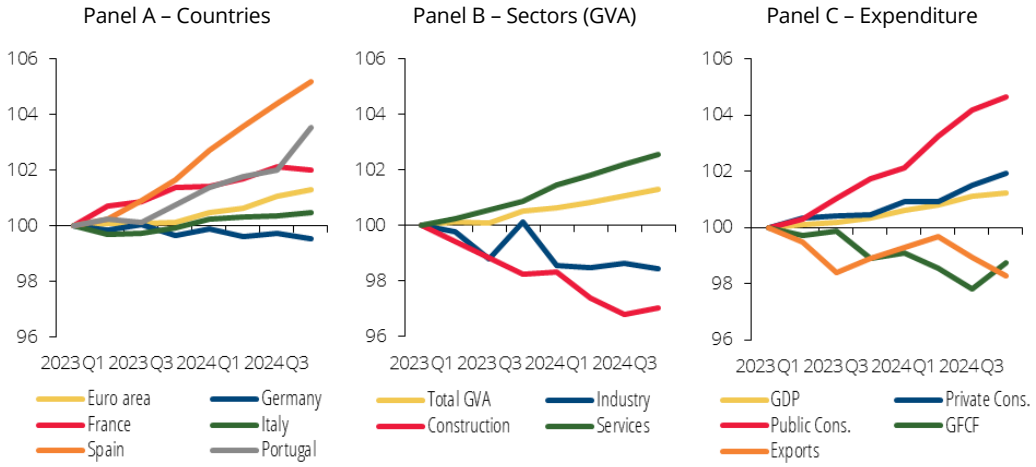
Sources: Banco de Portugal and Statistics Portugal. | Note: (p) – projected.

Box 1 • External environment, financing conditions and policies

According to the ECB's March 2025 macroeconomic projections, the global economy is projected to maintain robust growth until 2027, but there is high uncertainty regarding US trade policy and geopolitical tensions. Global GDP growth is expected to stand at around 3% between 2025 and 2027, with a slight downward revision compared to the December 2024 projection (Table B.1.1). Recent US announcements about increasing import tariffs and the possibility of retaliatory measures by trading partners have intensified the downside risks surrounding the projection.

The ECB's March projections point to the economy's gradual recovery in the euro area, albeit at a weaker pace than envisaged in December. In recent years, euro area growth has been characterised by disparities across countries, sectors and expenditure components (Chart B.1.1). Spain, France and Portugal's growth was above average, while growth in Italy and especially in Germany was weak. This dichotomy partly reflects the disparity that also exists across sectors, with services continuing to drive economic activity, while industry is still showing signs of weakness. As regards the expenditure components, the contribution of private and public consumption to growth has strengthened, in contrast to investment and exports, which continue to exert negative pressure. Over the projection horizon, the gradual recovery in GDP reflects an important contribution from private consumption but is also driven by a recovery in investment and the external sector. In annual average terms, euro area GDP is expected to grow by 0.9% in 2025, 1.2% in 2026 and 1.3% in 2027 (Table B.1.1).

Chart B1.1 • Euro area GDP decomposition | Index (2023 Q1 = 100)



Source: Eurostat (Banco de Portugal calculations). | Notes: The euro area expenditure components exclude Ireland, owing to large variations in some aggregates associated with the presence of multinational enterprises in Ireland. Data up to the fourth quarter of 2024.

Global trade accelerated in 2024 and is expected to grow slightly more than activity over the projection horizon. Global trade in goods and services is estimated to have grown by 3.4% in 2024 (0.4% in 2023) and is expected to continue to grow at a rate of 3.1% on average in 2025–27 (Table B1.1). Growth in external demand for Portuguese goods and services picked up in 2024 (growth of 1.4% after a fall of 0.5% in 2023) and is expected to continue growing less than global trade in 2025 (2.4%) as a result of lower relative buoyancy of the euro area, the main market for Portuguese exports. In 2026-27, it is expected that growth will be close to 3%, in line with that in global trade.

Euro area inflation was revised slightly upwards in 2025 and is projected to reach the target in early 2026. This revision reflects a larger increase in energy prices, associated with oil and gas

price developments, as well as a slight depreciation of the euro. The ECB's March projections point to a decline in inflation in the euro area, from 2.4% in 2024 to 2.3% in 2025, 1.9% in 2026 and 2.0% in 2027. The inflation measure excluding food and energy is expected to reduce to 2.2% in 2025, 2.0% in 2026 and 1.9% in 2027.

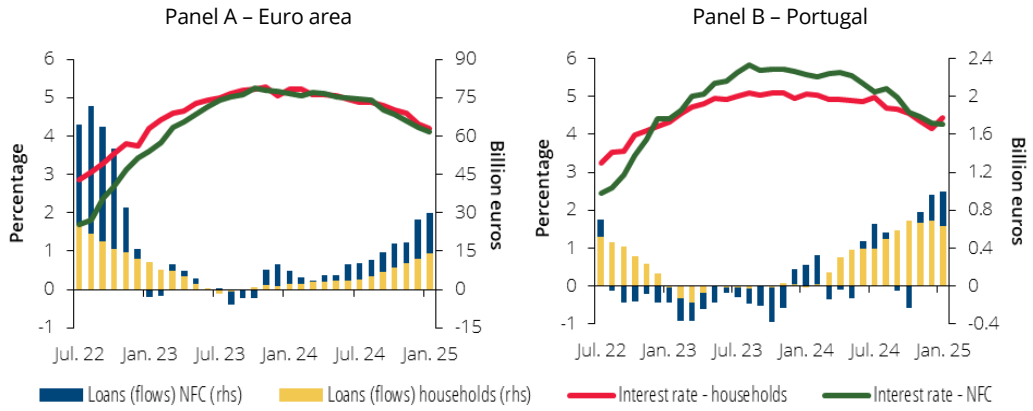
Table B1.1 • Eurosystem staff projection assumptions

		EB March 2025				Revisions from EB December 2024			
		2024	2025	2026	2027	2024	2025	2026	2027
International environment									
World GDP	yoy	3.1	3.1	3.0	3.0	0.0	-0.1	-0.1	0.0
Euro area GDP	yoy	0.8	0.9	1.2	1.3	0.1	-0.2	-0.2	0.0
World trade	yoy	3.4	3.2	3.1	3.1	0.4	-0.2	-0.2	-0.1
External demand	yoy	1.4	2.4	2.8	3.0	0.0	-0.5	-0.4	-0.1
International prices									
Oil prices	aav	75.8	71.8	67.5	66.1	0.3	4.3	1.5	0.9
Gas prices (MWh)	aav	34.4	50.2	40.4	31.7	0.1	7.4	5.4	2.4
Non-oil commodity prices	yoy	9.1	16.5	-1.3	-2.8	0.5	8.7	-0.9	-1.1
Competitors' import prices	yoy	0.3	2.7	2.4	2.1	0.1	0.5	0.0	-0.1
Monetary and financial conditions									
Short-term interest rate (3-month EURIBOR)	%	3.6	2.2	2.0	2.1	0.0	0.1	0.0	-0.1
Implicit interest rate in public debt	%	2.2	2.3	2.4	2.5	0.0	-0.1	-0.1	-0.1
Effective exchange rate index	yoy	1.9	-1.5	0.0	0.0	0.0	-0.9	0.0	0.0
Euro-dollar exchange rate	aav	1.08	1.04	1.04	1.04	0.0	-0.1	-0.1	-0.1

Sources: Banco de Portugal and Eurosystem (Banco de Portugal calculations). | Notes: yoy – year-on-year rate of change, % – in percentage, aav – annual average value, MWh – megawatt-hour. Technical and external environment assumptions, as well as projections for euro area GDP and inflation, coincide with those in the ECB projection exercise released on March 6 (see "Eurosystem staff macroeconomic projections for the euro area", march 2025), which include information up to February 10. International prices are in euros. The technical assumptions for the price of oil, gas and non-energy commodities is based on futures markets. The import price of competitors corresponds to a weighted average of the export deflators of the countries from which Portugal imports, weighted by their share on total Portuguese imports (for more information, see "Trade consistency in the context of the Eurosystem projection exercises: an overview", *ECB Occasional Paper* 108, March 2010). The evolution of the 3-month EURIBOR is based on expectations implied in futures contracts. The implicit interest rate on public debt is computed as the ratio of interest expenditure for the year to the simple average of the stock of debt at the end of the same year and at the end of the preceding year. An increase in the exchange rate corresponds to an appreciation of the euro. The effective exchange rate of the euro is computed against 41 trading partner countries. The technical assumption for bilateral exchange rates assumes that the average levels observed in the 10 business days prior to the cut-off date are maintained over the projection horizon.

The decline in ECB's key interest rates has eased financing costs for the private sector, favouring a slight recovery in bank lending in the euro area. Interest rates on new loans to households and firms have declined in the euro area, including in Portugal (Chart B1.2). Loan flows have recovered somewhat, amid a moderate increase in demand, especially from households, and relatively more favourable lending conditions. As activity recovers and credit conditions ease further, growth in bank loans is expected to accelerate. According to the assumptions of the exercise, the annual average of the three-month EURIBOR is expected to stand at 2.2% in 2025, 2.0% in 2026 and 2.1% in 2027 (Table B1.1). The implicit interest rate on Portuguese public debt is projected to increase gradually from 2.2% in 2024 to 2.5% in 2027. Compared with the December Economic Bulletin, the downward revision of the average interest rate on public debt over the projection horizon is the result of the stock of public debt in 2024 being higher than expected.

Chart B1.2 • Interest rates on new loans and loans to households and NFCs



Source: ECB (calculations by Banco de Portugal). | Notes: Emp. (flows) – monthly flows of bank loans adjusted for securitisation operations and net loan transfers, as well as notional cash pooling flows; loans to households (housing, consumption, and other purposes) and non-financial corporations (NFCs). Bank interest rates on new loans to households (average of interest rates on housing, consumption, and other purpose loans weighted by the respective loan volumes granted) and bank interest rates on new loans to NFCs. Data up to January 2025.

Box 2 • Impact of a scenario of higher tariffs on activity in Portugal

Empirical studies and model-based studies suggest that increasing custom duties on imports has a negative effect on economic activity both in the country imposing them and on countries affected by such trade barriers. These negative impacts are amplified by the existence of global value chains.

The full assessment of the impact of possible tariffs on Portuguese exports is complex and requires as-yet unavailable data. Nevertheless, working on the basis of estimates published by international institutions on the effects of tariffs on the euro area, a very simplified scenario can be constructed.[6] In this scenario, the tariffs imposed by the US particularly on goods imported from the European Union (EU) are expected to increase by 25 p.p., accompanied by retaliatory tariffs of a similar magnitude by the affected countries. According to the available results, these higher tariffs could result in a cumulative contraction of euro area GDP of between 0.5% and 0.7% after three years, with a more significant impact in the first year.

To estimate the effects on the Portuguese economy, the commonly used macroeconomic projection models, in particular the M model, were used, assuming the imposition of tariffs as of the second quarter of 2025.[7] Given that the weight of the US in Portuguese exports of goods (6.8%) is only slightly lower than the share in intra and extra-euro area trade (8.2%), the results obtained for Portugal are similar to those for the euro area. This means a reduction in GDP of close to 0.7% after three years, more concentrated in the first year.

[6] See, for example, the scenarios presented by the IMF (World Economic Outlook, October 2024) and the OECD (Interim Economic Outlook, March 2025) which incorporate 10 p.p. increases in US tariffs imposed on the EU.

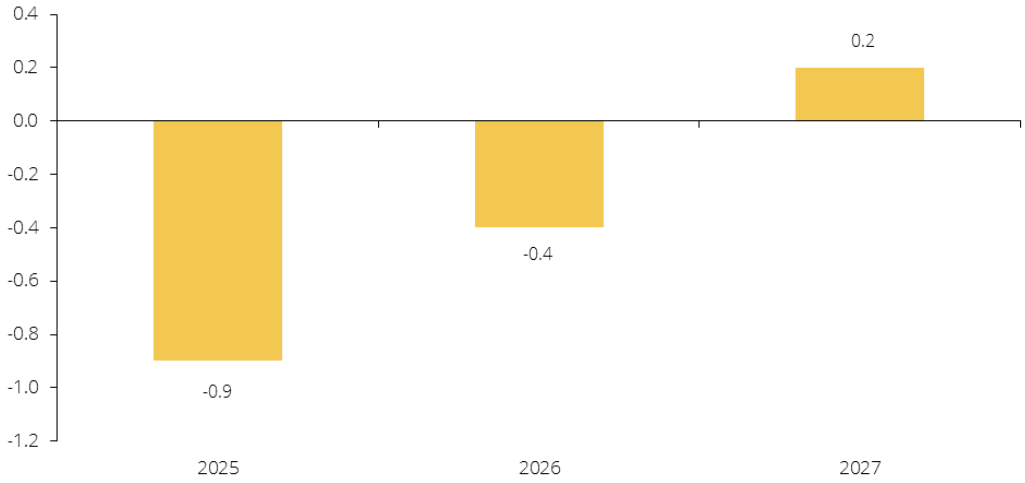
[7] Castro, G., and Duarte, C. (2023). "The M Model: a macroeconomic model for the Portuguese economy", *Banco de Portugal Economic Studies*, Vol. IX, No 2, 2023.

In addition to the direct effects of the imposition of tariffs, rising trade barriers create an environment of increased uncertainty, with negative repercussions on confidence among economic agents resulting from the unpredictability of future trade policies, their scale and duration, the possibility of retaliatory measures and induced volatility in production costs and goods prices. As a result, investment and private consumption often contract.

In this context, in addition to the direct effect of tariffs on activity in the Portuguese economy, an additional uncertainty and confidence shock was considered, with a negative effect on private consumption and investment. This shock was calibrated based on the results reported in Manteu and Serra (2017),[8] assuming a significant increase in uncertainty, albeit smaller than during the financial crisis and the COVID-19 pandemic.

The overall impact of the shocks considered points to a cumulative reduction in GDP of around 1.1% at the end of three years, with the effects concentrated in the first two years (Chart B2.1).

Chart B2.1 • Impact of the shock from the increase in tariffs and heightened uncertainty/reduced confidence on the annual rate of change in GDP | Differences compared to the annual rate of change in the baseline scenario in p.p.



Source: Banco de Portugal.

[8] Manteu, C., and Serra, S. (2017). "Impact of uncertainty measures on the Portuguese economy", *Banco de Portugal Economic Studies*, Vol. III, No 2, 2017.

Box 3 • Outlook for potential output developments

Potential output is a theoretical construction associated with the latent – unobservable – production capacity of an economy. This box follows the approach of considering potential output as a measure of potential supply, reflecting the level of output at full employment, which does not generate excessive inflationary pressures.

This approach uses the production function method by identifying labour supply and capital stock as inputs, as well as the efficiency with which these inputs can be combined, i.e. factor productivity. Labour supply corresponds to the product of the number of workers and the number of hours that each worker is willing to work. Labour supply depends on the size of the population, the share of the population willing to actively participate in the labour market, known as the participation rate, and the equilibrium unemployment rate, compatible with full employment and the stabilisation of wage growth. This supply is called potential because it incorporates the potential value of the participation rate and hours per worker, as well as the equilibrium unemployment rate. The total capital stock reflects the accumulation of investment over time, less depreciation. The potential factor productivity includes several interconnected elements difficult to disentangle, such as technological progress, human capital and the operation of institutions.

The literature considers other concepts and a plethora of estimation methods, which produce estimates with occasionally different values, as illustrated in Chart B3.1 (Banco de Portugal, 2017).[9] However, model uncertainty has a smaller impact on estimates of potential growth than on its level and output gap estimates (Duarte, Maria and Sazedj, 2020).[10]

Over the next ten years, average potential growth of 1.4% is expected (Chart B3.2). As in the last decade, this growth is dominated by the 1 p.p. contribution from potential factor productivity.

Potential labour supply is expected to contribute 0.1 p.p. to potential growth, resisting the negative pressure from the natural balance (Chart B3.3). The working age population is projected to be roughly stable on average over the next decade, with net inflows of immigrants offsetting the negative natural balance and population ageing. In addition, the share of the population willing to actively participate in the labour market is expected to continue to rise, reflecting the increase in the retirement age, the continued trend of increasing female participation and positive composition effects – an increase in the share of immigrant workers and higher-skilled workers, whose labour market participation is above average. The equilibrium unemployment rate makes a roughly zero contribution to potential growth, not being expected to vary significantly.

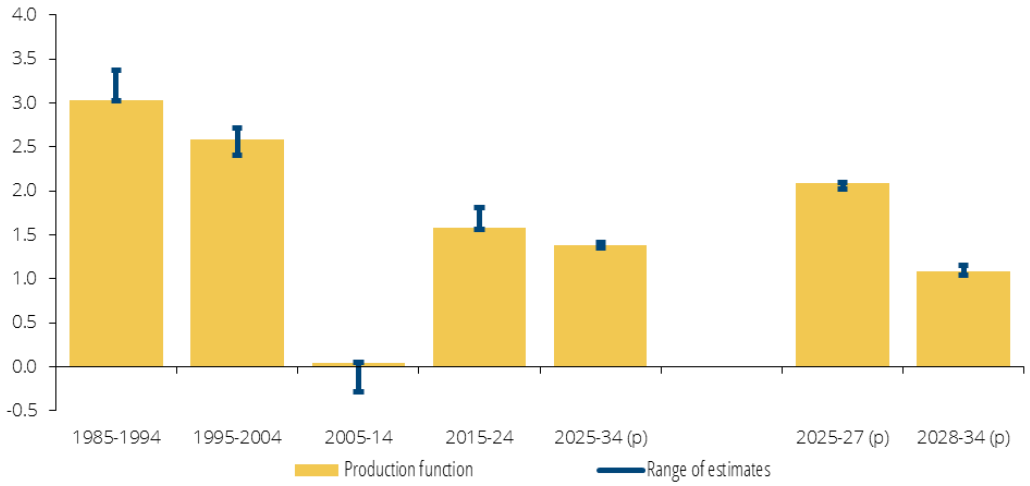
The capital stock is expected to contribute 0.3 p.p. to potential growth over the next decade. This contribution benefits from the implementation of the Recovery and Resilience Plan (RRP) projects, exceeding that of the last two decades (0.1 p.p. and -0.1 p.p. respectively).[11] However, this momentum falls short of that observed in the period 1985-2004 (1.4 p.p. on average) and is insufficient to counter the lower capital deepening compared to the euro area (see Box 4 – Capital stock excluding dwellings in the Portuguese economy).

[9] Banco de Portugal (2017). "Potential output: challenges and uncertainties", Special issue of the *Economic Bulletin* of the Banco de Portugal, December 2017.

[10] Duarte, C., Maria, J. R., and Sazedj, S. (2020). "Trends and cycles under changing economic conditions", *Economic Modelling*, 92, 126-146.

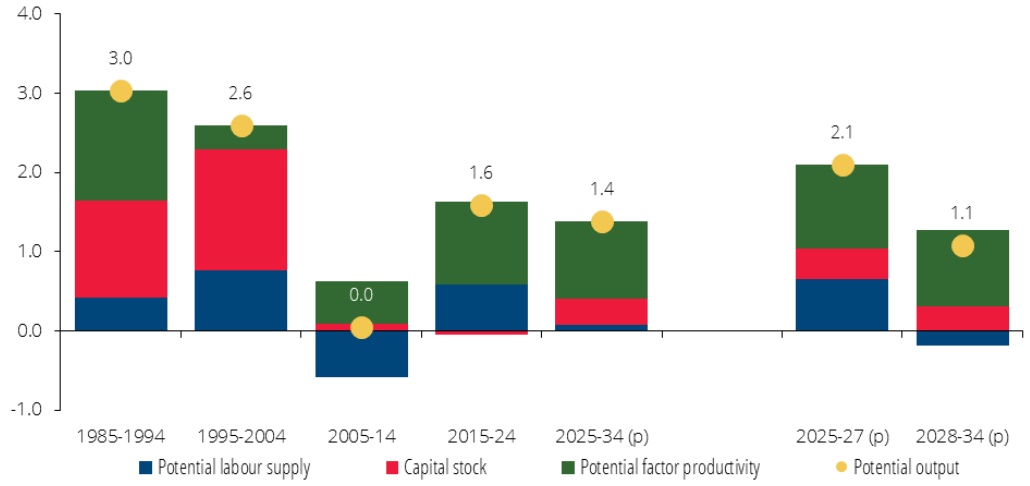
[11] Banco de Portugal (2022). "NextGenerationEU in Portugal: opportunities and challenges", Special issue of the *Economic Bulletin* of the Banco de Portugal, June 2022.

Chart B3.1 • Potential growth: impact of alternative methods | Average annual percentage rate of change



Source: Banco de Portugal. | Notes: (p) – projected. The period 2025-27 corresponds to the projection horizon presented in this Bulletin. The range of estimates represents the maximum and minimum values obtained with five alternative methods: statistical filters, such as the Hodrick-Prescott filter, Baxter-King, and Christiano-Fitzgerald; the production function method, based on the Cobb-Douglas function; and an unobserved components model described in Duarte, Maria and Sazedj (2020).

Chart B3.2 • Potential growth and main contributions | Average annual percentage rate of change and percentage point contributions



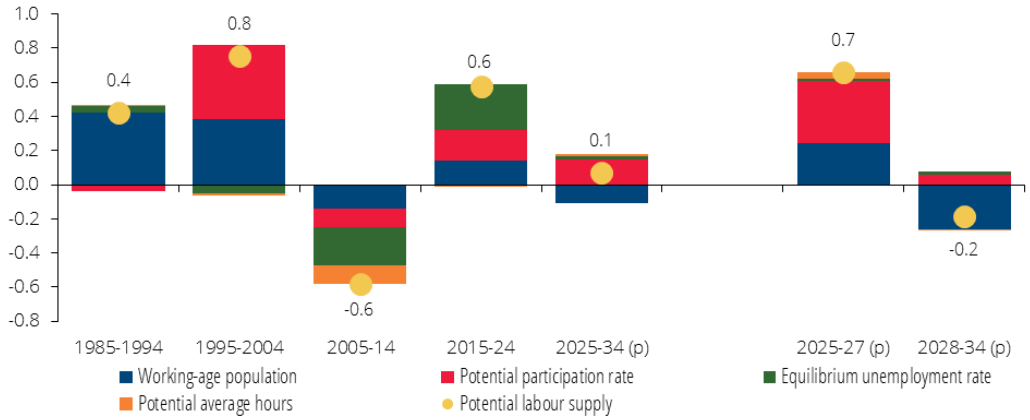
Sources: Banco de Portugal and Statistics Portugal. | Notes: (p) – projected. The period 2025-27 corresponds to the projection horizon presented in this Bulletin. Potential growth is broken down on the basis of a Cobb-Douglas production function.

Potential factor productivity is expected to grow at an average annual rate of 1%, close to the historical average and the figures posted in the last decade (Chart B3.2). Over the past ten years, the Portuguese economy has undergone a number of favourable transformations. Firms have proved to be more competitive, resulting in export market share gains. Public and private indebtedness have been declining, reflecting continued financial and fiscal discipline. Digitalisation has been stepped up. More jobs have been created in high and medium-tech industries and knowledge-intensive services, in tandem with gradual improvements in the population's skills. Projections for factor productivity growth over the next decade consider that these paths will be maintained, and that productivity growth remains constant in the long run – the classical growth assumption.

Potential growth is expected to decelerate over the next ten years, with potential labour supply contributing the most to this profile (Charts B3.2 and B3.3). Portugal is part of the growing group of countries that is expected to experience a decrease in an already ageing population (United Nations, 2022).[12] The continuation of these trends, as well as their geographical expansion, is projected to limit the scope for mitigating their impact on the labour market. A gradual reduction in immigrant inflows is anticipated, after record highs in 2024-26. Also, the increase in the potential participation rate is assumed to be progressively smaller. This exercise assumes that potential average hours will converge to a constant level, equal to the latest observed value. Alternatively, it could be assumed that average hours worked would continue to follow a downward trend, as has been the case in most European countries (Astinova et al., 2024).[13] The continuation of this trend may reinforce the deceleration in potential growth, if not accompanied by an increase in productivity.

The capital stock and potential factor productivity will also decelerate over the next ten years, albeit less markedly than labour. These developments reflect the end of the investment projects associated with the RRP, as well as the unwinding of temporary factors with an impact on potential output, associated with the post-pandemic recovery.

Chart B3.3 • Breakdown of the contribution of potential labour supply to potential growth
| Percentage points



Sources: Banco de Portugal and Statistics Portugal. | Notes: (p) – projected. The period 2025-27 corresponds to the projection horizon presented in this Bulletin. Potential labour supply (L) is broken down on the basis of the following equality: L = P x A x (1 – D) x H, where P corresponds to the working age population (aged 16-74), A is the potential participation rate, D is the equilibrium unemployment rate and H represents potential average hours. The working age population corresponds to the series underlying the Demographic Statistics released by Statistics Portugal. The contribution of the working age population includes a scaling factor reflecting relative developments in the working age population in the Demographic Statistics compared with that of the Labour Force Survey. The participation rate and potential average hours are obtained by applying the Hodrick-Prescott filter to the original series. For average hours, the filter is adjusted to deal with the impact of the COVID-19 pandemic on this variable. The equilibrium unemployment rate follows the methodology described in Duarte, Maria and Sazedj (2020). The contribution from the participation rate includes a scaling factor that makes it possible to convert employment in relation to the concept in the Labour Force Survey into that of National Accounts.

Potential output growth per working age individual is expected to remain at 1.5% at the end of the projection horizon. This growth is similar to the average over the period 1985-2024. Potential output growth per capita will converge to 1.1%, i.e. 0.5 p.p. below its historical average. Differentiated growth of these two ratios over the projection horizon reflects a reduction in the share of the working age population in the total population, due to ageing, with an average 2.7% increase per year in the old-age dependency ratio.

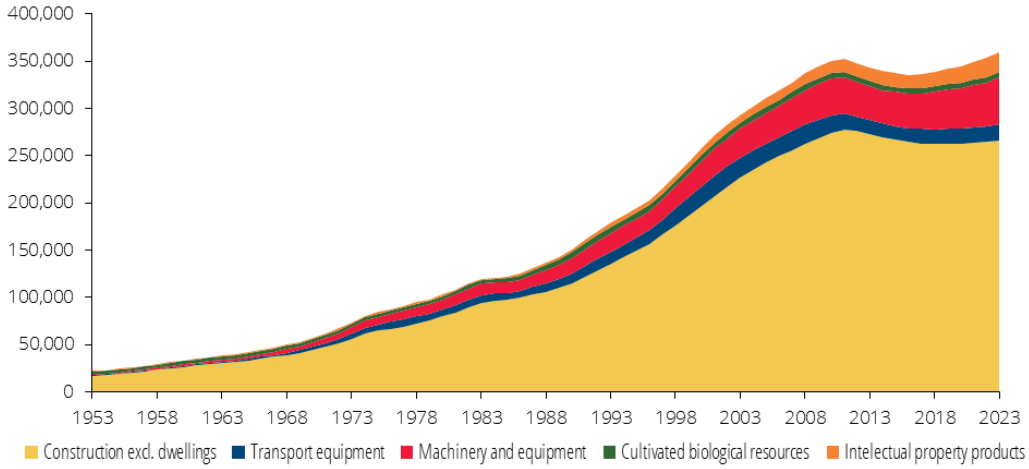
[12] United Nations, Department of Economic and Social Affairs, Population Division (2022). "World Population Prospects 2022: Ten Key Messages."

[13] Astinova, D., Duval, R., Hansen, N., Park, B., Shibata, I., and Toscani, F. (2024). "Dissecting the Decline in Average Hours Worked in Europe", *International Monetary Fund Working Paper*, 2024/002.

Box 4 • Capital stock excluding dwellings in the Portuguese economy

In Portugal, capital stock excluding dwellings – assets mainly owned by households, not directly contributing to the production process – decreased during the sovereign debt crisis but recovered subsequently (Chart B4.1).[14] Between 2015 and 2023, capital stock excluding dwellings increased by 7.3% (equivalent to 0.8% per year), with particular emphasis on developments in the stock of machinery and equipment, and intellectual property products (Chart B4.2). The stock of intellectual property products has been growing significantly, with its share in the total excluding dwellings rising from 2.7% in 2000 to 5.8% in 2023. This result, despite not standing out among EU countries, is a remarkable achievement for a country that seeks to converge economically with more economically developed countries and should not be dissociated from an increase in the skills of the labour force and the continuing openness of the Portuguese economy. Investment in intellectual property products is particularly relevant given its links to innovation processes and R&D results.

Chart B4.1 • Capital stock excluding dwellings by asset, in real terms | EUR millions



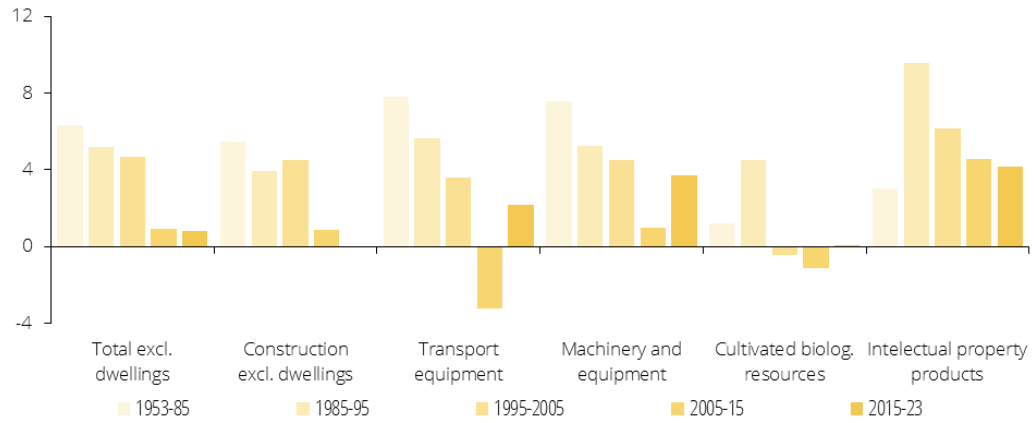
Source: Statistics Portugal (Long time series for the Portuguese economy). | Note: Chain linked volumes (2020).

Portugal is part of the group of EU countries with the lowest capital stock excluding dwellings, as a percentage of GDP – similar, for instance, to Germany and Belgium. This result was relatively stable from 2000 to 2021 (Chart B4.3 – Panel A). By asset, Portugal is in a comparatively less favourable position regarding the stock of machinery and transport equipment, and intellectual property products, while in terms of construction excluding dwellings it is close to the median.

In the period under review, Portugal is also among the countries with lower capital deepening, i.e. with lower capital per worker (Chart B4.3 – Panel B). The relative stagnation of this ratio in Portugal since the end of the sovereign debt crisis reflects an insufficient recovery in investment to keep up with the momentum in employment.

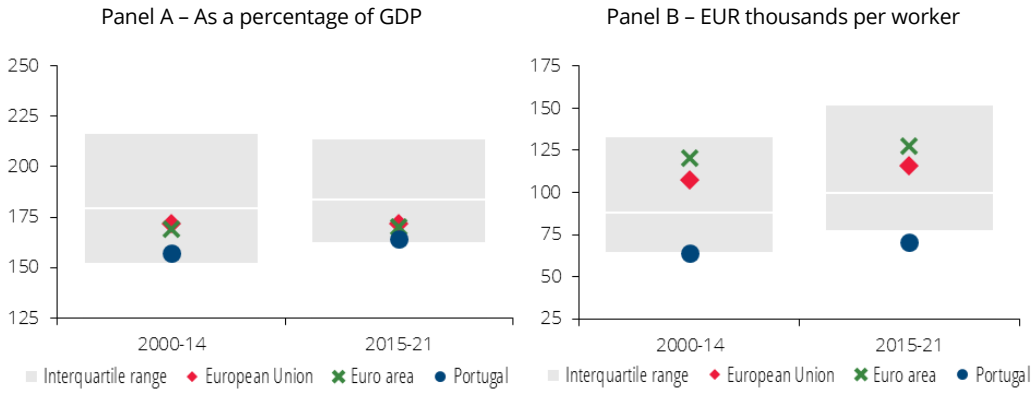
[14] The capital stock results from the accumulation of investment flows, taking into account the average service life of the asset and its depreciation and retirement rate.

Chart B4.2 • Capital stock excluding dwellings in Portugal | Average annual percentage rate of change



Source: Statistics Portugal (Long time series for the Portuguese economy). | Note: Chain linked volumes (2020).

Chart B4.3 • Comparison of capital stock excluding dwellings in Portugal in relation to the EU | Average over the period



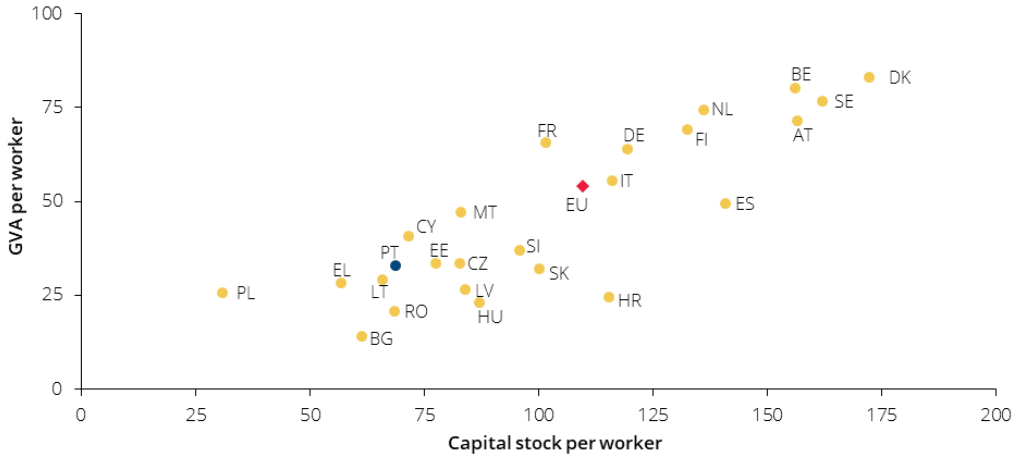
Source: Eurostat. | Notes: Chain linked volumes (2020). The period from 2000 to 2021 corresponds to the sample common to all EU countries. The interquartile range represents how extensively capital stock data excluding dwellings is distributed (as a percentage of GDP and per worker) across the EU between the first and third quartiles (25th and 75th percentiles respectively).

In simplified terms, classical economic growth theory suggests that output per worker depends on the capital stock available for each worker and on total factor productivity. The positive relationship between capital per worker and GVA per worker is evident across EU countries (Chart B4.4).[15] Portugal is among the countries with lower capital deepening and lower productivity per worker. Nevertheless, its productivity exceeds that in countries with similar capital per worker.

[15] In the first part of this box, the analysis excludes the capital stock in dwellings, mainly owned by households. Similarly, real estate activities are excluded hereinafter.

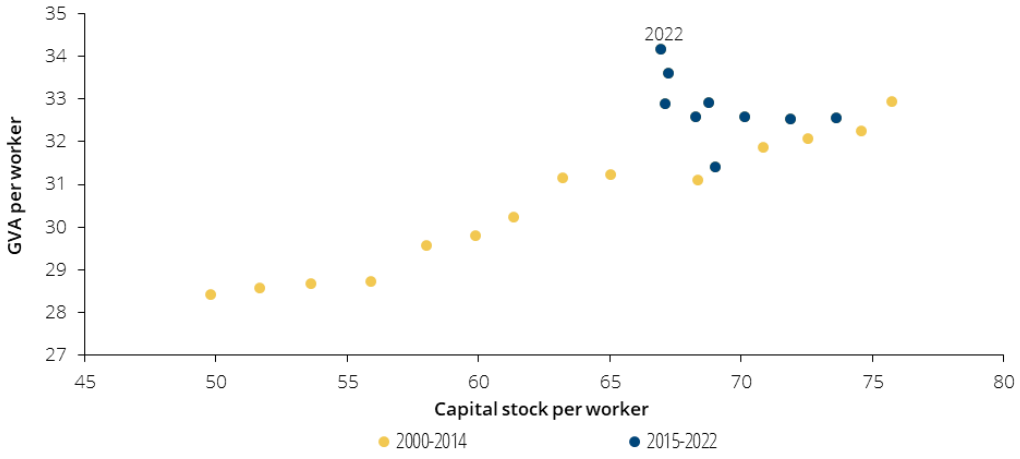
In Portugal, a positive historical relationship between capital per worker and GVA per worker is evident (Chart B4.5). Since 2014, this relationship has no longer been noticeable, implying that the GVA per worker growth observed in this period is associated with progress in total factor productivity. Increased efficiency in the use of inputs seems to have played a particularly important role in sectors such as Information and communication activities and Financial and insurance activities, where capital stock per worker declined significantly between 2014 and 2022, but GVA per worker posted more muted changes (Table B4.1).

Chart B4.4 • Capital deepening and labour productivity in the EU, 2015-21 average | EUR thousands



Source: Eurostat. | Notes: GVA, employment and capital stock for the total economy excluding real estate activities. Chain linked volumes (2020). For scaling reasons, Luxembourg (capital stock per worker of 204.8 and GVA per worker of 121.4) and Ireland (317.5 and 134.7) are not represented in the chart.

Chart B4.5 • Capital deepening and labour productivity in Portugal | EUR thousands



Source: Eurostat. | Notes: GVA, employment and capital stock for the total economy excluding real estate activities. Chain linked volumes (2020).

Excluding financial and insurance activities, capital deepening by sector of activity in Portugal is below the EU average, as well as the respective values for GVA per worker (Table B4.1). Negative deviations from the EU average are substantial for some sectors, suggesting there is some room for investment to support higher output per worker growth.

Bringing GVA per worker in Portugal closer to the EU average is a major challenge in a context where the Portuguese economy aims to reach average European income levels. Capital accumulation, in particular through increased investment in tradable sectors, contributes to this process.

Table B4.1 • Capital deepening and labour productivity in Portugal, by sector of activity | EUR thousands, per cent and index

	Level, in 2022		Change between 2014 and 2022		Average 2015-21, EU=100 in each sector	
	Capital stock per worker	GVA per worker	Capital stock per worker	GVA per worker	Capital stock per worker	GVA per worker
Total excluding real estate activities	**67.0**	**34.2**	**-9.0**	**4.9**	**62.8**	**60.4**
Agriculture, forestry and fishing	37.8	13.8	61.6	50.1	33.9	54.4
Industry and energy	121.1	40.8	2.6	4.3	65.4	54.5
Construction	25.5	24.6	-24.7	-5.2	39.8	49.9
Trade, transportation, accommodation and food services	59.2	35.4	-0.4	0.9	67.0	72.1
Information and communication	107.2	65.0	-40.8	-12.1	91.5	67.3
Financial and insurance activities	130.9	124.3	-35.1	18.1	115.7	90.7
Consultancy and support service activities	26.4	26.7	12.1	9.4	36.2	43.9
Public administration, education and health	83.9	34.5	-25.6	-3.6	75.2	70.9
Entertainment and other services	25.7	18.5	12.4	5.4	38.5	53.5

Source: Eurostat. | Note: Chain linked volumes (2020).

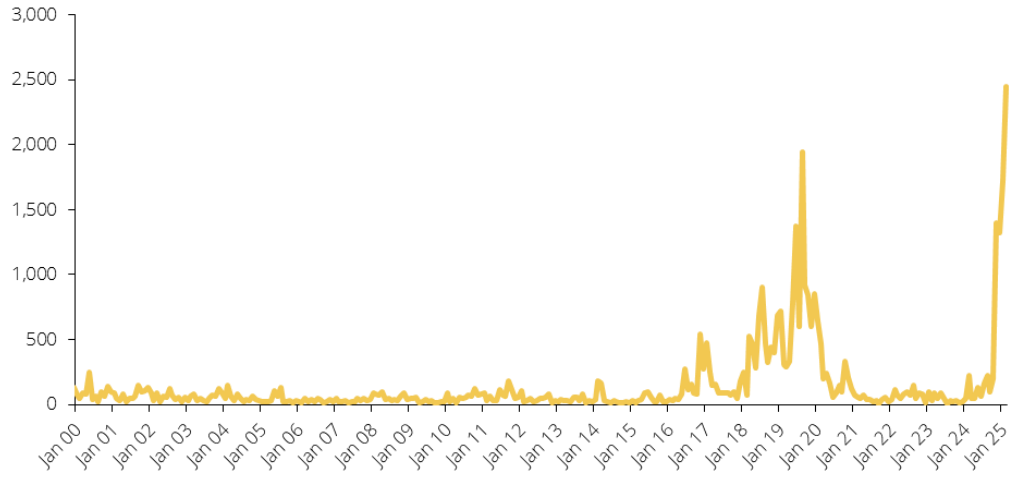
Box 5 • Average effective tariff and exposure of Portuguese exports to the US market

The new US Administration's trade policy stance raises barriers to the entry of goods into the country. One of the announced measures is the increase in tariffs on goods imports. Considerable uncertainty surrounds the timing of implementation, intensity, geographical coverage and the types of goods that may be affected (Chart B5.1). In this context, it is relevant to know the level and scope of the tariffs currently in force, as well as to measure the degree of exposure of the Portuguese economy and firms to the US market. Note that there are also wide-ranging non-tariff barriers, whose intensity and impact is nonetheless difficult to assess.[16]

The United States is Portugal's main extra-EU trading partner. The share of goods exports to the US accounted for 2% of GDP in 2023. This puts Portugal in an intermediate position among EU countries (Chart B5.2). The share of Portuguese exports of services to the US is also important, accounting for 1.8% of GDP in 2023, but by their nature these exports are not directly affected by tariff barriers. Collecting tariffs involves checking the transit of goods at the border, controlling for their origin, quantity and declared value, but in the case of services such physical control is not viable. However, there may be non-tariff barriers having an effect on services exports, e.g. as a result of support received by foreign firms selling in the same market.

[16] For an analysis of non-tariff barriers to Portuguese international trade, see the Special issue "Portuguese international trade and the fragmentation of the global economy", *Economic Bulletin*, December 2024.

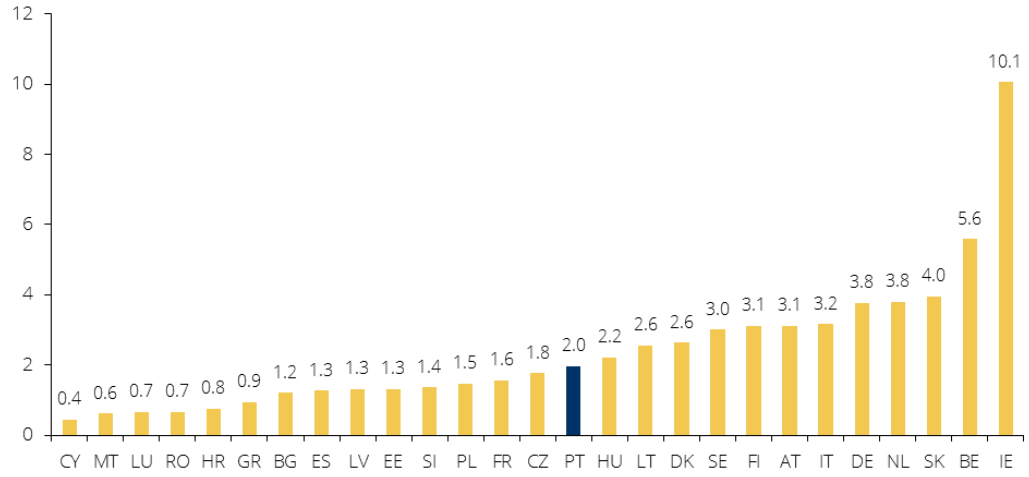
Chart B5.1 • Uncertainty about US trade policy | Index



Source: Baker, Bloom and Davis, "Measuring Economic Policy Uncertainty" in www.PolicyUncertainty.com. | Note: 1985-2010=100.

The EU operates as a customs union, with common tariffs for imports and the free movement of goods within the EU, one of the four freedoms that work as pillars of the European Common Market. In turn, the tariff barriers imposed on EU countries' exports to the US market vary according to the basket of exported goods and the rates applied to the country-product pairs. Thus, the average effective rate of Portuguese exports to the US is the result of the customs tariff applied by the US to each domestic good, weighted by the share of that good in the export basket to that destination. The average effective rate on Portuguese exports to the US hovered around 4% until 2015, with a reduction to levels close to 3.5% after 2016 and a steeper reduction more recently (Chart B5.3).[17]

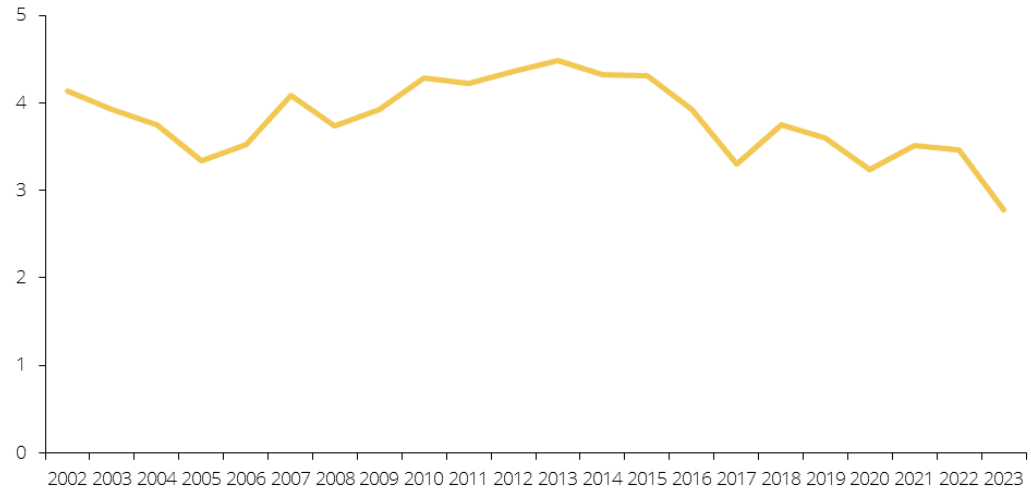
Chart B5.2 • Share of goods exports to the US on GDP in 2023 | Per cent



Source: Eurostat.

[17] For an analysis of average effective tariffs on Portuguese extra-EU trade, see the Special issue "Portuguese international trade and the fragmentation of the global economy", *Economic Bulletin*, December 2024.

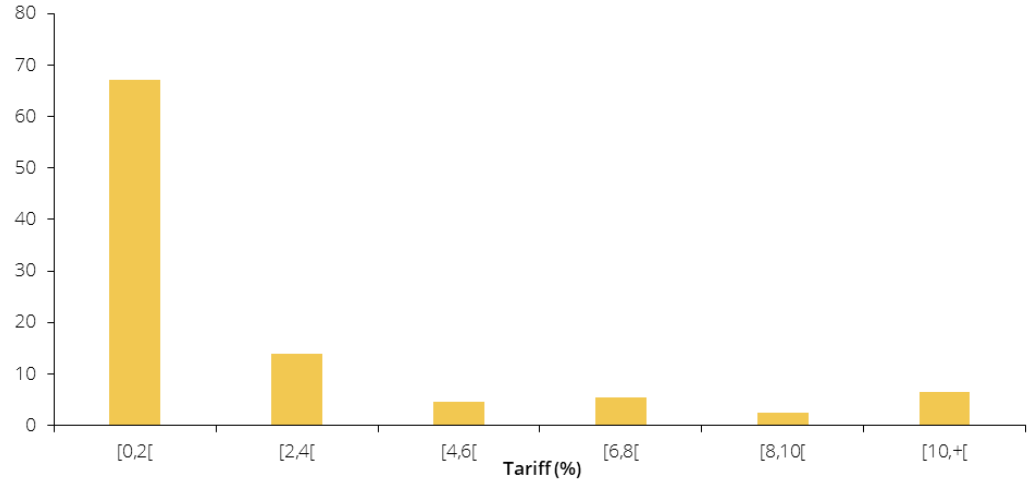
Chart B5.3 • Average effective tariff on Portuguese exports to the US | Per cent



Source: WITS. | Note: The average effective tariff is the customs rate applied to each good, weighted by the share of that good in the export basket.

Considering the two-digit classification of the Combined Nomenclature of International Trade that considers 97 chapters of goods, close to 70% of the value of goods exported by Portugal to the US face tariffs of between zero and 2%. However, 6% of the value of exports is affected by tariffs at or above 10% (Chart B5.4). The impact on Portuguese exports of a possible increase in US tariffs will depend on factors such as the magnitude of the increase in tariffs on each type of good and their weight in Portugal's exports to the US market. The reaction of exporting firms will also determine the impact of the new tariffs in a dynamic environment where new markets are sought, and where there are changes in consumers' income levels and in the relative prices of internationally traded goods. The expected reduction in overall consumer income will reduce exports, but retaliatory tariffs on US goods by some countries may favour the competitive capacity of domestic goods in those markets. Increased competition in a smaller global market (without the US) will increase the challenges for (Portuguese) firms.

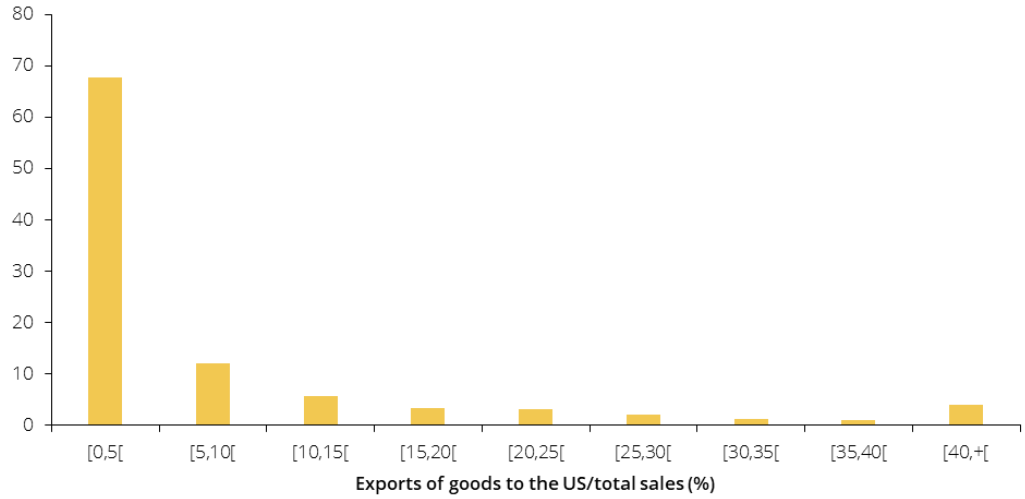
Chart B5.4 • Portuguese exports to the US, by value of the average effective tariff in 2023 (two-digit products in the Combined Nomenclature) | Per cent



Sources: WITS and Banco de Portugal calculations. | Note: Weighted distribution by share of individual goods' exports.

Detailed information on international trade transactions can be merged with each firm's value of sales to assess its degree of exposure to the US market and to identify which sectors may be most affected. Considering the universe of manufacturing firms exporting to the US market, 70% steer up to 5% of total sales to the US market, while 12% steer between 5% and 10% of sales to the US. At the other end of the spectrum, less than 4% of firms exporting to the US depend on this destination for more than 40% of their total sales (Chart B5.5).

Chart B5.5 • Exporting firms to the US, by share of this market in total sales in 2023 | Per cent



Sources: Statistics Portugal and Banco de Portugal calculations. | Note: Manufacturing firms that export to the US are considered.

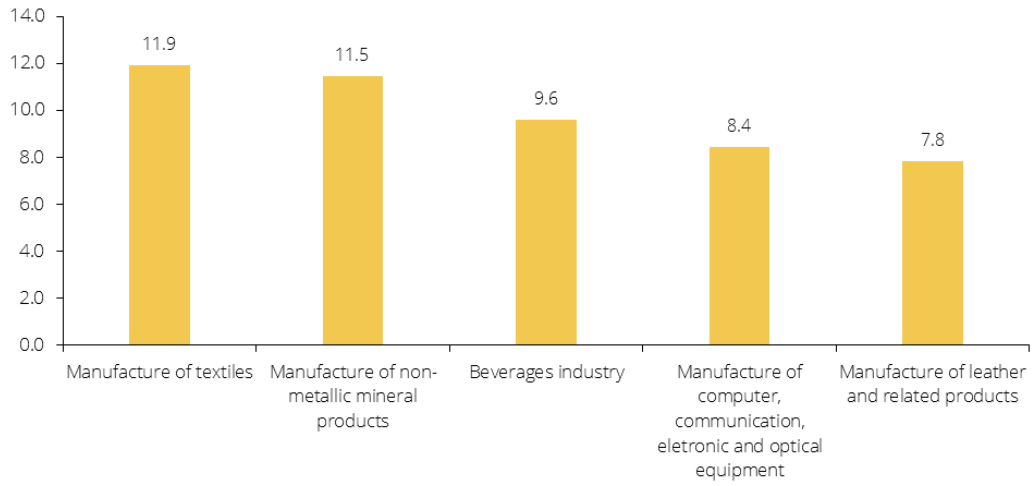
Assuming that a firm is highly exposed to the US market if the share of its exports to this destination is above a threshold of 10% of total sales, it is possible to calculate the percentage of firms in each manufacturing sector that is in this situation. Selecting the five sectors with the highest exposure under this criterion, in 2023, 12% of exporters in the manufacture of textiles and the manufacture of non-metallic mineral products (which includes glass, ceramic products and cement) had a high exposure to the US market (Chart B5.6). The manufacture of beverages, the manufacture of computer, communication, electronic and optical equipment, and the manufacture of leather and related products also had a significant share of firms highly exposed to the US market.

In practice, with the imposition of tariffs, US consumers will experience an increase in the price of goods and will consequently reduce the demand volume. Exporting firms will be able to mitigate this effect by reducing their selling prices, thus compressing their profit margins. In the case of multinational companies, another response strategy may be the creation of productive capacity in the US. However, despite the reduction in transportation costs all the way to the final consumer, the relocation of production implies a change in the cost structure that may not be compatible with the take-up of comparative advantages, thereby rendering this option unfeasible. Note that firms may also be affected indirectly, either by changes in their competitors' prices in the various markets or through changes in supply chains and production costs. However, these indirect effects are very difficult to assess.

The effects of tariff changes, which can be amplified by retaliatory measures, will be negative for exports and the aggregate welfare of economies. Portugal, like most other economies, has structurally benefited from international trade. The internationalisation of Portuguese firms and the market share gains observed in the past two decades have contributed to GDP growth, amid the maintenance of macroeconomic balances. The degree of openness of the Portuguese economy, as measured by the

sum of exports and imports as a percentage of GDP in real terms, increased by 37.3 p.p. between 2004 and 2024, the goods and services account balance improved by 10.1 p.p. in that period, while the cumulative gain in the market share of exports in real terms was 28.2 p.p. Although Portugal's external trade is dominated by the EU market, where there are no tariff barriers, the implementation of new protectionist measures by the US and the worsening of global trade barriers poses a considerable risk and will require firms and public policies to adapt.

Chart B5.6 • Firms highly exposed to the US market in 2023 | As a percentage of the sector's exporting firms



Sources: Statistics Portugal and Banco de Portugal calculations. | Notes: Manufacturing firms exporting to the US. Highly exposed: exports of goods to the US account for more than 10% of the value of sales (domestic and foreign). In 2023, exports of highly exposed firms accounted for 76%, 82%, 34%, 75% and 69% respectively of total exports to the US of each of the five sectors represented in the chart.

Box 6 • Behaviour of different food segment prices in e-commerce

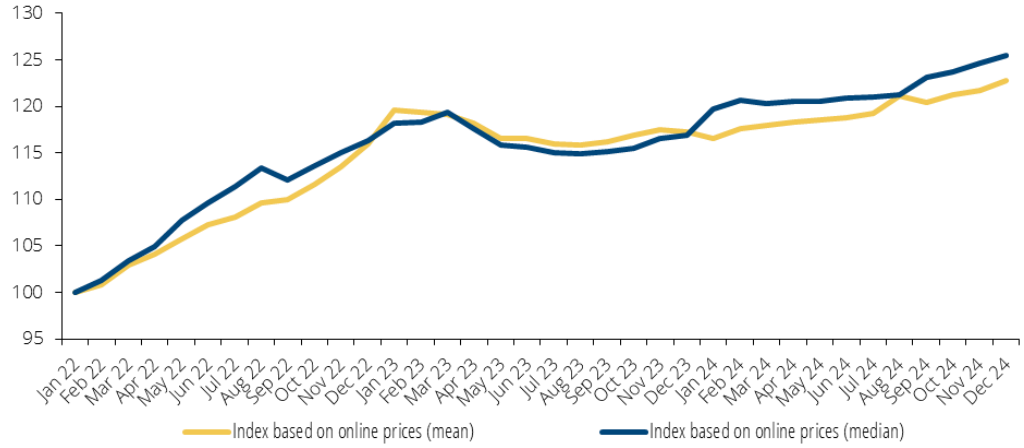
The behaviour of different product segment prices reflects the evolution of the respective markets, which may also be influenced by global dynamics. Recent studies in other countries[18] have identified stronger growth in prices of lower-end goods. Identifying this is important, as lower-income consumers, who tend to buy the cheapest versions, are more affected.

This analysis uses information that the Banco de Portugal collects on prices on the e-commerce platforms of large domestic food retailers on a daily basis. This collection is carried out using web scraping methods and covers the prices of all products available for online sale, making it possible to identify the distribution of prices in each category and at each point in time. This type of analysis differs from that used for the calculation of consumer price indices that do not discriminate between segments.

[18] See, for example, T. Chen, P. Levell and M. O'Connell (2024), "Cheapflation and the rise of inflation inequality", *IFS working paper* 24/36; A. Cavallo and O. Kryvtsov (2024), "Price discounts and cheapflation during the post-pandemic inflation surge", *Journal of Monetary Economics*, Vol. 148, Supplement, November 2024.

Data collected for food and beverages cover the period from August 2021 to December 2024. The information allows the calculation of average and median prices for each classification category, which may be aggregated to produce an online selling price index (Chart B6.1).

Chart B6.1 • Index based on online prices - Food and non-alcoholic beverages | Index january 2022 = 100



Sources: Banco de Portugal and Statistics Portugal. | Note: The index based on online prices is obtained by aggregating the mean/median of the prices of goods collected online, classified by ECOICOP category, using the respective category weights in the CPI as weighting factors.

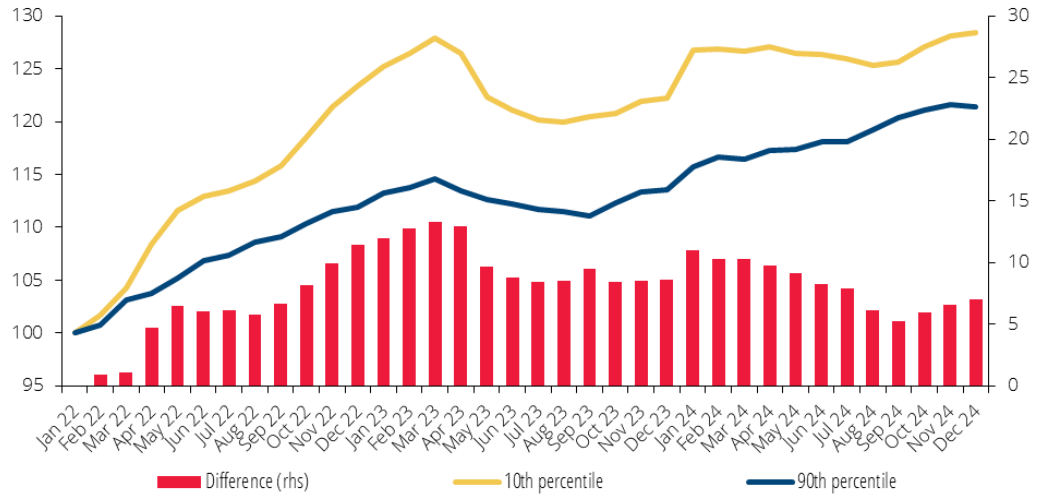
At each point in time, considering the entire offer of retailers, the price per unit of low-end products in a given category is defined by the 10th percentile of the price distribution of that category, while the price per unit of high-end products corresponds to the 90th percentile of the distribution. The analysis consists of comparing the price developments in these percentiles.

As in other countries, Portugal experienced faster growth in the price of low-end food products compared to high-end, albeit for a limited period (Chart B6.2). This divergence increased between January 2022 and March 2023, and was partially reversed thereafter. Note that the evolution of the various indices between 18 April 2023 and 4 January 2024 was affected by the temporary VAT exemption for 46 foods considered essential. Compared with the base month of January 2022, the difference between the indices for the 10th percentile and the 90th percentile was 7.0 p.p. in December 2024, after peaking at 13.3 p.p. in March 2023.

The higher price growth for the cheapest products did not occur equally in all categories within food and non-alcoholic beverages. These differing developments may be associated with multiple factors, such as developments in the products' cost of production, their scarcity in the market, the sensitivity to changes in prices of the quantity sought or the pricing strategies of individual retailers. Chart B6.3 illustrates the difference between the changes in the prices of the 10th percentile and the 90th percentile for five selected product categories. With the exception of the "Fruit" category, which has a wide variety of products and whose prices experience significant seasonal fluctuations, the differences between the 10th and 90th percentile indices were positive and grew until the end of 2022 in the cases of "milk, cheese and eggs" and "Bread and cereals", while for "Meat and fish" the increase lasted until the end of the first quarter of 2023. Thereafter the spreads decreased, although they remained positive, with an increase at the end of 2024 in the "Meat and fish" category.

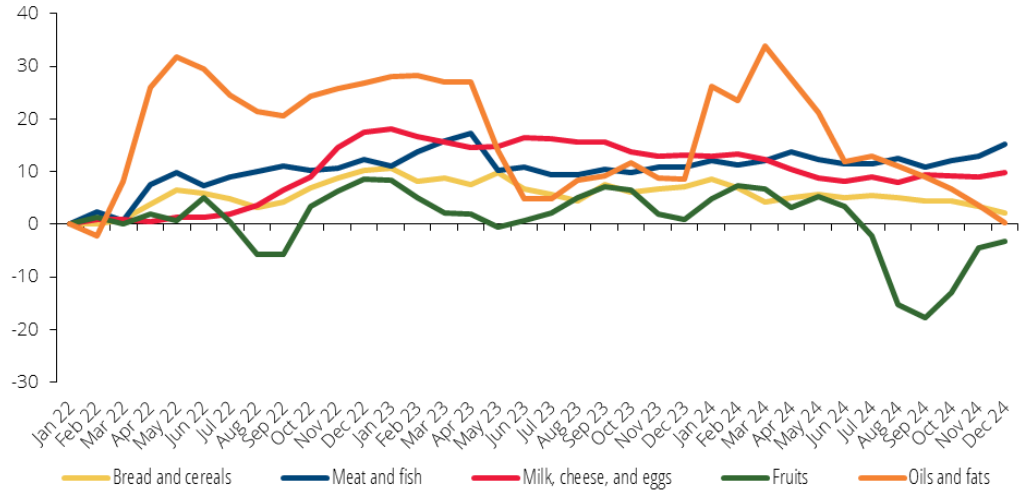
The degree of differentiation of the prices of goods belonging to each category is high, but the results remain when a more detailed analysis is carried out. Although there are differences in quantitative terms, results are also robust when the analysis is carried out at the retailer level.

Chart B6.2 • Online price index - Food | Index january 2022 = 100 and difference in percentage points



Sources: Banco de Portugal and Statistics Portugal. | Note: As in the mean and median price index, CPI weights are used solely for aggregation purposes.

Chart B6.3 • Difference between the online price indices of low-end and high-end goods in selected categories | In percentage points



Sources: Banco de Portugal and Statistics Portugal. | Note: The aggregated ECOICOP correspond to the four-digit COICOP categories, where the caterogry "Meat and Fish" corresponds to the COICOP categories for "Meat" and "Fish and other seafood".

II Special issue

Up, down, and around: Labour share developments in Portugal

Up, down, and around: Labour share developments in Portugal[1]

"The distribution of the national income among the various factors of production is a subject that has held a peculiar fascination for economists since the inception of what can be thought of as economics proper. This interest is undoubtedly related in some fashion to the social significance that is attached to distributive phenomena, but more than that, it is a manifestation of an intellectual challenge that is, at best, disturbing. After all, any respectable body of economic thought should include some explanation of the process by which the end product of economic activity is distributed to the factors which have entered into its production."

Gallaway (1964)

The analysis of the labour share of income has a long tradition in economics. Since Adam Smith (1776), who identified wages as one of the "original sources" of income, and David Ricardo (1817), who considered the distribution of income by these sources as the "principal problem of Political Economy", many economists have dedicated their work to analyse the labour share. Despite this longevity, the topic has not lost interest. Nowadays there is still a lively and passionate debate, which translates into a growing avenue of research.

This Special issue summarises key discussions over the concept and measurement and presents a broad range of empirical evidence for Portugal (aggregate, industry- and firm-level estimates, trend, and cyclical developments), including a comparison with the euro area.

In the last decade, for each 10 euros of gross value added roughly 6 euros were paid to workers in the Portugal and 6,5 euros in the euro area. The labour share has large fluctuations over time. Short-run changes are influenced by the business cycle, with some evidence of increases during recessions and decreases in recoveries. In the medium run, the fluctuations may last for 10 or 20 years, but there seems to be some mean reversion in longer periods.

[1] Prepared by Cláudia Duarte and José R. Maria.

What is the labour share? Why is it important?

The labour share is very easy to define. It is simply the ratio (ω) between workers' nominal income (W) and the aggregate nominal income (I) resulting from a production process that utilises both labour and capital. Assuming that workers' income is equal to the product of average wage (w) by the number of workers (L), and aggregate income is given by the product between real output (Y) by its price (P), then the labour share can also be presented as the ratio between real wage (w/P) and real output per worker (Y/L). In short:

$$\omega = \frac{W}{I} = \frac{w.L}{P.Y} = \frac{(w/P)}{(Y/L)} \qquad (1)$$

Several challenges lie behind this apparently simple income split between workers and capital owners. The first challenge begins with the necessary acknowledgement that the labour share is the result of multiple decisions, taken in different markets and industries, which are interrelated and affected by many shocks, some common across sectors, other idiosyncratic, including from external origins. Other challenges stem from the lack of consensus on the exact definition of the numerator (W), and denominator (I), their range and measurement. In practice, there is not one, but several labour shares, measured in different ways.

To some extent, the lack of consensus reflects different research questions or goals. The functional distribution of income by factors of production is key for those interested in macroeconomic models and their foundations. Gauging aggregate productivity gains in simple growth-accounting exercises (Solow, 1957) often relies on labour share estimates (Bontadini et al., 2023). The income split between labour and capital is pivotal in the inequality and welfare literature and has been used to assess the relative well-being of workers compared to asset owners. The labour share is often used in labour market and social assessments (ILO, 2024), being one of the 231 indicators in the global indicator framework for the Sustainable Development Goals of the 2030 Agenda for Sustainable Development (United Nations, 2025).

Traditionally, the labour share was seen as a constant, especially when assessed over sufficiently long periods of time. This stylised fact in the growth literature, listed in the seminal work by Kaldor (1961), underpins classical long-run properties of standard dynamic models. It does not preclude short-run fluctuations of the labour share; it only discards the existence of a time trend, i.e., upward or downward movements spanning over long periods of time.

The traditional view has been challenged in recent times and, currently, there is no consensus. Several authors have found evidence of a downward trend, while others favour the traditional view.[2] Grossman and Oberfield (2022) note that "after more than 12,000 research projects, we still do not have a firm grip on why the labour share in national income has fallen and whether that decline is likely to be temporary, permanent, ongoing, levelling out, or reversed." These authors offer a synthetic approach, discussing the existence of stabilising forces in the longer run, against a background with short-term movements. An example is based in the unitary elasticity of substitution between capital and labour (i.e., a 1% decrease in the relative cost of capital to wages increases the capital to labour ratio by 1%).

A declining labour share raises important questions. From a macroeconomic point of view, basic assumptions may not remain valid, which implies that models must be revisited. For the inequality

[2] Elsby et al. (2013), Karabarbounis and Neiman (2014), IMF (2017), Autor et al. (2017), Bergholt et al. (2022) and Karabarbounis (2024) found evidence of a downward trend. Many studies have focused on the US but there have been extensions to other countries (e.g., Karabarbounis and Neiman (2014) have a sample with 59 countries between 1975 and 2012). Gollin (2002), Rognlie (2015), Cette et al. (2020) and Gutiérrez and Piton (2020) are among those who find evidence in favour of the traditional view.

and welfare discussion, a declining trend may directly signal greater income inequality, as real wages (w/P) grow systematically less than output per worker (Y/L). However, a declining labour share, driven for instance by a technological breakthrough, may easily coexist with rising labour incomes. In contrast, a declining trend in a context of weak productivity growth can be more concerning.

Several potential causes for a declining labour share have been proposed. One of the most mentioned is the fast technological progress leading to the decline in the relative price of investment goods and giving incentives to firms for replacing labour with capital.[3] Other potential causes include firms' rising market power and trade and capital globalisation trends. Demographic shifts, policy changes (e.g., declining corporate income tax) and evolving institutional arrangements (e.g., decline in unionisation rates) have also been considered, but the available analyses suggest that they have a more limited role.[4] In the following section we will discuss a different type of cause: measurement issues.

How to measure the labour share?

Aggregate analyses typically use national accounts data. Box 1 collects the definitions proposed by several institutions, namely the International Labour Organization (ILO), the European Commission (EC), the US Bureau of Labor Statistics (BLS), and the UK Office for National Statistics (ONS). The most used measures of aggregate income (denominator in equation I) are the nominal gross domestic product (GDP) or gross value added (GVA), which are well-known and readily available. Figure 1 splits nominal income between labour, capital, and other sources. GDP includes taxes less subsidies on products and their evolution can influence the labour share for reasons not directly linked with production processes. If these taxes increase substantially, then GDP would increase above GVA, and the same labour income would lead to a lower labour share.[5]

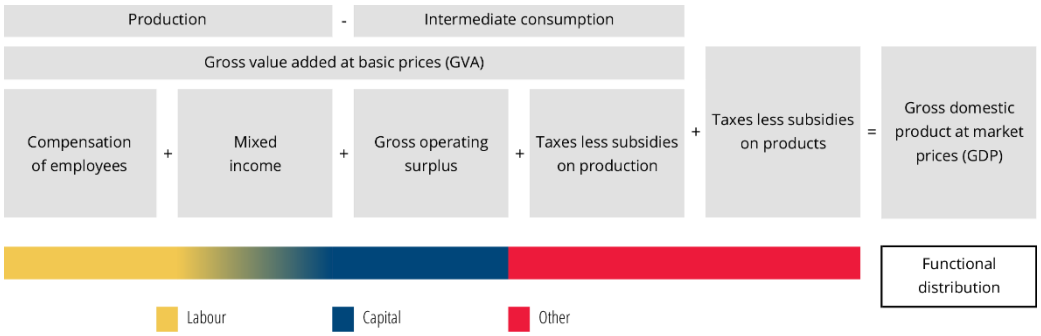
Labour income should cover the compensation received by employees and self-employed. Compensation of employees is available in national accounts data. However, compensation of the self-employed does not exist; only mixed income is recorded, which does not distinguish between returns on labour and capital (Figure 1). An unadjusted labour share can be calculated as the ratio of compensation of employees to GDP or GVA; OECD discloses this measure, as a percentage of nominal GVA (Horvát and Webb, 2020). Despite being simple and easy to compute, this measure is a lower bound, given that it does not account for the labour income of the self-employed.

[3] When capital is highly substitutable for labour (i.e., elasticity higher than one), the combination of lower prices in investment goods and higher capital levels in the production process leads to a reduction in the labour share (Karabarbounis and Neiman, 2014, IMF, 2017 and Dao et al., 2020). However, Bergholt et al. (2022) claim that labour and capital are not easily substitutable (i.e., elasticity lower than one). Analysing the postwar US economy, the authors conclude that the decline in the relative price of investment goods tends to raise it.

[4] Autor and Salomons (2018) analyse automation, while Autor et al. (2017) assess the role of firms' rising market power. Dao et al. (2020) identify trade globalization as the most significant driver of a declining labour share in emerging economies. Elsby et al. (2013) and IMF (2017) discuss how globalisation promoted the relocation of lower-skill, labour-intensive stages of production to cheaper locations. These authors also analyse the importance of demographics and institutional arrangements. Grossman and Oberfield (2022) provide a literature survey and warn that the potential causes are not necessarily independent of each other; on the contrary, they are on many occasions intertwined.

[5] GVA includes taxes less subsidies on production, though with a much lower magnitude. In Portugal, taxes less subsidies on products (which include, for example, VAT revenue) represented 13% of GDP in 2023, while taxes less subsidies on production (which include, for example, revenues from taxes on the ownership or use of land, buildings, or other structures utilised by enterprises in production) were 0.3% of GDP.

Figure 1 • Functional distribution of income in National Accounts



Sources: Banco de Portugal and European System of Accounts (ESA 2010). | Note: The colour blocks representing the functional distribution of income are not to scale.

Self-employed labour compensation needs to be imputed. There are several methods to adjust the numerator **W** in equation 1 for the self-employed compensation. ILO (2019) divides the main methodologies into two groups: the "mixed income approach", which splits the available mixed income between compensation to labour and to capital; and the "self-employment approach", which attributes a wage to the self-employed. Gollin (2002) identifies three main adjustments. The first two take the mixed income approach, either by treating all mixed income as labour income, which is easy to compute but is an upper bound, or by splitting it using the same labour share of employees, a simple though ad-hoc assumption, which is the option used by the ONS. Finally, the third adjustment follows the self-employment approach, proposing a correspondence between employees and self-employed wages, i.e. a relative wage. Relative wages are below, equal, or above one, when wages of self-employed are below, equal, or above employees' wages. The most common assumption is that, on average, both earn the same wage, either measured by compensation per worker (used, for example, by the EC), or average compensation per hour (used, for example, by the BLS). The choices are not neutral. For instance, according to Elsby et al. (2013), the adjustment method used to impute self-employment income plays a significant role in the decline in the US labour share released by the BLS.

Some sectors tend to be excluded from the analysis. Although straightforward, total economy estimates (e.g., released by the EC, the ILO and the ONS) are more subject to measurement challenges caused by the imputation of self-employed labour compensation and by including the government sector, whose products are, in most cases, not sold in markets, or whose prices are influenced by the government. The literature has often looked to narrower sectoral definitions to try to circumvent these issues. For example, the BLS and Elsby et al. (2013) focus on the nonfarm business sector. Farm activities tend to be excluded due to the large share of self-employment, often leading to adjusted labour shares higher than one (Gutiérrez and Piton, 2020). Another frequent choice is the corporate sector (Karabarbounis and Neiman, 2014).

The treatment of housing services is critical. Rognlie (2015) emphasises its relevance due to the specificities behind national accounts rules. Housing services income is recorded in two ways: imputed rentals (i.e., a hypothetical amount) paid by homeowners to themselves; and actual rentals paid in the tenant-occupied sector. Rognlie shows that the total economy labour share decline in large, developed countries is mostly driven by the increase in the value of housing services. This can be an important issue when analysing wealth inequality, but it is not directly linked to the production process. Thus, some authors argue that housing services should be altogether excluded from the analyses, as the shape of their production function and the partition between labour and capital are

unclear. The most common solution is to exclude real estate activities, as housing income represents most of its value added; see Gutiérrez and Piton (2020) for a discussion.

Firm-level analyses are not less challenging than aggregate ones. In this research area, the labour share is obtained from the profit and loss statement, which covers compensation of employees and a measure of gross value added at factor cost (obtained by deducting operational costs, excluding labour costs, from sales and adjusting for indirect taxes and subsidies). Some authors focus on labour share distributions across firms (Kehring and Vincent, 2021 and Pereira, 2025) and their determinants, such as technological change and market power. Establishing causality is difficult, given that cross-sectional or panel regressions disregard general equilibrium effects, i.e. effects operating through economy-wide channels (Nakamura and Steinsson, 2018). Moreover, measuring labour compensation in business accounting data is hampered by non-wage compensation and fringe benefits, and by self-employment imputation. Some types of firms are often excluded, such as smaller ones or from specific industries. The informal economy is typically not considered.

Labour share developments may be assessed differently by firms and workers. Firms care about product prices (P), which are defined in terms of domestic product (i.e., GDP or GVA deflator). These prices, which are the ones considered in equation 1, are the relevant measure for firms' assessments of real wages and for their hiring incentives. In contrast, workers care about consumer prices $(\mathrm{P^c})$ and the value of their earnings in terms of the basket of goods and services that they consume (i.e., they care about their purchasing power). From the workers' perspective, the relevant share of income $(\tilde{\omega})$ accounts for their purchasing power, namely:

$$\tilde{\omega} = \omega.\frac{P}{P^c} = \frac{w.L}{P^c.Y} = \frac{(w/P^c)}{(Y/L)} \qquad (2)$$

Output per worker is the same, but the real wage (w/P^c) is different. The distinction would not matter much if both prices evolved similarly. However, consumer prices may differ from product prices, more so in open economies (IMF, 2017). For example, the value of workers' wages in terms of their consumption basket may quite easily decline relative to the firm's wage in terms of domestic product after a noticeable increase in international oil prices. In this case, the labour share that accounts for purchasing power $(\tilde{\omega})$ declines due to a lower relative price (P/P^c) (Fleck et al., 2011).

How has the labour share evolved in Portugal?

Alternative labour shares result in different assessments. Chart 1 presents alternative measures for Portugal, in some cases since 1953.[6] By construction, total economy estimates as a percentage of nominal GDP are lower than as a percentage of nominal GVA (yellow lines in panel A and panel B). The unadjusted version, without self-employed labour income, is a lower bound (red line in panel A). The EC (in AMECO database) considers that the relative wage between self-employed and employees is equal to one (yellow line in panel A). Cabral et al. (2023) use a lower-than-one relative wage, calculated as a fixed ratio of median gross income of self-employed to the median income of employees, for each industry, as reported in household surveys (solid blue line in panel A). ILO calculations feature a time-varying higher-than-one model-based estimate (dashed blue line in panel A), which naturally gives rise to the highest labour share level over the available sample.

We also report the nonfarm business sector excluding real estate, which is more robust to the challenges caused by the non-market and housing sectors (Panel B). This sector accounts for almost two-thirds of value added and employment in the total economy. The version with the relative wage

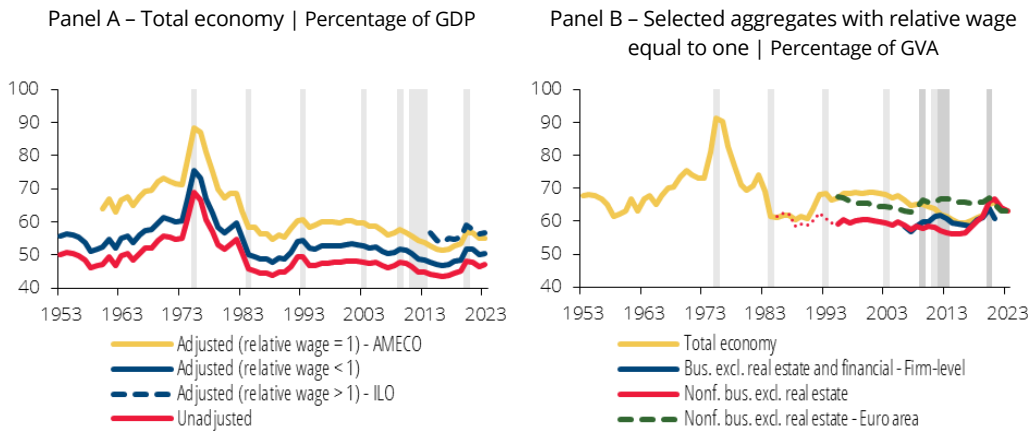
[6] Other labour share analyses include Lopes et al. (2021) and Alcobia and Barradas (2023).

equal to one is directly comparable with firm-level data (higher-than-one relative wages are not available). Using industry-level data comes at the cost of a shorter time sample.

Over 1985-2023, the adjusted labour share for the nonfarm business sector excluding real estate stands at 60% when the relative wages are assumed to be equal to one and using national accounts data (red line in panel B). This figure does not change when using firm-level data in the period 2006-21 (blue lines in panel B). In other words, for each 10 euros of gross value added in the Portuguese business sector excluding real estate roughly 6 euros are paid to workers. Over 1995-2023, the comparable figure for the euro area is 65% (green line in panel B).

Chart 1 also shows large fluctuations over time. This behaviour reflects a mix of economic, political, and institutional drivers. The maximum values are around 1975, after the Carnation revolution in 1974, which was characterised by workers' higher bargaining power and the introduction of the national minimum wage (Macedo and Krugman, 1979, Mata and Valério, 1994, and Banco de Portugal, 2025). More recently, the peaks in the pandemic period also stand out. The lowest labour shares are mostly concentrated in the recovery period after the sovereign debt crisis of the 2010s, with the late 1950s and 1980s also experiencing low values.

Chart 1 • Labour share in Portugal



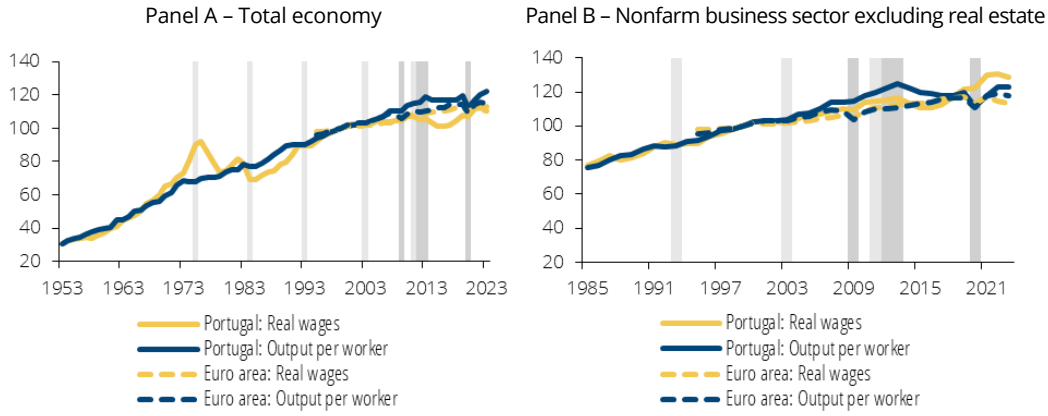
Sources: Cabral et al. (2023), EC (AMECO), Eurostat, ILO, OECD STAN, Pereira (2025), Statistics Portugal and Banco de Portugal calculations. | Notes: Unadjusted estimates correspond to the ratio of compensation of employees to GDP. Adjusted versions include a correspondence between employees and self-employed wages, namely a relative wage below, equal, or above one when wages of self-employed are below (as in Cabral et al., 2023), equal (AMECO), or above employees' wages (ILO, 2019). The nonfarm business sector excluding real estate corresponds to NACE rev. 2 codes B to K, M and N. Industry-level series use harmonised quarterly data, available from 1995 onwards; an annual extension back to 1985 is possible using OECD STAN data (dotted red line). Firm-level data covers the business sector excluding real estate and financial activities (NACE rev 2 codes A to J, M and N; for more details see Pereira, 2025). The grey shaded areas denote years with negative GDP growth in Portugal. The darker shading in panel B denotes periods when the euro area also registered negative GDP growth.

Increases (decreases) in the labour share mean that real wages grow above (below) output per worker. Chart 2 shows the evolution of these two variables since 1953 in the total economy and since 1985 in the nonfarm business sector excluding real estate. There are times when real wages grow above or below output per worker. Results for Portugal show that maximum and minimum total economy labour shares were conditioned by higher volatility in real wages than in output per worker over the 1970s and 1980s (Chart 2, Panel A). This pattern does not hold from 1995 onwards. There is less volatility in both series and, if anything, output per worker is more volatile than real wages.[7] This is common to the

[7] Nominal output per worker dominates the cross-sectional variation in the Portuguese labour share over 2006-21 (Pereira, 2025). This evidence is shared by the US using data from 1967 to 2012 (Kehring and Vincent, 2021).

nonfarm business sector excluding real estate (Chart 2, Panel B). In general, the volatility in the Portuguese economy is higher than in the euro area.

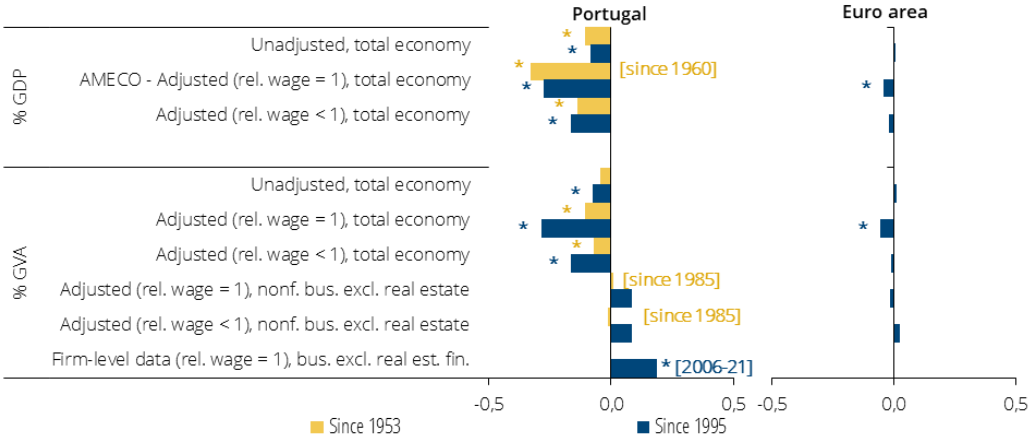
Chart 2 • Real wages and output per worker | Index, 1999 = 100



Sources: Eurostat, Statistics Portugal and Banco de Portugal calculations. | Notes: Real wages and output per worker are measured in 2021 prices. Real wages result from deflating nominal wages with the GVA deflator. Nominal wages include self-employed income, assuming a relative wage equal to one. Results are qualitatively similar under alternative imputation methods. The nonfarm business sector excluding real estate corresponds to NACE rev. 2 codes B to K, M and N. The grey shaded areas denote years with negative GDP growth in Portugal. The darker shading denotes periods when the euro area also registered negative GDP growth.

There is no common long-term trend in the labour shares. As trend estimates are affected by sample size, we consider two alternatives in chart 3: a larger sample, covering up to seven decades (yellow bars), and a shorter sample, focusing on the last 30 years (blue bars). Negative/positive estimates imply long-term downward/upward trends, identified with a star (∗) when statistically different from zero with a 95% confidence interval). If the estimate cannot be distinguished from zero, this implies a trendless labour share, which is in line with the traditional view.

Chart 3 • Long-term changes in the labour share

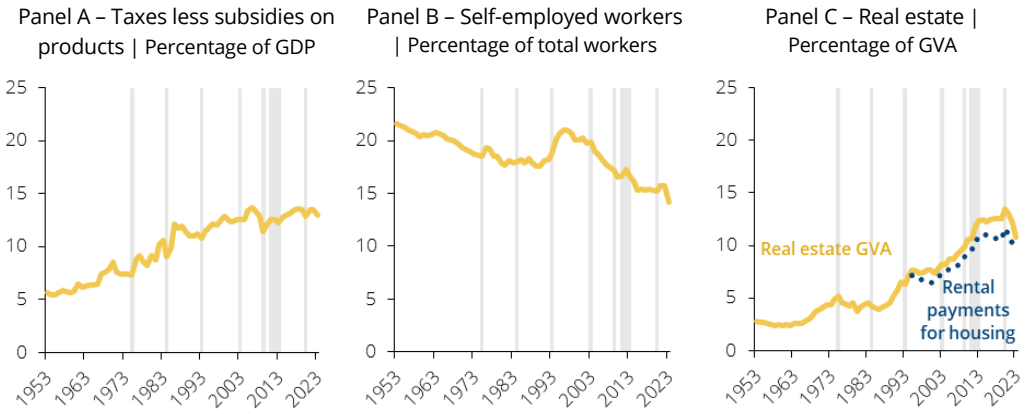


Sources: Cabral et al. (2023), EC (AMECO), Eurostat, OECD STAN, Pereira (2025), Statistics Portugal and Banco de Portugal calculations. | Notes: Long-term changes are identified by the coefficient β in a simple linear regressions of different labour share measures (ω_t) on a time trend (t), namely $\omega_t = \alpha + \beta \times t + u_t$, where α is a constant and u_t is an error component. If β is negative (positive) and statistically different from zero with a 95% confidence interval, then there is evidence of a downward (upward) trend in the labour share(denoted by a star $*$). If one cannot reject the hypothesis of $\beta=0$, then the evidence is consistent with a trendless labour share over the sample period (i.e., it simply fluctuates around a constant). The longer series start in 1953 (yellow bars) and the shorter in 1995 (blue bars) and both end in 2023. The exceptions are indicated in brackets. "nonf. bus. excl. real estate" refers to the nonfarm business sector excluding real estate (NACE rev. 2 codes B to K, M and N). See notes to chart 1 for more details.

Total economy labour shares decline in both samples. These trends are more pronounced as a percentage of GDP than of GVA. For a given labour income measure (numerator in equation 1), this result is conditioned by an increasing share of taxes less subsidies on products on GDP, which leads to a GDP level increasingly above GVA over time (Chart 4, Panel A). Downward trends are steeper for the adjusted than for unadjusted measures. This result is influenced by the decreasing percentage of self-employed workers (Chart 4, Panel B). Other things being equal, the lower this percentage, the smaller the imputed self-employed amount added to labour compensation, the lower the labour share. IMF (2017) reports that the share of self-employment is larger for developing economies, and that a decreasing trend is to be expected when countries develop and the formal sector grows.

When looking at the nonfarm business sector excluding real estate, the trend is no longer statistically different from zero (Chart 3). This change from negative to zero is conditioned by the rise in the value of housing services, reflected in the rise of nominal GVA in real estate activities (Chart 4, Panel C). Real estate has a low labour share compared to the rest of the economy (around 5%, on average in 1995-2023). An increase in the housing share of value added pushes down the total economy labour share.

Chart 4 • Underlying trends behind the labour share



Sources: Eurostat, Statistics Portugal and Banco de Portugal calculations. | Notes: GDP and GVA are measured at current prices. Real estate GVA includes activities with own or leased property and activities on a fee or contract basis. One important component is associated with housing services, which include owner- and tenant-occupied housing. Rental payments for housing refer to final consumption expenditure on actual and imputed rentals paid by households for housing services. This series is only available since 1995 and is taken as a proxy for the evolution of housing GVA. However, the concepts are not the same; GVA excludes intermediate consumption, such as utilities, routine maintenance, and insurance. The grey shaded areas denote years with negative GDP growth in Portugal.

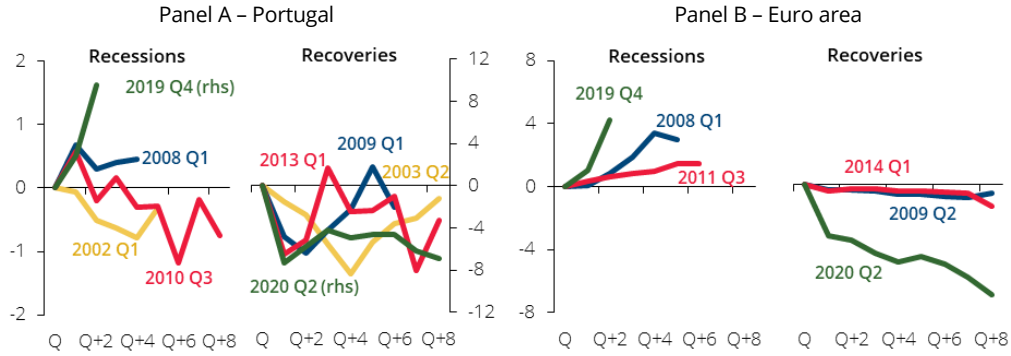
A trendless labour share is in line with the evidence from empirical firm-level estimates of a unitary elasticity of substitution between capital and labour in many industries within the business sector excluding real estate and financial activities, presented in Pereira (2025), which is considered a stabilising long-term force (Grossman and Oberfield, 2022).

Euro area estimates display similar patterns, having lower (absolute) magnitudes. Over the last three decades, trend slopes are on average not statistically significant in six out of the eight measures considered.

The labour share is influenced by cyclical fluctuations. Short-run movements can be triggered by business cycle shocks. Many studies suggest countercyclical properties, namely that the labour share increases during recessions and decreases in recoveries.[8] Medium-run movements may translate into large and persistent fluctuations for as long as 10 or 20 years (Acemoglu, 2003).

[8] See, for example, Gomme and Greenwood (1995), Hansen and Prescott (2005), and Ríos-Rull and Santaeulàlia-Llopis (2010) for a modelling perspective, and Elsby et al. (2013), Archanskaia et al. (2019) and ILO (2019) for empirical analyses.

Chart 5 • Labour share in the last recessions and recoveries | Differences compared to the reference quarter (Q), in percentage points



Sources: Eurostat, Statistics Portugal and Banco de Portugal calculations. | Notes: The calculations are based on quarterly national accounts data, covering all recessions and recoveries identified in the period from 1995Q1 onwards. The adjusted labour share as a percentage of GVA assumes a relative wage equal to one. The analysis is restricted to the nonfarm business sector excluding real estate (NACE rev. 2 codes B to K, M and N). These results would remain qualitatively unchanged if alternative labour share measures were considered. Reference quarter (Q) corresponds to the last quarter before the beginning of the recession (i.e., peak), or to the last quarter before the beginning of the recovery (i.e., through). The dating of the cycles are taken from the Portuguese Business Cycle Dating Committee and the Euro Area Business Cycle Dating Committee.

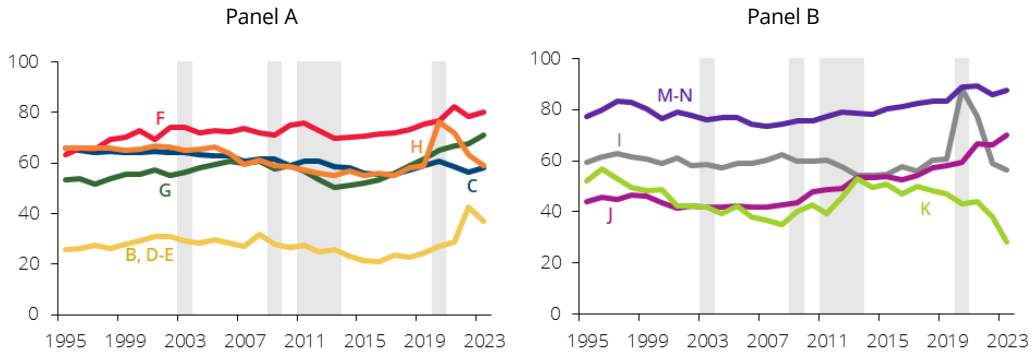
Chart 5 presents cyclical fluctuations during recessions and recoveries in Portugal (Panel A) and in the euro area (Panel B), up to eight quarters. Due to data restrictions, events only cover the last three decades. For Portugal, there is some evidence of a countercyclical pattern over the business cycle during this period, which is clearer in the short-term and in recovery phases. The countercyclical pattern is more marked in annual firm-level estimates, covering the 2006-21 period (Pereira, 2025). The euro area shows a clearer countercyclical pattern, with less volatility than in Portugal.

The cyclical profile is not common to all events and depends on the type of the shock that triggers the fluctuations. The countercyclical pattern of the labour share is typically associated with the fact that employment and wages tend to move more slowly than output, in part due to adjustment costs. For example, during a crisis firms may prefer to retain workers as long as possible (i.e., to hoard labour) and avoid the associated costs with finding new employees during recovery periods. However, this behaviour also depends on other factors, such as the crisis duration. In face of short-lived shocks, the countercyclical pattern tends to be clearer. That is the case of the COVID pandemic, whose temporary nature was reinforced by employment protection policies.

Labour share developments are different across industries. Production process specificities are key drivers of industry-level results. Capital-intensive industries have lower labour shares. For example, in mining and utilities (NACE codes B, D-E) around 28% of GVA is paid to workers, on average in 1995-2023 (Chart 6, Panel A). In contrast, labour-intensive services have higher labour shares. That is the case of professional and scientific activities (codes M-N), where the labour share is around 80% of GVA (Chart 6, Panel B).

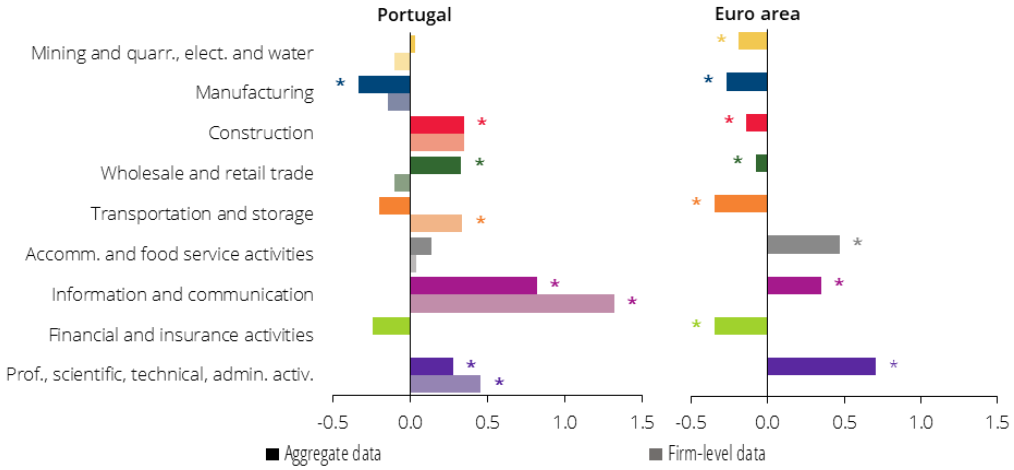
Economy-wide figures conceal differences across industries over the available sample. This is the case when looking at time trends across industries, both in Portugal and in the euro area (Chart 7). A common pattern is the labour share rise in labour-intensive industries of specialised services, with high-skilled workers and high-technology processes, such as information and communication and professional and scientific activities. In the opposite direction, there is evidence of a decline in manufacturing. There is also some indication of a decreasing labour share in transportation and storage and financial and insurance activities, which is stronger in the euro area.

Chart 6 • Industry-level labour shares | Percentage of GVA



Sources: Statistics Portugal and Banco de Portugal calculations. | Notes: The adjusted labour share as a percentage of GVA assumes a relative wage equal to one. According to NACE rev. 2, "B, D-E" is mining and quarrying, electricity and water supply; "C" is manufacturing; "F" is construction; "G" is wholesale and retail trade; "H" is transportation and storage; "I" is accommodation and food service activities; "J" is information and communication; "K" is financial and insurance activities; and, "M-N" is professional, scientific, technical, administrative and support service activities. The sample period begins in 1995 due to data restrictions. The grey shaded areas denote years with negative GDP growth in Portugal.

Chart 7 • Linear trends in industry-level labour shares

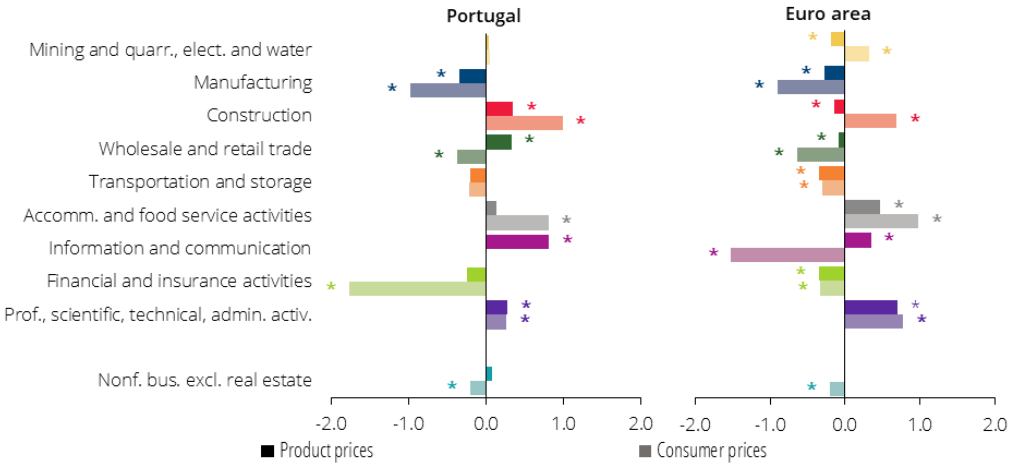


Sources: Eurostat, Pereira (2025), Statistics Portugal and Banco de Portugal calculations. | Notes: The adjusted labour share as a percentage of GVA assumes a relative wage equal to one. Industries are defined according to NACE rev. 2. The linear trends calculated from firm-level data (light-shaded bars) cover the period 2006-21 and the business sector excluding real estate and financial activities (NACE rev. 2 codes A to J, M and N). Remaining trends cover the period 1995-2023. The star (*) denotes coefficients that are statistically different from zero with a 95% confidence interval. For more details, see notes to chart 3.

From the workers' perspective, their share of income declines when consumer prices grow above product prices. On average, consumer prices have grown above product prices in the nonfarm business sector excluding real estate over the last three decades. This results in a fall of workers/consumers real earnings. The labour share accounting for purchasing power also declines, while no statistically significant trend is identified from the firms/production perspective (Chart 8). This pattern is common to the euro area.

Across industries, the most notable changes are in wholesale and retail trade, where the labour share has a positive trend (or no trend, in the case of the euro area) and the labour share accounting for purchasing power has a negative trend; and in information and communication, where the labour share has a positive trend and the labour share accounting for purchasing power has no trend (or a negative trend, in the case of the euro area). In the opposite direction, the negative trend in euro area's labour share in construction contrasts with the positive trend in the measure accounting for purchasing power.

Chart 8 • Linear trends in the labour share: impact of accounting for the purchasing power



Sources: Eurostat, Statistics Portugal and Banco de Portugal calculations. | Notes: Results for product and consumer prices are based on equation 1 and 2, respectively. The adjusted labour share as a percentage of GVA assumes a relative wage equal to one. Industries are defined according to NACE rev. 2. Product prices are measured by the GVA deflator, while consumer prices are measured by the private consumption deflator (the same for all industries). The linear trends cover the period 1995-2023. The star (*) denotes coefficients that are statistically different from zero with a 95% confidence interval. For more details, see notes to chart 3.

Final remarks

The labour share is a relevant indicator in different strands of the literature, though the very concept and its measurement are mired in contention. Splitting income between labour and capital is, nevertheless, only the first layer of the analysis, and other dimensions should not be ignored. Among them, the distinction between long- and short-run fluctuations, as well as sectoral and nationwide developments, are crucial. Labour-saving technologies, which may have potential short-run negative impacts on sectoral labour shares, do not necessarily imply a permanent decrease in economy-wide aggregates. On the contrary, they may be needed for the economy to guarantee high long-term welfare levels. As John Maynard Keynes wrote in 1930, "unemployment due to our discovery of means of economising the use of labour outrunning the pace at which we can find new uses of labour (...) is only a temporary phase of maladjustment. All this means in the long run that mankind is solving its economic problem" (reprinted in Pecchi and Piga, 2008).

Finally, capital income is ultimately allocated to different agents, including the government (e.g., corporate income taxes) and households, as debt and equity investors. A sizeable part of labour income also turns into government revenues. Hence, fully understanding the functional distribution of income, especially in the context of inequality and welfare discussions, requires a broader set of indicators and models, as well as an encompassing policy analysis.

Box 1 • Labour share definitions

Table B1.1 collects several adjusted labour share definitions, as proposed by the International Labour Organization, European Commission's Directorate General for Economic and Financial Affairs, US Bureau of Labor Statistics, and the UK Office for National Statistics.

Table B1.1 • Labour share measures from official statistics providers

Source:	**International Labour Organization (ILO)**
Concept:	Labour share of GDP
Definition:	Total compensation of employees plus the labour income of the self-employed as a percent of GDP. All series are extracted from National Accounts, except the labour income of the self-employed, which is imputed from a model based on household survey microdata.
Reference:	https://www.ilo.org/publications/global-labour-income-share-and-distribution-methodological-description
Source:	**European Commission (AMECO database)**
Concept:	Adjusted wage share, percentage of GDP (ALCD0)
Definition:	Ratio of compensation of employment (compensation to employees plus adjustment for self-employed, assuming they earn the same wage on average per person as employees) to GDP at current market prices.
Reference:	AMECO Online
Source:	**US Bureau of Labor Statistics (BLS)**
Concept:	Labour share
Definition:	Ratio of employee compensation plus proprietor's labour compensation to gross value added for the nonfarm business sector (excludes general government, nonprofit institutions, private households, the armed forces, and farms). Proprietor's labour compensation per hour is assumed to equal employees' hourly compensation.
Reference:	Estimating the U.S. labor share: Monthly Labor Review: U.S. Bureau of Labor Statistics (bls.gov)
Source:	**UK Office for National Statistics (ONS)**
Concept:	Labour share of income
Definition:	Ratio of total employment costs to nominal gross value added. Total employment costs are calculated as compensation of employees, plus part of mixed income, minus employment subsidies. The part of mixed income considered equals the share of compensation of employees to gross value added (ratio of compensation of employees to compensation of employees plus gross operating surplus).
Reference:	Labour costs and labour income, UK - Office for National Statistics (ons.gov.uk)

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III Policy insights

The national minimum wage in Portugal

The national minimum wage in Portugal[1]

The discussion surrounding the guaranteed monthly minimum wage policy (commonly referred to as the national minimum wage) plays a relevant part in the discussion around labour market policies. The national minimum wage (NMW) was instituted in Portugal in May 1974 (Decree-Law No 217/74 of 27 May 1974) and is one of the most important instruments of the Portuguese labour market. The main objective of this policy is to promote wage valuation and is thus related to issues such as income inequality and labour market efficiency.

In Portugal the Government sets the NMW annually by means of a decree-law, after hearing the *Comissão Permanente da Concertação Social* (standing committee for social dialogue). By setting a wage floor, the NMW affects the compensation structure of private sector workers directly. Employers may only pay less than the NMW to specific types of workers, such as apprentices, trainees and disabled people. This is why it is a key driver of the wage bargaining architecture.

Policy makers have shown a growing interest in the NMW policy. For example, Germany introduced a NMW for the first time in 2015; in recent years, and even before inflation rates rose, several OECD countries increased their NMWs significantly; in 2022 the European Parliament and the Council approved a directive promoting the adequacy of NMWs, collective wage bargaining and the improvement of workers' access to minimum wage protection in the European Union (Directive (EU) 2022/2041 of the European Parliament and of the Council of 19 October 2022).

This Policy Insights describes developments in the NMW in Portugal and characterises those workers covered by the NMW, as well as the firms they work in. The main data source used are Personnel Records for the years 2015 to 2022.[2]

The ratio of the NMW to the median wage (Kaitz index) is higher in Portugal than in the other euro area countries.

In 2023, 17 out of the 20 euro area countries had an explicit NMW policy.[3] In the other three countries (Austria, Finland and Italy), collective agreements set de facto minimum wages for most workers.

The criteria for setting and updating the NMW in the European Union are differentiated, as is its value (Chart 1). In 2023, the NMW in Portugal adjusted for the number of annual payments remained among the lowest in the euro area (€887), even considering differences in price levels across countries (purchasing power parities). Portugal is part of the group of countries where the NMW stood at around €850, which also includes Greece, Lithuania and Malta. In Portugal, the NMW accounted for 68% of the median wage (Kaitz index), the highest among euro area countries, compared with 62% in France, where this indicator was traditionally the highest (Chart 2). This largely

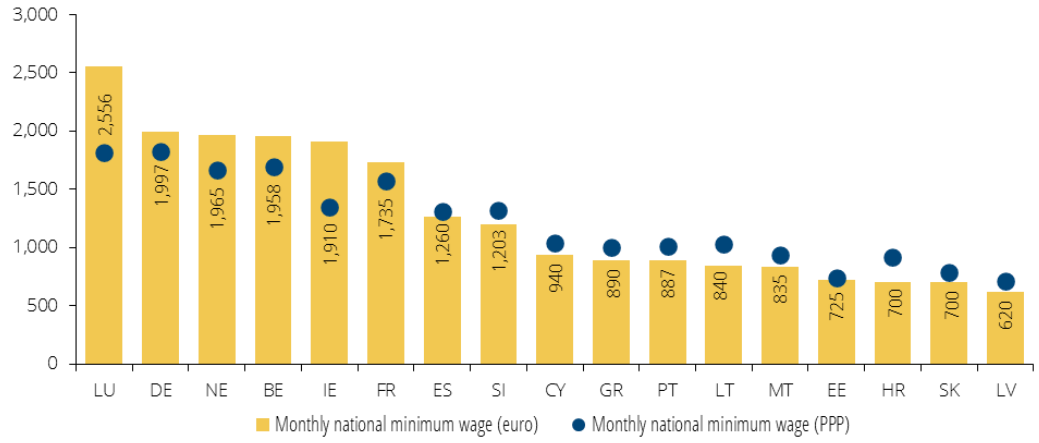
[1] Prepared by Sónia Félix and Fernando Martins.

[2] The sample includes firms located in mainland Portugal, except those with agriculture and fishing as their main activity, and considers full-time employees aged 18-64 and with up to 50 years of tenure. Employees earning a wage lower than 80% of the NMW in the reference month and those who are reported in more than one firm in the same year are excluded.

[3] Cyprus was the euro area country that most recently introduced a NMW, in 2023.

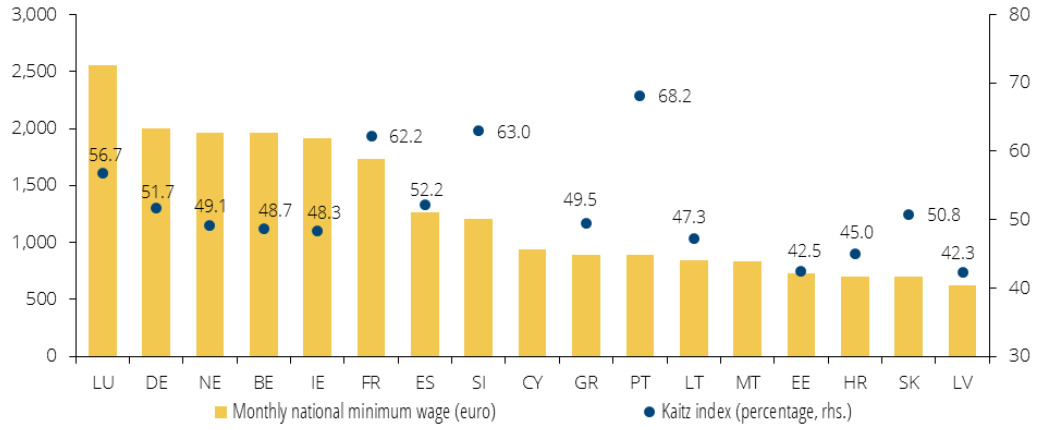
reflects the significant increases in the NMW in Portugal. In 2015 the Kaitz index stood at 56% in Portugal and 62% in France.

Chart 1 • National minimum wage in euro area countries in 2023 | In euro and in purchasing power parity



Source: Eurostat. | Notes: The national minimum wage (NMW) values are adjusted based on the number of monthly payments per year. The monthly NMW in purchasing power parity (PPP) refers to the NMW adjusted for differences in price levels between countries.

Chart 2 • National minimum wage in euro area countries in 2023 | In euro and in percentage of the median wage (Kaitz index)

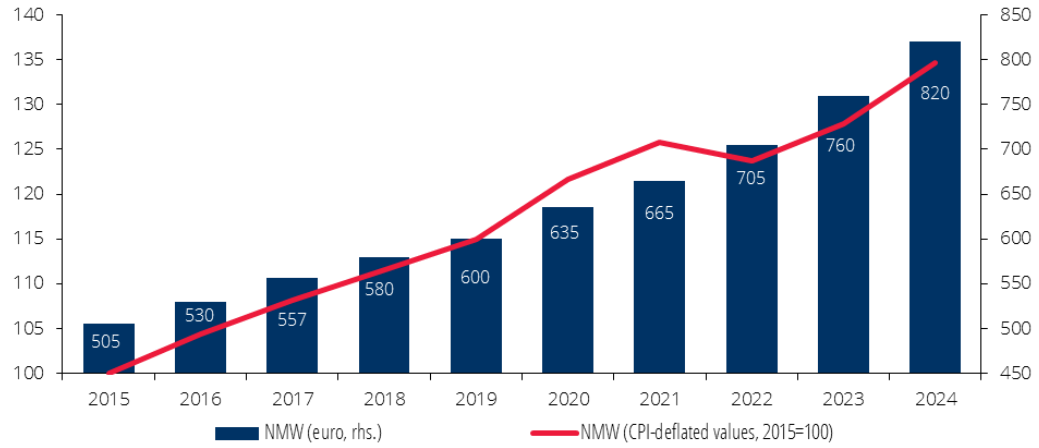


Source: Eurostat and OECD. | Notes: The OECD does not calculate the Kaitz index for Cyprus and Malta, as these two countries are not members of the organisation. The national minimum wage values (in euro) are adjusted based on the number of monthly payments per year.

Between 2015 and 2024 the NMW rose on average by 5.5% in nominal terms and 3.4% in real terms.

In Portugal, the Labour Code provides for the NMW to be determined by weighing in workers' needs, the increase in the cost of living and the evolution of productivity, among other factors. Over the last decade, the NMW rose significantly both in nominal and real terms. Having been frozen at €485 between 2012 and September 2014, the NMW recorded 5.5% annual average growth in nominal terms and 3.4% in real terms between 2015 and 2024, based on developments in the Consumer Price Index (Chart 3). In 2025 the NMW was raised to €870.

Chart 3 • National minimum wage in Portugal in nominal and real terms | In euro, nominal values, and CPI-deflated values

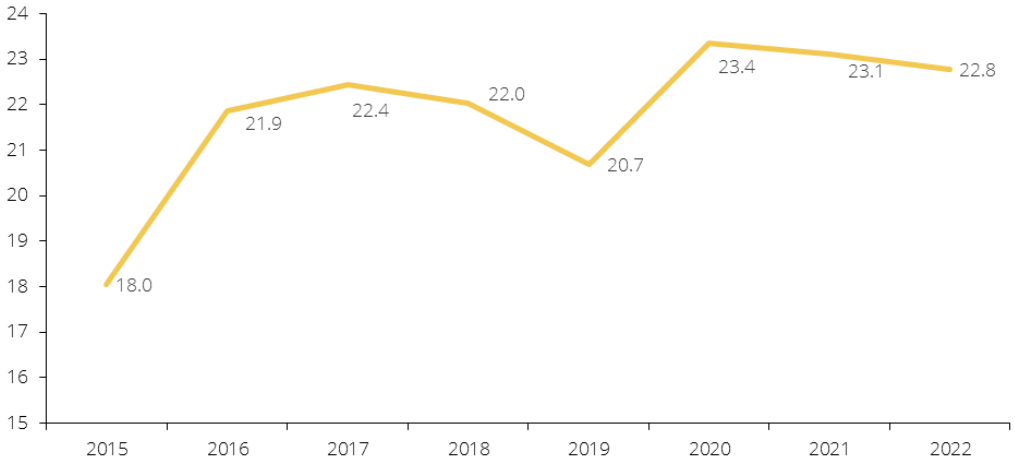


Source: EuroStat. | Notes: CPI: Consumer Price Index (2015=100). In October 2014, the national minimum wage was raised to 505 euro.

Raising the NMW resulted in an increase in the number of workers covered and a greater prevalence in the wage distribution.

Between 2015 and 2022 the share of workers covered by the NMW rose from 18% to 23% (Chart 4). Alongside the notable increase in female schooling and labour market participation, as well as an ageing workforce, the increase in the NMW was one of the labour market developments with the greatest impact on wage distribution in Portugal (Table 1). The most marked rise in the NMW in recent years contributed to a significant rise in the lower percentiles of the wage distribution and a significant reduction in wage inequality in Portugal, particularly in the left tail of the distribution (Chart 5).

Chart 4 • Prevalence of the national minimum wage | Percentage of workers with a base wage equal to the national minimum wage



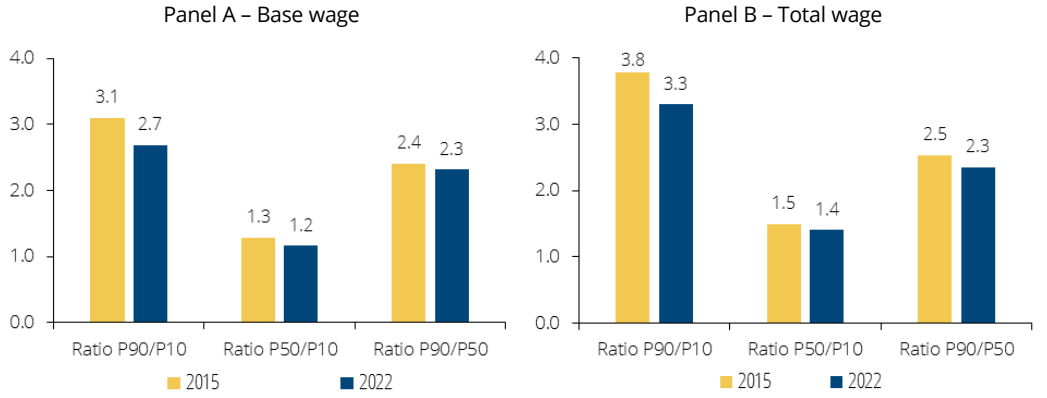
Source: Personnel Records – Statistics Portugal (Banco de Portugal calculations).

Table 1 • Distribution of the nominal base wage in the years 2015 and 2022 | Euros

	2015	2022
NMW	505	705
10th percentile	505	705
25th percentile	525	710
Median	650	818
75th percentile	999	1,204
90th percentile	1,563	1,898

Source: Personnel Records – Statistics Portugal (Banco de Portugal calculations).

Chart 5 • Wage inequality indicators | Ratio between percentiles of the wage distribution

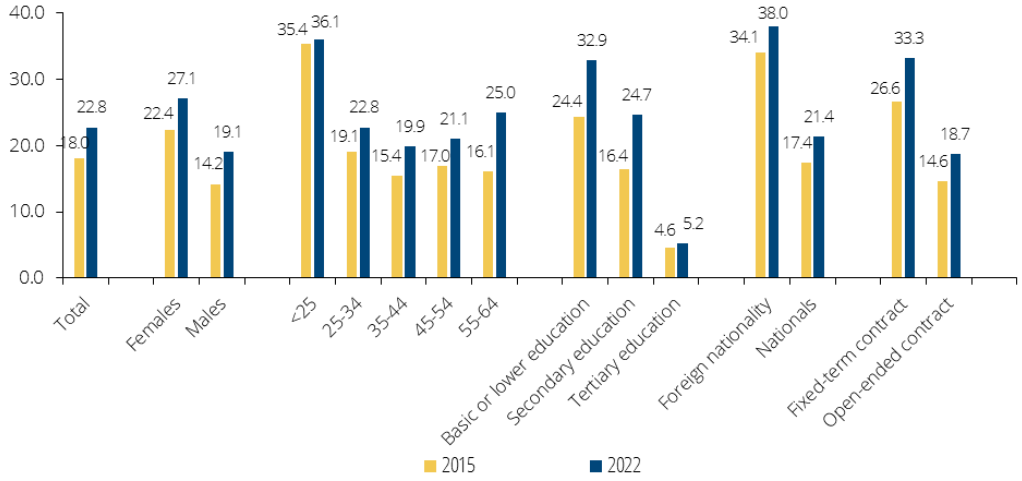


Source: Personnel Records – Statistics Portugal (Banco de Portugal calculations). | Notes: In 2015 (2022), the 10th, 50th, and 90th percentiles of the base wage distribution, deflated by the Consumer Price Index (October 2015 = 100), corresponded to 505 (609) euro, 650 (707) euro, and 1,563 (1,640) euro, respectively. The 10th, 50th, and 90th percentiles of the distribution of total wage at constant 2015 prices corresponded to 581 (691) euro, 867 (972) euro, and 2,195 (2,282) euro, respectively.

The prevalence of the NMW is higher among women, young people, workers with basic schooling and foreign workers.

The prevalence of the NMW in the wage structure differs according to the characteristics of workers and firms. In 2022, 22.8% of workers earned a base wage equal to the NMW. The share of workers receiving the NMW was higher among women (27.1%), young people (36.1%), workers with basic or lower education (32.9%) and foreign workers (38.0%) (Chart 6). From 2015 to 2022 the increase in the share of workers earning a base wage equal to the NMW was broadly based across the socio-economic groups considered. By type of contract, the prevalence of the NMW was higher in fixed-term contracts (33.3% compared to 18.7% in open-ended contracts). In this period, the share of fixed-term contracts covered by the NMW increased by 6.7 p.p., compared with a 4.1 p.p. increase in open-ended contracts.

Chart 6 • Prevalence of the national minimum wage in 2015 and 2022 by worker and contract characteristics | Percentage

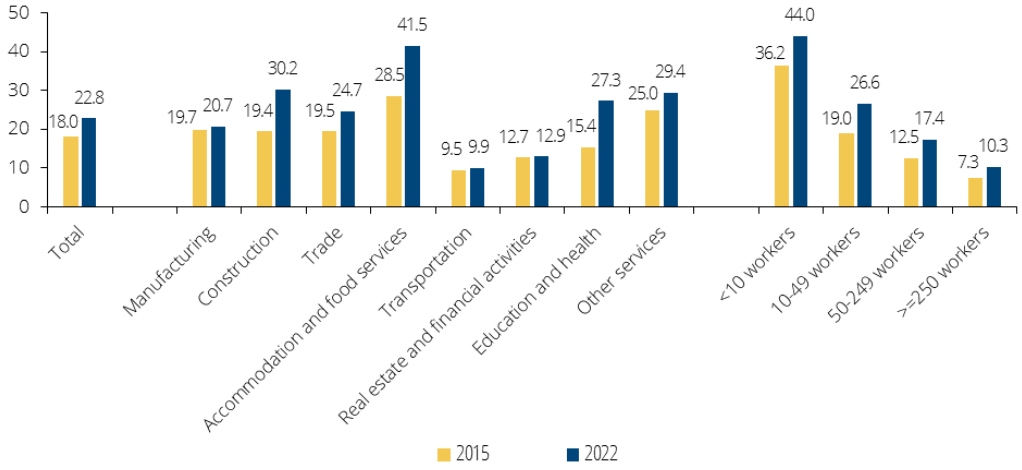


Source: Personnel Records – Statistics Portugal (Banco de Portugal calculations). | Notes: Percentage of workers with a base wage equal to the national minimum wage.

The NMW is more prevalent in the accommodation and food services and construction sectors, in smaller firms and in the country's inland municipalities.

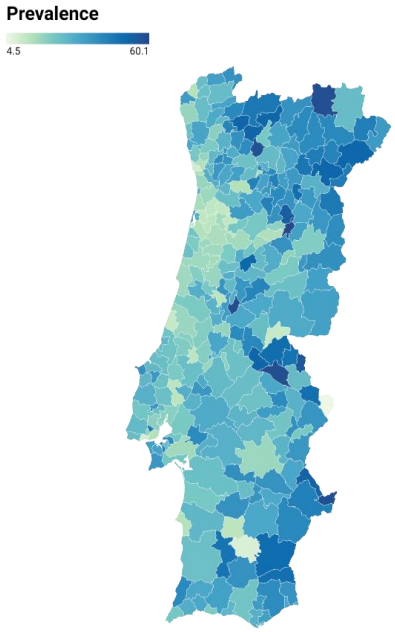
The share of workers with a base wage equal to the NMW is higher in firms in accommodation and food services (41.5%) and construction (30.2%), as well as in smaller firms (44.0%) (Chart 7). These groups of firms registered the largest increases in the prevalence of the NMW in their wage structure. Based on Social Security microdata, the prevalence of the NMW is higher in firms located in the country's inland municipalities (Chart 8).

Chart 7 • Prevalence of the national minimum wage in 2015 and 2022 by firm characteristics | Percentage



Source: Personnel Records – Statistics Portugal (Banco de Portugal calculations). | Notes: Percentage of workers with a base wage equal to the national minimum wage.

Chart 8 • Prevalence of the national minimum wage in 2023 by the company's municipality | Percentage



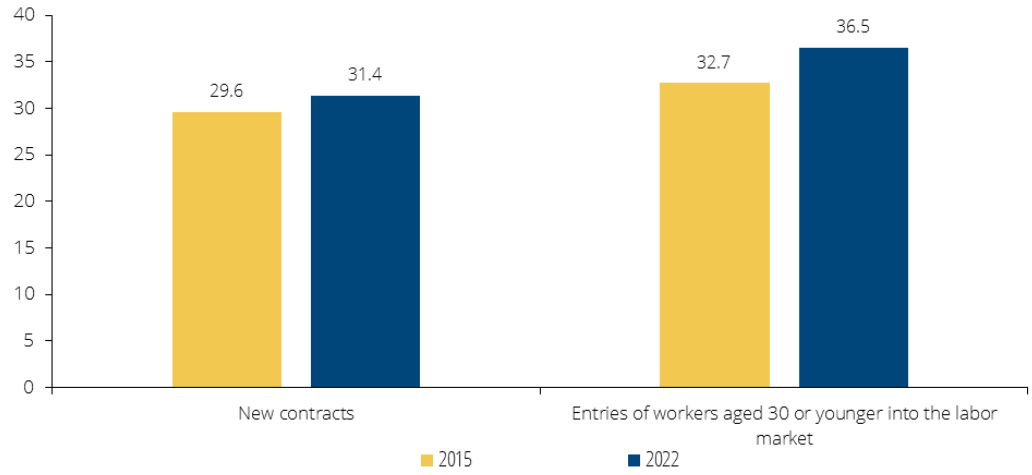
Source: Social Security Microdata (Banco de Portugal calculations). | Notes: Employees aged 16 to 74 and earning at least 80% of the national minimum wage (NMW) were considered. Percentage of workers with a base wage equal to the NMW. For more details on the map, please refer to the link.

The rise in the NMW amount is also reflected in the share of new contracts with NMW, which increased by 1.8 p.p. between 2015 and 2022.

NMW rises were also reflected in the number of new employment contracts with a base wage equal to the NMW. The incidence of the NMW in new contracts increased by 1.8 p.p. between 2015 and 2022, to 31.4% (Chart 9). Considering in particular the group of workers aged 30 or less and observed for the first time in the dataset, the incidence of the NMW increased by 3.8 p.p., from 32.7% to 36.5%.

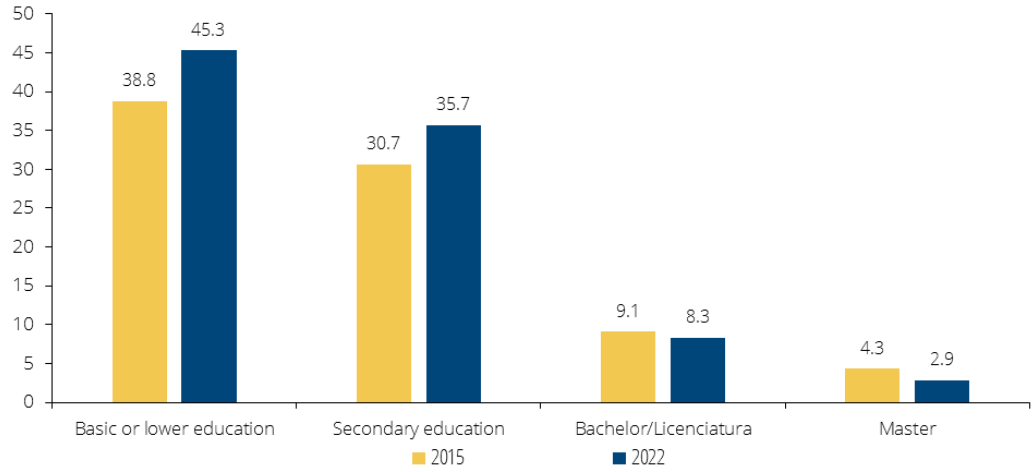
The share of new contracts with a base wage equal to the NMW is higher for lower schooling levels (Chart 10). In 2022, 45.3% of the contracts of workers with basic or lower education and 35.7% of contracts of workers with secondary education had a base wage equal to the NMW. This share was considerably lower in tertiary education: 8.3% for workers with a bachelor's degree and 2.9% for workers with a master's degree. From 2015 to 2022 the incidence of contracts with a base wage equal to the NMW increased for lower schooling levels and decreased for tertiary education. By nationality, 43% of the new contracts of foreign workers in 2022 had a base wage equal to the NMW, compared with 29% for Portuguese workers.

Chart 9 • Incidence of the national minimum wage in 2015 and 2022 | Percentage



Source: Personnel Records – Statistics Portugal (Banco de Portugal calculations). | Notes: Percentage of new contracts with a base wage equal to the national minimum wage. Entries of workers into the labour market are approximated by the year of entry in the Social Security microdata for those aged 30 or younger.

Chart 10 • New contracts with a base wage equal to the national minimum wage in 2015 and 2022 by education level | Percentage



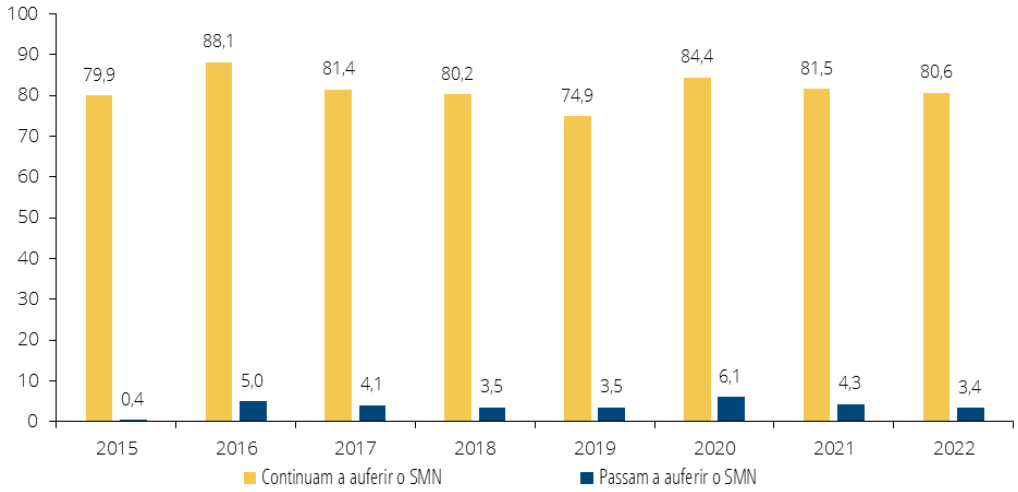
Source: Personnel Records – Statistics Portugal (Banco de Portugal calculations). | Notes: Values for workers with a Ph.D degree are not presented due to the negligible size of this group in the database.

The growing number of workers earning a base wage equal to the NMW also reflects the absorption of salary bands near its value.

An important dimension of the increase in the NMW is the effect on the wages of workers close to that threshold. To assess this effect, two groups of workers are considered: (i) workers earning a base wage equal to the NMW for two consecutive years; and (ii) workers earning a base wage higher than the NMW in a given year, but whose wage equalled the NMW in the following year (absorption effect

of salary bands, which, being near the NMW value, were not raised accordingly). From 2015 to 2022, of the workers staying in the same firm for two consecutive years, the share of workers receiving a base wage equal to the NMW and continuing as such fluctuated around 81% (Chart 11), while the share of workers who earned a base wage equal to the NMW as a result of the absorption of the salary band by the NMW rise stood at around 4%. This shows that in part, the growing number of workers earning a base wage equal to the NMW reflects the impact of the NMW rise on wages near its value. In 2022, 67% of workers earning a base wage higher than the NMW in 2021 and below the first quartile of the firm's wage distribution saw their wage grow less than the NMW.

Chart 11 • Effect of the national minimum wage increase on wages near its value | Percentage



Source: Personnel Records – Statistics Portugal (Banco de Portugal calculations). | Notes: The sample includes workers who remained in the same company for two consecutive years. "Continue to earn the national minimum wage" refers to the percentage of workers who had a base wage equal to the national minimum wage (NMW) in the year before the NMW adjustment and continue to do so in the current year; "Start earning the national minimum wage" refers to the percentage of workers who had a base wage higher than the NMW in the previous year but whose base wage became equal to the NMW in the current year.

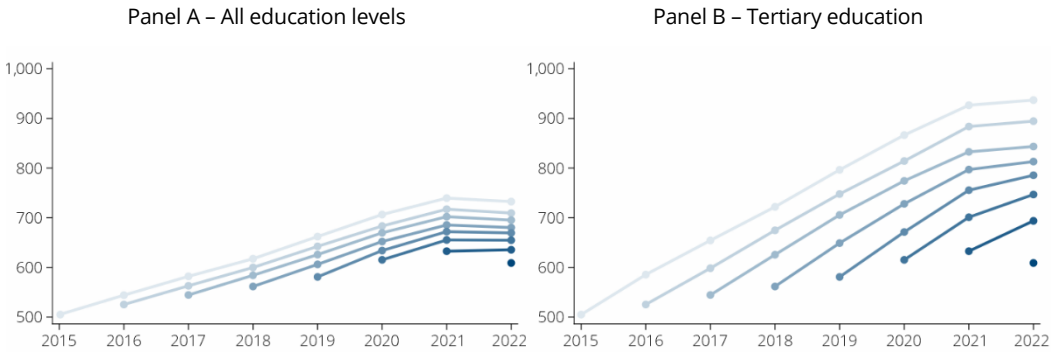
The share of workers entering the labour market with a base wage equal to the NMW and continuing to receive that wage in subsequent years has increased.

Labour market entry conditions may condition the wage profile of workers over their lifetime. It is therefore important to understand the wage developments of workers entering the labour market with a base wage equal to the NMW, aggregating them per year of entry into the labour market and monitoring them over time.

Chart 12 shows developments in the wages of workers entering the labour market aged 30 or less and earning a base wage equal to the NMW, by year of entry into the labour market. The real wages (at 2015 constant prices) of these workers showed an upward profile in the period under review, more pronounced for those with tertiary education (Panel B of Chart 12). This upward profile was interrupted in 2022, reflecting a broad-based increase in prices.

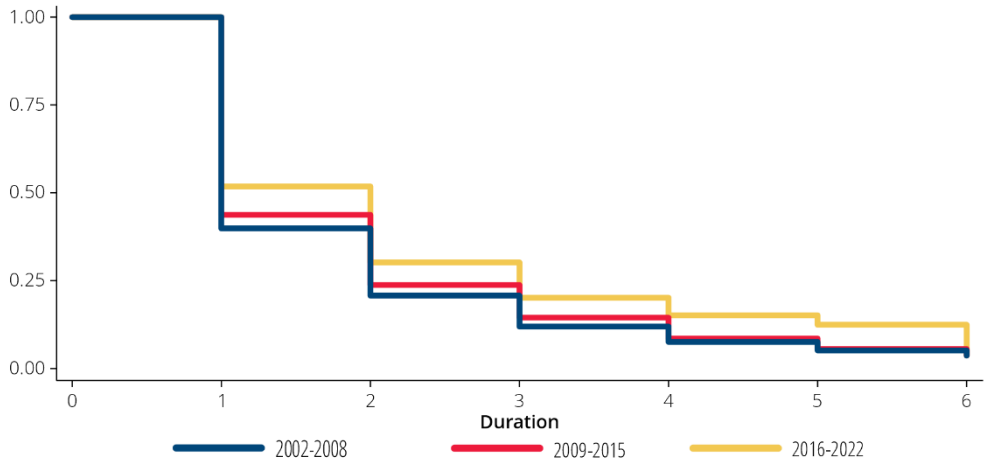
On the other hand, analysing the duration of these workers' wages shows that the length of time they earned a base wage equal to the NMW has been increasing (Chart 13). In the most recent period (2016-21), 52% of workers continued to earn a base wage equal to the NMW in the year following their entry into the labour market, compared with 44% in the period from 2009 to 2015 and 40% in the period from 2002 to 2008. Between 2016 and 2021, 13% of the workers entering the labour market with a base wage equal to the NMW continued to receive a base wage equal to the NMW after six years (compared to 4% in the 2002-08 and 2009-15 periods).

Chart 12 • Average wage evolution of workers who entered the labour market with a base wage equal to the national minimum wage | At constant 2015 prices



Source: Personnel Records – Statistics Portugal (Banco de Portugal calculations). | Notes: Base wage deflated by the Consumer Price Index (October 2015 = 100) in October of each year. Worker entries into the labour market are approximated by the year of entry in the database for workers aged 30 or younger.

Chart 13 • Kaplan-Meier curves for the duration of a base wage equal to the national minimum wage among workers who entered the labour market | In years



Source: Personnel Records – Statistics Portugal (Banco de Portugal calculations). | Notes: The Kaplan-Meier curves indicate the fraction of workers who entered the labour market earning a base salary equal to the national minimum wage and who continue to do so over time. Worker entries into the labour market are approximated by the year of entry of the worker in the Social Security microdata for individuals aged 30 or younger. The period between 2002 and 2022 was considered to avoid inconsistencies in database availability. To compare the three time periods, the duration was limited to six years. The duration analysis presented is at the worker level.

Any NMW increases should be set out within a coherent framework of labour market policies, considering productivity developments, inflation dynamics and the business cycle.

NMW increases in recent years have been higher than the inflation rate and productivity growth. These developments in the NMW resulted in an increase in its prevalence in the wage structure in Portugal, which has fluctuated at around 22%, indeed being the reference remuneration for firms in some sectors of activity. In 2025 the NMW increased to €870 and the Government announced a progressive increase up to 2028, when it is expected to reach €1,020. This accounted for a nominal increase of 17% in just three years, 5.4% per year.

Wage dynamics, in particular of the NMW, may be a source of pressure on prices and on the competitiveness of an economy in a monetary union. Wage increases should consider the dynamics of the labour market and the economy, focusing on productivity gains of workers and firms. In addition, while the impact of the increase in the NMW on employment remains an open discussion and the literature for Portugal is not conclusive, developments in the NMW should be framed within the business cycle.

It is therefore recommended that wage developments and dynamics be set out within a coherent framework of labour market policies and macroeconomic prospects, as well as of protection of lower-income workers and households.