ITALY'S ECONOMIC OUTLOOK 2025-2026

■ The Italian GDP is projected to increase by 0.5% in 2025 and 0.8% in 2026, following a growth of 0.7% in 2024 (Prospect 1).

■ The anticipated GDP growth during the forecast period will be entirely driven by domestic demand, excluding inventories, contributing +1.1 percentage points to the increase in both years. In contrast, net foreign demand is expected to present a negative contribution of -0.6 and -0.2 percentage points, respectively. This forecast for net foreign demand assumes a reduction in uncertainty surrounding U.S. trade policy, stabilisation of international demand, and continued moderation in energy commodity prices.

■ Private consumption growth is projected to rise, albeit at a moderate pace, with estimates of +0.8% in 2025 and +0.9% in 2026. This increase reflects the positive dynamics of wage and employment growth, as well as a decline in the savings propensity and the spending deflator of resident households in 2026. Investment growth is anticipated to accelerate significantly in 2025, rising by 2.8% compared to 0.5% in 2024, and is expected to maintain a steady pace in 2026 at 2.7%. This growth is underpinned by the completion of projects outlined in the NRRP.

■ Employment, measured in terms of labour units (WU), is projected to increase at a rate surpassing that of GDP, with growth rates of +1.3% in 2025 and +0.9% in 2026, accompanied by a further slight reduction in the unemployment rate, forecasted at 6.2% in 2025 and 6.1% in 2026.

■ Following a decline in prices throughout 2025, a further slowdown in inflation dynamics is anticipated for 2026, supported by decreasing energy prices and a stabilisation of demand prospects at moderate levels. The deflator for household expenditure is expected to grow by 1.7% in 2025, in line with these trends, with a further reduction to 1.4% in 2026.

TABLE 1. **FORECAST FOR THE ITALIAN ECONOMY– GDP AND MAIN COMPONENTS**
Years 2023-2026, Concatenated values for demand components; year-on-year percentage changes and percentage points

	2023	2024	2025	2026
Gross Domestic Product	1.0	0.7	0.5	0.8
Import of goods and services (FOB)	-1.9	-0.4	2.7	2.4
Export of goods and services (FOB)	-0.2	0.0	0.8	1.6
DOMESTIC DEMAND (INCLUDING INVENTORIES)	0.3	0.6	1.0	1.0
Residential household consumption expenditure and NPISH	0.6	0.6	0.8	0.9
General Government Consumption	.1.1	1.0	0.4	0.2
Gross fixed capital formation	10.1	0.5	2.8	2.7
CONTRIBUTION TO GDP				
Domestic demand (net of inventories)	2.7	0.6	1.1	1.1
Net export	0.6	0.1	-0.6	-0.2
Inventories	-2.4	0.0	-0.1	-0.1
Household consumption expenditure deflator	5.0	1.5	1.7	1.4
Gross domestic product deflator	6.2	2.0	2.0	1.8
Compensation of employees per full-time equivalent	1.8	2.9	2.9	2.4
Full-time equivalent employment	2.7	2.2	1.3	0.9
Unemployment rate	7.5	6.5	6.2	61
Trade balance (level as % of GDP)	1.6	2.2	2.2	2.4

The international framework

Resilient global growth in a context of reduced uncertainty

The global economy during the first nine months of 2025 has generally displayed greater resilience than anticipated. The latest forecasts from the European Commission predict a modest deceleration in global GDP growth to 3.1% in 2025 and in 2026, down from 3.3% in 2024, influenced by both major advanced and emerging economies (refer to Table 2).

In the United States, the first half of 2025 was marked by significant fluctuations in imports. Nevertheless, the economic cycle received support from investments in and private consumption, which benefited from rising disposable income and favourable effects on financial wealth. For the year overall, however, GDP growth is projected to slow to 1.8%, down from 2.8% in 2024. This deceleration is attributed to trade policy uncertainty, reduced employment growth, and the ramifications of an extended government shutdown. Looking ahead to 2026, significant stability of the growth rate is expected (+1.9%). This stability will likely be facilitated by increased import tariffs and immigration restrictions, counterbalanced by supportive fiscal and monetary policy, a strong impetus for investments in artificial intelligence, and a diminished trade deficit.

TABLE 2. **MAIN VARIABLES RELATING TO THE GLOBAL ECONOMY AND MAJOR ECONOMIES**
Years 2024-2026, Levels and year-on-year percentage changes

	2024	2025	2026
Brent crude oil (dollars per barrel)	80.7	66.1	61.5
USD to Euro exchange rate	1.08	1,13	1.16
Global trade in volume*	3.4	2.8	2.1
GROSS DOMESTIC PRODUCT			
World	3.3	3.1	3.1
Developed countries	1.9	1.7	1.7
USA	2.8	1.8	1.9
Euro Area	0.7	1.3	1.2
Emerging and developing countries	4.4	4.2	4.2
China	5.0	4.8	4.6

Source: DG-ECFIN Autumn Forecasts (2025) and Istat elaborations
* Global export of goods and services in volume

The euro area is anticipated to sustain its economic growth rate between 2025 and 2026. This year, economic performance has exceeded expectations, primarily due to increased exports in anticipation of forthcoming tariff increases, improved financing conditions, the return of inflation to levels consistent with the European Central Bank's targets, and the investment stimulus facilitated by European Union funds. On average for the year, GDP growth is projected to accelerate to 1.3% in 2025, up from 0.7%. In contrast, 2026 is expected to demonstrate relative stability compared to 2025, with a growth rate of 1.2%, amid diverse economic trends across major countries. Germany, following modest growth of 0.2% in 2025, is forecast to see a significant rebound to 1.2% in 2026, driven by expansionary public spending measures that are likely to stimulate real wages, consumption, and investment. France is expected to observe a modest recovery in 2026, with a growth rate of 0.9% following 0.7% in 2025; however, ongoing economic and political uncertainty, along with necessary fiscal adjustments, will continue to exert pressure on domestic demand. Lastly, in Spain, while GDP growth is set to remain high, it is projected to decelerate to 2.3%, down from 2.9% in 2025, due to weaker domestic demand and a slightly negative impact from foreign demand.

Among emerging economies, China is projected to end 2025 with a growth rate of 4.8%, approaching the 5% target, driven by government subsidies, increased private consumption, and exports bolstered by early shipments to the United States and robust foreign demand from other emerging markets. During 2026, however, the growth rate is anticipated to gradually decelerate to 4.6%, influenced by a prolonged real estate crisis, weaker household demand, and declining employment indicators.

In this context, the depletion of factors that supported international trade in the first half of the year—for example, anticipatory purchases and sales—along with the impact of customs duties, is expected to weaken international trade volume growth further. Following a slowdown in 2025 (+2.8% compared to +3.4% in 2024), this trend is projected to continue into 2026 (+2.1%). The anticipated developments will be influenced by the lingering, albeit

diminishing, uncertainty in trade policy, as well as an adverse statistical effect arising from the relatively robust growth experienced in 2025, which was bolstered by temporary factors.

Expectations of potential adverse effects of tariffs on growth and inflation in the United States have led to a gradual depreciation of the dollar against the euro throughout the year. However, this trend appears to have halted at the end of 2025. On average for the year, the nominal exchange rate is projected at 1.13 dollars per euro, reflecting a 4.4% appreciation of the European currency relative to the 2024 average (1.08 dollars per euro). In 2026, significant stability is anticipated in relation to the levels observed at the end of 2025, leading to a further average appreciation of the European currency against the US dollar (+2.8%, equivalent to 1.16 dollars per euro) (Table 2).

Expectations of reduced global demand, combined with the OPEC+ nations' decision to increase oil production, have placed downward pressure on crude oil prices throughout the year, thereby contributing to lower global inflation expectations. Brent crude prices are projected to average $66.1 per barrel in 2025, a notable decline from the 2024 average of $80.7, representing an 18% decrease. In 2026, the expected stabilisation of international demand, along with the supply policies implemented by producing countries, is likely to continue moderating price fluctuations, with expectations that prices will align with the levels observed at the end of 2025. This forecast indicates an additional reduction in the average Brent price to $61.5, a 7% decrease.

Economic Outlook in the Final Months of 2025 and Forecasts for the Italian Economy

In the third quarter of this year, the seasonally-adjusted and adjusted-for-days-worked GDP exhibited modest quarter-on-quarter growth, attributed to a positive contribution from final consumption (+0.1 percentage points), gross fixed investment (+0.1 percentage points), and net foreign demand (+0.5 percentage points), counterbalanced by a negative contribution from inventories (-0.6 percentage points). Projected growth for 2025 is +0.5%. All domestic demand components are up compared to the previous quarter (+0.1% domestic consumption, +0.6% gross fixed investment).

On the supply side, challenges persist within the industrial sector (value added at basic prices declined by 0.3% compared to the prior quarter); both industry (in a strict sense) (-0.3%) and construction (-0.2%) experienced slight decreases, while services remained stable (+0.2%).

In November, consumer and business confidence surveys presented mixed signals. The consumer index declined; conversely, the business index improved (Figures 1 and 2). Consumer confidence deteriorated across all components, particularly in unemployment expectations and savings evaluations. In contrast, the manufacturing sector among businesses improved, with indications of stronger expectations for orders and production. However, confidence in the construction sector declined.

FIGURE 1. GDP AND BUSINESS CONFIDENCE CLIMATE (Chained values and index base 2021=100)
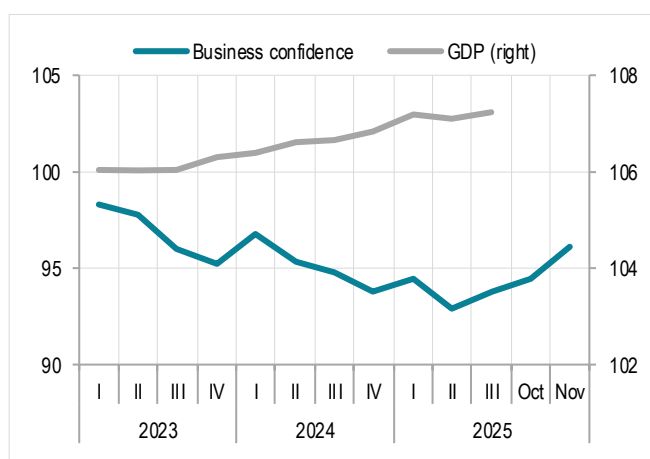
Source: Istat

FIGURE 2. HOUSEHOLD CONSUMPTION AND CONSUMER CONFIDENCE CLIMATE (Chained values and index base 2021=100)
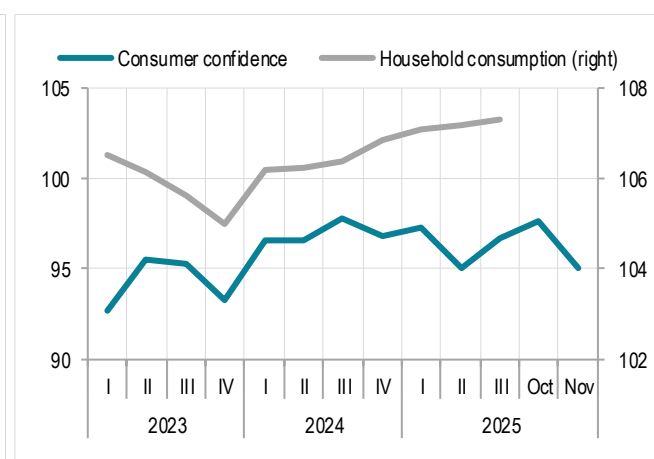
Source: Istat

In the current scenario, with tensions resulting from US trade policy and uncertainties about the actual impacts of tariffs, it is expected to subside gradually. Stabilising demand from Italy's primary trading partners, coupled with the ongoing deceleration in prices driven by subdued commodity prices, is bolstering Italian growth.

This growth is set to benefit from, on one hand, recovering wages and employment, and on the other, a resurgence in investment. Following a robust performance in the first half of 2025, this recovery is expected to persist into 2026 at a rate consistent with that observed at the end of the year, propelled by the finalisation of NRRP projects.

Moderate consumption growth, with a slight acceleration anticipated in 2026, alongside robust labour market conditions, is unlikely to influence inflation, which is projected to remain below the Central Bank's targets. Furthermore, it will benefit from the expected deceleration in energy prices over the two years, as well as the appreciation of the euro.

In 2025, GDP is projected to grow by 0.5%, driven solely by domestic demand, which, excluding inventory changes, is expected to add 1.1 percentage points, while net foreign demand is likely to make a negative contribution of -0.6 percentage points. The Italian economy's expansionary phase is expected to gain slight momentum in 2026, with a projected growth rate of 0.8%. Once again, the contribution will originate from domestic demand net of inventories, reflecting a positive impact of 1.1 percentage points. The recovery in foreign trade is anticipated to see imports outpacing exports in 2026, despite exports growing faster. Consequently, net foreign demand is expected to continue providing a negative contribution to GDP growth, albeit reduced to -0.2 percentage points compared to -0.6 percentage points in 2025.

In this context, the trade balance is expected to remain positive in 2025 at 2.2% of GDP and expand further in 2026 to 2.4%.

Consumption Accelerates Slightly

Consumer spending growth in the major Eurozone economies was overall weak in the third quarter of 2025. Throughout the year, France, Germany, and Italy demonstrated modest, largely stable quarterly changes, with quarter-on-quarter adjustments of +0.2%, 0.0%, and +0.1%, respectively, in the third quarter. In contrast, Spain achieved a notably more dynamic performance, characterised by steady acceleration, with increases of 0.4%, 0.5%, and 1.1% across the first three quarters.

In relation to government spending, Italy is showing a less dynamic performance than other major European nations. Following a contraction in the first quarter, the modest growth already observed in the second quarter (+0.2%) was reaffirmed in the third quarter, which remains particularly subdued when juxtaposed with Spain (+1.1%), France (+0.8%), and Germany (+0.5%).

During the July-September period, Italian household expenditure rose modestly by 0.1%. Durable goods posted a notable rebound, with a 2.6% growth rate, following a 0.4% increase in the second quarter and a significant contraction at the beginning of the year (-1.9%). In contrast, non-durable goods stagnated, with a growth rate of 0.0%, following increases of 0.1% and 0.5% in the first two quarters. Meanwhile, service consumption declined by 0.2% on a quarterly basis, following increases of 0.5% and 0.1% in the previous two quarters.

Throughout 2025, a modest acceleration in household and Private Social Institutions (PSI) consumption in real terms is anticipated, rising by 0.8%, up from 0.6% in 2024. This growth is expected to be driven by an increase in household disposable income, which will counterbalance a rise in the propensity to save. Furthermore, consumption is projected to rise slightly by 0.9% in 2026. This is likely to be supported by a deceleration in prices, with the consumption deflator forecasted at 1.4%, down from 1.7%, as well as a slight decrease in the propensity to save. Conversely, Public Administration (PA) consumption is expected to align with the moderate growth rates observed in 2025, continuing into 2026. This will result in an average annual slowdown over the two-year forecast period, with growth rates of 0.4% and 0.2% in 2025 and 2026, respectively.

Investment growth resumes

Investment momentum strengthened substantially in 2025. During the initial three quarters, capital accumulation rose by 3.1% in comparison to the same period in 2024; France and Germany encountered contractions of (-0.3% and -0.6%, respectively), whereas Spain demonstrated more robust growth at (+5.9%).

During the same period, Italy's expansion was predominantly driven by investment in non-residential buildings, which rose by 15.2%. This growth was bolstered by infrastructure projects and initiatives funded by the National Recovery and Resilience Plan (NRRP). Additionally, investment in machinery, equipment, and armaments experienced a resurgence, growing by 2.4% following the weaknesses observed in 2024. Nevertheless, the decline in housing investment, which fell by 5.6%, persisted, mainly due to the contraction of construction incentives (Figure 3).

Looking ahead to the coming months, optimistic projections are emerging from manufacturing confidence surveys, indicating an improvement in financing conditions, attributed to the ECB's interest rate cuts and optimistic investment forecasts for 2025-26. Moreover, encouraging trends are beginning to materialise in construction production.

In the projected scenario, total investments are anticipated to rise in 2025 (+2.8%). This upward trend is expected to continue into 2026 (+2.7%), driven by favourable developments in plant and machinery, armaments, non-residential construction, and the execution of NRRP projects. The latter has been factored into the forecasts using conservative criteria: specifically, the review and realignment of deadlines and projects are still in progress during the reference period, and the investment profile accounts only partially for the potential impact of the NRRP. The investment-to-GDP ratio is projected to reach 22.3% in 2025 (up from 22.1% in 2024) and 22.4% in 2026.

Foreign Trade Resilience

Exports of goods and services grew moderately in 2025, with a 0.9% increase (seasonally adjusted, chained) in the first three quarters compared to the same period in the previous year. In contrast, imports rose by 3.2%.

However, foreign sales of goods and services exhibited divergent trends. Specifically, goods recorded a slight 0.2% decline in the first three quarters compared to the same period in 2024. This decrease was influenced by a series of announcements and the subsequent imposition of U.S. tariffs, as well as the appreciation of the European currency against the dollar. Export levels for goods fluctuated throughout the year, reflecting positive quarterly growth in the first and third quarters—attributed to advance sales before the implementation of tariff measures—while declining in the second quarter. Conversely, despite a decrease in the second quarter, the services sector demonstrated substantial overall expansion, registering a year-on-year increase of 5.1% in the first three quarters, primarily supported by tourism growth (Figure 4).

FIGURE 3. TRENDS IN GROSS FIXED INVESTMENTS BY ASSET TYPE. Years 2024-2025, seasonally adjusted and chained data, index base Q1 2024=100
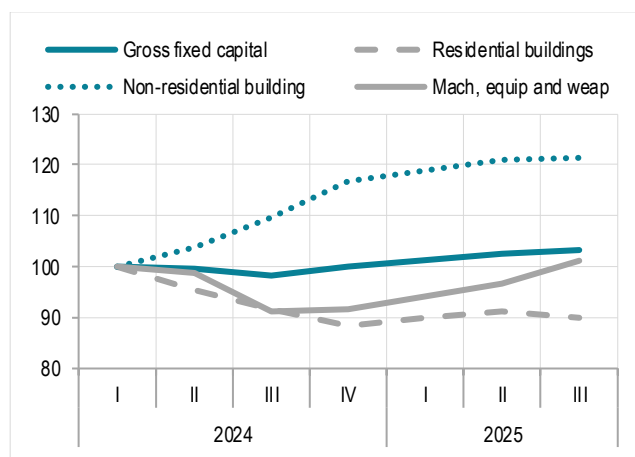
Source: Istat

FIGURE 4. EXPORT OF GOODS AND SERVICES. Years 2024-2025, seasonally adjusted and chained data, year-on-year changes
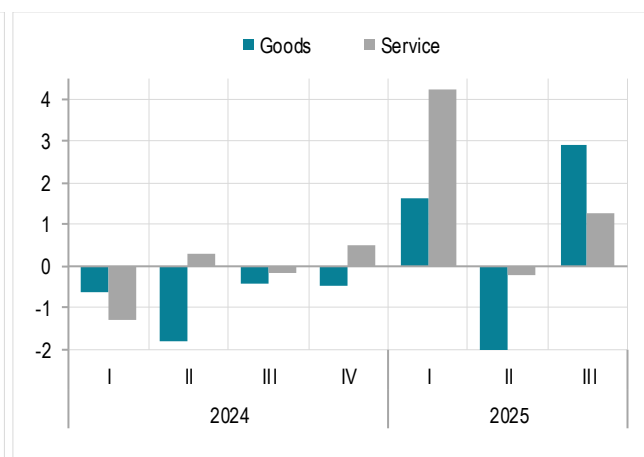
Source: Istat

In the concluding segment. For the year, a further decline in exports and a deceleration in import growth are anticipated. These trends are projected to result in an average positive adjustment in exports of 0.8% for 2025, compared to a more robust increase in imports of 2.7%. For 2026, the gradual alleviation of tensions stemming from US trade policy and uncertainty regarding the actual effects of tariffs, along with a stabilisation of growth in major economies, is expected to facilitate a return to moderate export growth of 1.6%. In contrast, imports are likely to continue expanding at a more pronounced rate, with a growth rate of 2.4%. Consequently, for both years, net foreign demand is expected to exert a negative influence on GDP growth, with a more significant impact in 2025 at -0.6 percentage points, compared to -0.2 percentage points in 2026.

Labour Market Remains Dynamic

The labour market demonstrated continued robust performance in the third quarter, with increases in both hours worked and labour units (WUs) for the overall economy, at +0.7% and +0.6%, respectively, compared to the previous quarter. This improvement spanned all sectors; however, the rise in hours worked was most pronounced in construction (+1.4%) and least significant in services (+0.6%). In terms of WUs, the most substantial growth occurred in agriculture (+0.7%), while industry growth was more moderate (+0.4%).

In October, employment growth continued at the same pace as in September, reflecting a 0.3% increase from the prior month and adding 75,000 individuals to the workforce. The employment rate rose to 62.7%, up 0.1 percentage points. Conversely, the unemployment rate declined by 0.2 percentage points to 6.0%, while the number of inactive workers remained stable at 33.2%.

In summary, during the third quarter of 2025, the growth trajectory of contractual wages moderated relative to the previous quarter, though it remained above the inflation rate. This deceleration in wage growth can be attributed to the notable stability within private services and a pronounced slowdown in the industrial sector, which was only partially mitigated by a slight acceleration in the public sector following the disbursement of the contractual holiday allowance. As of September 2025, real contractual wages are 8.8% lower than the levels recorded in January 2021.

In the context of persistently robust labour demand, gross per capita wages rose in the first three quarters of the year, though year-on-year growth decelerated. The fourth quarter is anticipated to show less dynamic growth than the previous quarter, with projections for 2025 indicating per capita wage growth of 2.9%, which should facilitate a recovery relative to inflation, similar to the situation in 2024. In 2026, per capita wage growth is expected to moderate slightly to an average of 2.4%, thereby narrowing the prospects for recovering the purchasing power that was diminished during the two years of 2022-2023.

In the short term, encouraging signs of labour demand are emerging. In the third quarter of 2025, the seasonally adjusted vacancy rate for all firms with employees remained constant at 1.8%, as observed in the first two quarters of the year. Additionally, as of November 2025, employment expectations remain positive across construction, manufacturing, and market services.

In this context, WU growth is projected to exhibit less sustained progress over the two-year forecast period, with rates of 1.3% and 0.9%, respectively, down from 2.2% in 2024, while still surpassing overall GDP growth. The unemployment rate is expected to improve in 2025, decreasing to 6.2% from 6.5% in 2024 and further to 6.1% in 2026.

Inflation continues to decelerate.

According to preliminary data, the annual rate of change in the Harmonised Index of Consumer Prices (HICP) decreased to +1.1% in November, down from +1.3% in October. This figure remains significantly below the averages of both the euro area (+2.2%; +2.1% in October) and individual countries such as Germany (+2.6%; +2.3% in the previous month) and Spain (+3.1%; +3.2% in October). Among the major economies, only France recorded a more moderate inflation rate of +0.8% in both months. The projected 2025 inflation rate is +1.6%, which is 0.5 percentage points below the euro area average of +2.1%.

Consumer price inflation for the entire nation (NIC) was recorded at 1.2% in November, according to preliminary estimates, remaining consistent with the previous month and marking the lowest level since early 2025. The recent moderation in price dynamics has been attributed to both domestic production and imported goods. Energy prices continued to decline in November, falling 4.2%, compared with a 4.4% decline in October. The growth rate in services also slowed to 2.2%, down from 2.6%, while food prices showed a more moderate change, slowing to 2.2% from 2.3%. Prices for imported industrial products decreased by 0.2% quarter-on-quarter in September, based on the most recent data available, following a decline of 0.6% in August. This marks the lowest level since November 2021, with a year-on-year decrease of 2.5%, down from 3% in August.

In the coming months, consumer sentiment suggests a modest price increase. In November, the proportion of individuals forecasting an increase in annual inflation over the next 12 months rose to 43%, up from 40.5% in October. Conversely, the percentage of those expecting a decrease fell to 41.5%, down from 42%. Among businesses, a significant majority plans to maintain price stability over the next three months, with figures indicating 85.7% in manufacturing, 91.6% in construction, 87.7% in market services, and 83.5% in trade. Additionally, the balance between those anticipating an increase and those predicting a decrease improved in manufacturing and services, while it declined in construction and trade.

Based on the most recent data, the projected growth of the HICP-NEI indicator (consumer price index excluding imported energy) for 2025 remains consistent with the assessment made last June, at approximately 2%. A more subdued rise in the HICP index, coupled with a smaller-than-anticipated decline in imported energy prices, could lead to a slight decrease in the indicator.

In light of these trends and anticipated movements in international commodity prices, along with a forecast of moderate domestic demand growth, a continued slowdown in inflation is expected in 2026, albeit at a more gradual pace. The household consumption deflator is projected to decrease from +1.7% in 2025 to +1.4% in 2026, while the GDP deflator growth forecasts for 2025 and 2026 stand at +2% and +1.8%, respectively.

Revisions to the Previous Forecast

The current forecast updates the estimates for the 2025-2026 period released in June 2025. Compared with the prior exercise, the oil price has been adjusted downward by $1.6 per barrel for 2025 and $2.5 for 2026. Additionally, the euro exchange rate against the dollar has appreciated by 1.8% in 2025 and 2.7% in 2026. Furthermore, world trade projections have been revised upwards, with an increase of 1.0 percentage points for 2025 and 0.1 percentage points for 2026 compared to the assumptions established in June.

In response to these revisions, exports of goods and services are anticipated to decrease by 0.5 percentage points in 2025 and 0.2 percentage points in 2026, while imports are projected to increase by 0.6 percentage points in 2025 and 0.2 percentage points in 2026. The dynamics of investment over the year have yielded a more vigorous profile, resulting in upward adjustments of 1.0 percentage points for 2025 and 1.6 percentage points for 2026.

Relative to the June forecast, the performance of the labor market has shown less dynamism, resulting in an upward adjustment of the unemployment rate by 0.2 percentage points in 2025 and 0.3 percentage points in 2026, alongside a reduction in gross compensation per unit of labor, which is projected to decline by 0.4 and 0.9 percentage points, respectively, throughout the two-year forecast period.

More moderate energy commodity prices have facilitated a more pronounced decrease in inflation, including a significant reduction in the deflator of resident household expenditure by 0.1 percentage points in 2025 and 0.2 percentage points in 2026.

Overall, the GDP growth forecast has been revised downwards by 0.1 percentage points for 2025, while the estimates for 2026 remain consistent with those provided in June.

ISTAT MACROECONOMETRIC MODEL

METHODOLOGICAL NOTE

Introduction

This note describes the main features of the economic forecasting model developed by Istat: the Macro Econometric Model for Italy (MEMo-It) [1]. The model includes 66 stochastic equations and 94 accounting identities with annual frequency, representing the Italian economic system by specifying behavioural equations for the economic agents (Households, Businesses, Public Administrations, and the Rest of the World). The time series of variables used in the model covers the period from 1970 to 2024. Where data were unavailable, ad hoc reconstructions were carried out.

The theoretical approach used in constructing the model is neo-Keynesian. In the model, short-term economic growth dynamics are driven by demand factors, while in the long term, the economy tends towards equilibrium conditions represented by potential output. The interaction between aggregate demand and supply occurs through the price system, which reacts to deviations of the actual unemployment rate from the natural rate of unemployment (NAIRU) and to imbalances between actual and potential output (output gap). The model is structured into blocks, where the direction of causality in behavioural equations and the framework of accounting identities have been predetermined. [2]

The specification and estimation of the model follow three successive steps: (a) analysis of the integration and cointegration properties of variables for individual equations or blocks of equations and assessment of weak exogeneity for blocks of relevant variables; (b) two-stage single-equation estimation of the model's variables to account for endogeneity and measurement errors in the explanatory variables; (c) combining the individual equations and blocks of the model with three-stage estimation of their parameters to take into account the covariance between error terms belonging to different stochastic equations.

The model's dynamic properties are evaluated through a predefined sequence of shock experiments on selected exogenous variables relative to the baseline solution. These exercises use deterministic and stochastic simulation techniques. The standard errors obtained during the three-stage estimation of the complete model generate the stochastic solution, allowing for the quantification of forecast uncertainty.

In its current version, the model offers an aggregate description of the economic system. Future research directions for the model's development will focus on explicitly representing the behaviour of different economic sectors and on extending the model to intra-annual economic movements.

The rest of this note is organised as follows: the second paragraph describes the characteristics of the supply block, while the third and fourth paragraphs describe the price system and the labour market. The fifth paragraph illustrates the demand block broken down by individual agents. Finally, the sixth paragraph describes the model's database.

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[1] The forecasting model was developed by a research group at Istat under the scientific coordination of Professor Roberto Golinelli, full professor of econometrics at the University of Bologna, Department of Economic Sciences.

[2] The methodological foundations of the model follow the traditional approach of the Cowles Commission for Research in Economics (Klein, 1950; Fair, 2004), integrated with the fundamental works of Dickey and Fuller (1979), Engle and Granger (1987), Sims, Stock, and Watson (1990), and Johansen (1995) on estimation and inference with time series potentially generated by integrated and cointegrated stochastic processes; of Hsiao (1997a and 1997b) on the properties of estimators with instrumental variables in the context of non-stationary stochastic processes; and of Hendry, Pagan, and Sargan (1984), and Pesaran et al. (2001) on the importance of the dynamic specification of the model's equations.

Supply

The supply side is integrated into the model through the "Solow model," which holds that the stocks of productive resources (capital and labour) and technological progress are the main determinants of economic growth. This provides the basis for estimating potential output, defined as the sustainable output level that does not cause inflation to rise. In the long run, the economic system converges towards the likely growth path determined exclusively by supply forces. In contrast, in the short run, it fluctuates around this path due to shocks generated by demand forces. These fluctuations are captured by the deviations of actual output (Y_{EFF}) from its potential level (Y_{POT}), which can be summarised through the output gap, defined by the following expression:

$$GAP = Y_{EFF} / Y_{POT} - 1$$

The gap between actual and potential output is inversely correlated with the gap between actual unemployment (UR) and structural unemployment ($NAIRU$), according to the following relationship (Okun, 1962):

$$GAP = -b (UR - NAIRU)$$

Imbalances between actual and structural unemployment, and between actual and potential output, generate price changes that help rebalance the system.

In the model, potential output is measured following the production function approach, similar to the method suggested by the European Commission (see D'Auria *et al.*, 2010)[3]. The central assumption is that a Cobb-Douglas production function can represent the economy's potential supply. Formally, this is expressed as:

$$Y_{POT} = f_{POT} (K, LP, HTFP)$$

where *LP* represents potential labour input, K is capital stock, and HTFP is the trend component[4] of total factor productivity (Solow residual). Potential labour input is obtained by filtering out the cyclical component from actual employment. The potential capital stock, *K*, is estimated using the perpetual inventory method (Goldsmith, 1951). The central assumption is that the potential capital stock coincides with the actual stock, assuming it represents the full employment utilisation of capital goods.

Prices and Wages

The mechanism for forming prices and wages drives actual demand for goods and services and employment to adjust respectively to the supply level (potential output) and possible employment, which in turn is defined by the interaction between *NAIRU* and a combination of labour force participation rate and demographic trends of the working-age population.

Using the "triangle" stylisation proposed by Gordon (1981, 1988), both the system's reference price variable (pivot) and per capita wages are affected by three main factors: (1) persistence, measured by their dynamics in previous years; (2) demand shocks, measured by the output gap and the excess of the actual unemployment rate over *NAIRU*; (3) other significant shocks, which in the Italian economic context include those arising from import prices, labour productivity shocks and labour market tensions during contract renewal phases.

The value-added deflator at factor cost (*PV*) is the model's *pivot* price:

$$dlogPV = f_{PV} (dlogPV_{-1}, GAP, WB/YU)$$

where $dlogPV_{-1}$ measures inertia, *GAP* measures demand shocks, and *WB/YU* (the real labour cost per unit of output, calculated as the ratio between employee income and GDP at current prices) measures productivity and labour cost shocks. The equation for *PV* can also be interpreted as a New Keynesian Phillips Curve (NKPC, Galì and Gertler, 1999), where expectations are assumed to be *backwards-looking*.[5]

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[3] See also De Masi (1997), Denis et al. (2006), and Giorno et al. (1995).

[4] The trend components of the variables used are obtained using the Hodrick-Prescott filter (1997).

[5] For a comparison between the triangle model and the NKPC, see Gordon (2011).

Nominal wage growth is explained by the household consumption deflator from the previous year (which implies backwards-looking inflation expectations), the unemployment rate, labour productivity, and a variable that measures labour market tensions during contract renewal phases. [6]

The import deflator is determined by the dollar price index of manufactured goods on international markets, Brent oil prices in dollars, and the nominal dollar-to-euro exchange rate[7]. Additionally, the import deflator's inflation rate from the previous year captures a persistence component.

The deflators for demand components depend on these variables and the average effective rates of indirect taxation, differentiated by value-added tax, other indirect taxes, and production contributions.

The Labour Market

The labour market block comprises three equations: labour demand, labour supply, and wages. The specification of labour demand derives directly from the production function (Hamermesh 1996 and 1999). Under the assumption of perfect competition, where the labour factor is remunerated by its marginal product, the labour demand equation is obtained, which depends positively on output and negatively on the real wage. Consequently, private sector demand (LDP), expressed in terms of standard full-time equivalent (FTE), is defined by the following expression:

$$LDP = f_{LD}(Y, PY, \frac{WB}{LDD}, PV)$$

where Y is the value added at current prices, PY is the GDP deflator, WB represents the total amount of employee income at current prices before social security contributions, LDD defines the employee full-time equivalent expressed in terms of production capacity, and PV is the value-added deflator at factor cost.

The public sector labour input ($\overline{LDG}$) is exogenous. It follows that the total labour input (LD) used in the production process is composed of:

$$LD \equiv (LDP + \overline{LDG})$$

Labour market equilibrium is achieved through the interaction between supply and demand. The model considers demographic factors and the relationship between business cycle fluctuations and participation rates (Lucas and Rapping, 1969) by using the labour force variable in the definition of the supply function.

Labour supply is defined as participation rates disaggregated by gender (i = F, M). More precisely, the participation rate ($PART_i$) is specified as follows:

$$PART_i = f_{LS}(\overline{POP_i}, WIPC, EMPR_i, PCH)$$

where POP_i is the population aged 15 to 64, disaggregated by gender, $WIPC/PCH$ represents real per capita wages (PCH is the private consumption deflator), and $EMPR_i$ is the employment rate, which provides a summary measure of labour market conditions (Bodo and Visco, 1987). The two measures used in the model—standard full-time equivalent and resident employment—are consistent through a bridging equation. The unemployment rate is derived as an identity by combining information on resident employment and the labour force (supply function).

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[6] The wage equation is inspired by the work of Phillips (1958), with its specification modified here to account for the inflation rate; for a discussion, see Golinelli (1998)

[7] Before introducing the euro, the reference exchange rate was between the US dollar and the Italian lira.

Demand

The model's demand side refers to the behaviour of economic agents: Households, Businesses, Public Administrations, and the Rest of the World. Households spend on consumption and residential investments, accumulating real and financial wealth. Businesses purchase all other investment goods (machinery, equipment, and others). Public Administration spending directly influences final demand through public consumption and investments. The Rest of the World determines the external component of demand, represented by net exports, i.e., exports minus imports.

Households

The permanent income hypothesis is the theoretical approach to determining household consumption (Friedman, 1957). A similar approach for Italy has been adopted by Rossi and Visco (1995) and, more recently, by Bassanetti and Zollino (2008). Actual consumption (CHO) is therefore modelled as a function of disposable income, wealth (both real and financial), and the interest rate:

$$CHO = f_{CHO}(YDH, HWFA, HWDW, PCH, IRN)$$

where YDH is the disposable income at current prices; $HWFA$ and $HWDW$ are financial and real wealth, respectively, also at current prices; PCH is the consumption deflator and IRN is the nominal long-term interest rate.

The portion of disposable income not consumed contributes to real wealth accumulation. Additionally, the share of disposable income not allocated to consumption or residential investment (IRO) contributes to the growth of financial wealth. The two wealth stocks, valued at market prices, are modelled using a framework consistent with the permanent inventory approach (Goldsmith, 1951). The equations for residential investments, real wealth, and financial wealth are as follows:

$$IRO = f_{IRO}(YDH, PIR, IRN)$$

$$HWDW = f_{HWDW}(YDH, IRO, PIR, IRN)$$

$$HWFA = f_{HWFA}(YDH, CHO, IRO, IRN, COMIT)$$

where PIR is the deflator for residential investments; $COMIT$ is the stock market index, linking the dynamics of financial wealth not only to saved income not invested in tangible assets but also to capital gains/losses on securities.

Disposable income is defined as an identity, as the sum of various components related to the institutional household sector:

$$YDH = GOSH + WBH + IDH + SBH + OCTH - (SSH + DTH)$$

$GOSH$ is the gross operating surplus, WBH is the total wages and salaries net of those from the rest of the world, IDH represents income from interest and dividends, SBH refers to net social benefits, $OCTH$ stands for other transfers, SSH denotes net social contributions, and finally, DTH represents direct taxes paid.

Businesses

Businesses contribute to the model's stylised economic framework by investing in machinery, equipment, and other productive assets. These investments, expressed as a share of potential output, are influenced by factors such as persistence, the cost of capital, gross operating income (a summary measure of profits and self-financing), and the degree of uncertainty (measured by the conditional volatility of business-cycle disturbances).

The cost of capital represents the price of the productive services a capital asset generates. It is assumed to depend on the financing cost (or the opportunity cost of foregoing an alternative investment in the case of self-financing), the economic depreciation of the capital asset during its period of use, and the capital gains or losses arising from changes in the asset purchase price.

Public Administrations

The description of the public sector within the MEMo-It model follows an institutional approach. This is characterised by algebraic identities and relationships that stylise the accounting rules (SEC95) and the regulations governing the primary aggregates of the consolidated economic account of Public Administrations (PA).

The direct relationships between PAs and the rest of the economy manifest through their effects on total demand, driven by final consumption spending, public investments, and income from the public sector. PAs also influence prices through net indirect tax rates, unit labour costs via social contribution rates, and disposable income obtained through direct taxation and transfers.

Total PA expenditures are disaggregated into final consumption spending, production subsidies, interest payments, gross fixed capital formation, investment grants, and a residual exogenous variable capturing other expenditure items. The aggregate for final consumption spending consists of two components: direct spending and wage-related expenditures. The latter is derived from the per capita average wage in the public sector (estimated in the labour market block) and the number of public employees.

Both direct spending in volume and employee numbers are considered exogenous and serve as fiscal policy instruments. Public investments are also exogenous in real terms, with their deflator derived in the price formation block. Nominal social benefits are linked to the population's age structure and a price indicator. Production subsidies and investment grants are related to the private sector's value-added investments through coefficients expressing the percentage contribution to the private sector.

Total revenues are disaggregated into social contributions, indirect taxes, direct taxes, and residual exogenous items. Social contributions are calculated as the sum of those paid by employers, employees, and self-employed workers, using specific effective average rates as the basis.

Indirect taxes include revenues from Value Added Tax (VAT), the Regional Tax on Productive Activities (IRAP), excise duties on mineral oils and derivatives, and a residual exogenous component. The model calculates indirect taxes using appropriate, exogenous, effective average rates. Revenues from excise duties on mineral oils and derivatives are computed using two equations: estimating the energy intensity of GDP (based on persistence and oil price in euros per barrel) and multiplying an exogenous effective average rate by energy consumption.

Direct taxes are the sum of revenues from personal income tax, corporate income tax, substitute tax on interest, other capital income, and a residual exogenous component. The substitutive tax on interest and capital income is estimated based on the previous year's revenue, GDP, changes in interest rates, and new financial activities approximated by household savings.

The fiscal balance of PAs is calculated as the difference between total revenues and expenditures. Public debt stock is determined by subtracting the previous year's budgetary balance from the debt stock, adding an exogenous adjustment variable to account for factors affecting debt independently of the fiscal balance (e.g., financial transactions, changes in financial instrument values, privatisations). Interest payments are calculated by multiplying the average cost by the debt stock. The average price of public debt is estimated based on short- and long-term interest rates.

Rest of the World

The specification of the external sector block is based on the accounting identity that defines the balance of transactions with the rest of the world:

$$ROWSALDO = (XO \times PX - MO \times PM) + (WB - WBH) + (APETIND - APUCP - TINDN) + ROWDT + ROWID + ROWSB + ROWOTH$$

where $(XO \times PX - MO \times PM)$ represents the trade balance in value (XO and MO are export and import volumes respectively, PX and PM are their respective prices); $(WB - WBH)$ are the net labour income from abroad, $(APETIND - APUCP - TINDN)$ are the net indirect taxes, $ROWID$ is the net capital income from abroad, $ROWDT$ are the current taxes on income and wealth, $ROWSB$ are the social benefits, and $ROWOTH$ are the other transfers. [8]

The theoretical approach for determining the balance with the rest of the world in the model is grounded in literature (Lane and Milesi-Ferretti, 2011; Obstfeld and Rogoff, 2010). The volume of goods and services imports is specified by an equation reflecting the interaction between domestic demand and international factors.

$$MO = f_{MO}(DDO, PM, GAP)$$

where DDO is real domestic demand, PM is the imports deflator, and GAP measures the effects of short-term cyclical fluctuations.

The equation for export volumes is expressed as follows:

$$XO = f_{XO}(WDXXTR, ITXRXER)$$

where $WDXXTR$ represents the value of global exports, and $ITXRXER$ is the real effective exchange rate. Net capital income (which primarily includes profits and dividends) is derived through the following function:

$$ROWID = f_{ROWID}(APSALDO)$$

where $APSALDO$ represents the balance of the Public Administration account. The inclusion of this variable is justified by the expectation that an improvement in the PA balance will reduce the risk premium (Lane and Milesi-Ferretti, 2011; Caporale and Williams, 2002), thereby enhancing the balance of capital income, primarily by reducing the interest component.

Finally, the equation for other transfers (encompassing the balance of public and private transfers, both current and capital account) is given by:

$$ROWOTH = f_{ROWOTH}(ITALIA)$$

where $ITALIA$ approximates the share of Italian exports, which is assumed to have an inverse relationship with incoming transfers.

The time series used for model estimation and the treatment of exogenous variables

The model was developed using 139 basic annual time series covering 1970 to 2024 as input. The model estimation process generates 222 variables, of which 157 are endogenous (66 stochastic and 91 identities), and 65 are exogenous (including nine scenario variables).

A significant portion of the input variables comes from national accounts, which, in September 2025, released estimates related to the general revision of the National Accounts—with 2021 as the reference year—agreed upon at the European level, introducing innovations and improvements in methods and sources.

To estimate the model's relationships, a reconstruction covering the period from 1970 to 1995 was carried out. This task was facilitated by the model's compact size, which, in its current version, does not include sectoral disaggregation. The reconstruction was conducted by leveraging time-series information from the previous classification of economic activities, with particular attention to rebuilding chain-linked values for the variables in the macroeconomic framework. This effort extended the new national accounting aggregates used in the model for specification and estimation purposes back to 1970.

The forecasts were produced using demographic scenarios available on **demo.istat.it** for demographic variables and the assumptions outlined in the State Budget Forecast for 2025 for public finance variables.

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[8] The reference for compiling the Rest of the World accounts by Istat is the Balance of Payments prepared by the Bank of Italy, based on the concepts and definitions outlined in the 5th Edition of the International Monetary Fund's Manual. See Istat (2005), Part Two, Chapter 3 for more details.

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For technical and methodological clarifications

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