Note ON THE ITALIAN ECONOMY

January 14th, 2025

- The global economic outlook remains positive for 2025, with a narrowing of growth differentials between the U.S. and the euro area. However, significant uncertainty persists, driven by ongoing geopolitical tensions and expectations regarding the direction of U.S. trade policy.
- In Italy, the industrial production index in November showed the second consecutive month-on-month increase, slightly accelerating compared to October. Growth affected all significant sectors except capital goods. The quarterly moving average trend of the index remains negative.
- In the first ten months of 2024, export values showed a slight decline due to a reduction in export volumes that outweighed the increase in average unit values. The trade balance improved significantly during the same period, exceeding 45 billion euros.
- In November, compared to October, the number of employed and unemployed individuals decreased, while inactive individuals increased. Italy's unemployment rate (5.7%) was lower than that of the euro area (6.3%).
- The decline in employment reflects mixed trends: a reduction in men, temporary employees, and individuals aged 15-34, while women, permanent employees, and those aged 35 and older increased. Compared to the previous quarter, there was a 0.2% rise in employment (+49,000 units).
- Inflation in Italy remains below the euro area average. In December, the Harmonized Index of Consumer Prices (HICP) increased by 1.4% year-over-year. The annual average rate dropped significantly to 1.0% compared to 5.7% in 2023.
- In the third quarter of 2024, the recovery in household purchasing power continued, albeit at a more moderate pace (+0.4%, compared to +1.1% in the second quarter). The growth in final consumption was more dynamic, supported by a decline in the saving propensity.
- Consumer confidence worsened for the third consecutive month in December, while business confidence rebounded after two straight declines driven by the market services sector.

Focus: The goals defined by the United Nations' 2030 Agenda provide an interesting framework for measuring the progress made by European Union (EU) countries within the broader context of resilient, sustainable, and inclusive economic growth. The focus examines the trajectories followed by euro area countries from 2003 to 2021 in their pursuit of sustainable development goals. In this process, Italy has improved its position within the European context over time.

TABLE 1. MAIN ECONOMIC INDICATORS FOR ITALY AND THE EURO AREA - q-o-q and m-o-m % variations.

INDICATORS	ITALY	EURO AREA	PERIOD	ITALY PREVIOUS PERIOD	EURO AREA PREVIOUS PERIOD
GDP	**0,0**	**0,4**	**Q3 2024**	**0,2**	**0,2**
Industrial Production	0,3	0,0 (Oct.)	Nov. 2024	0,1	-1,5
Production in the construction sector	1,6	1,0	Oct. 2024	1,0	-0,3
Retail sales (volume)	-0,6	0,1	Nov. 2024	-0,8	-0,3
Producer prices in the industry – domestic market	1,8	1,6	Nov. 2024	1,0	0,4
Consumer Prices (HICP)*	1,4	2,4	Dec. 2024	1,5	2,2
Unemployment rate	5,7	6,3	Nov. 2024	5,8	6,3
Economic Sentiment Indicator**	-1,1	-1,9	Dec. 2024	-0,3	0,0

* Year-over-year variations **Absolute differences compared to the previous month

Source: Eurostat, European Commission, Istat

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THE INTERNATIONAL-FRAMEWORK

The international scenario remains marked by high uncertainty. Persistent geopolitical tensions are compounded by expectations regarding the trade policy to be implemented after the official installation of the new US administration.

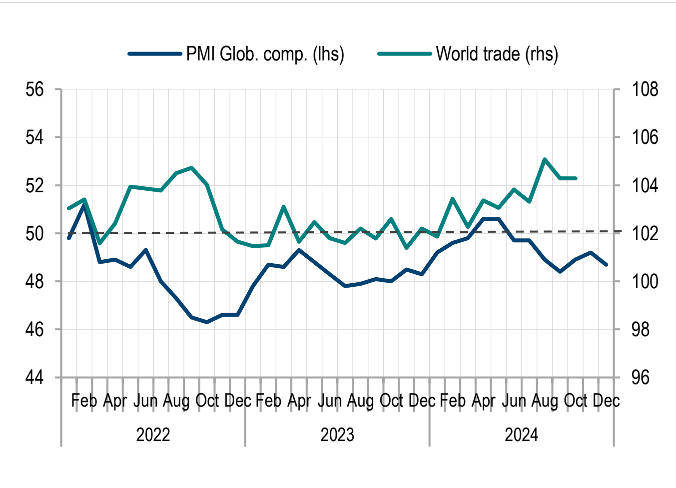
Reduction in growth differentials between the euro area and the United States. In 2025, growth rates in the main countries are expected to follow the trends of 2024, with the United States and China experiencing higher growth than the euro area. However, a reduction in the growth gaps between these areas is anticipated. According to the latest OECD estimates, GDP growth is expected to decelerate between 2024 and 2025 in China (from +4.9% to +4.7%) and the United States (from +2.8% to +2.4%) while accelerating in the euro area (from +0.8% to +1.3%).

Within the Economic and Monetary Union (EMU), the growth patterns across major countries are expected to continue showing some heterogeneity but with more convergence. In Germany, following the recession of 2023, 2024 may have been stable, followed by moderate growth (+0.7%) in 2025. In France, growth will likely remain moderate (+0.9%, after +1.1% in 2024). A slowdown is expected in Spain, but the growth rates will remain relatively higher than those of other major countries (+3.0% and +2.3% in 2024 and 2025, respectively).

In 2025, divergent inflation trajectories are expected between the United States and the euro area, consequently, monetary policies could also differ. U.S. inflation may accelerate due to new economic measures proposed by the new administration, potentially limiting the rate-cutting cycle initiated by the Federal Reserve in September 2024, which brought interest rates down to 4.25%-4.5%. This decision would also be supported by the substantial reduction in inflation despite the acceleration in recent months (+2.6% and +2.7% in October and November, compared to +2.4% in September for the year-on-year consumer price growth rates). In the euro area, disinflationary pressures are projected to dominate in 2025, enabling the ECB to continue a gradual monetary easing after four 25-basis-point rate cuts in 2024, lowering the deposit rate to 3.0%.

FIGURE 1. MERCHANDISE WORLD TRADE IN VOLUME AND PMI GLOBAL COMPOSITE NEW EXPORT ORDERS.

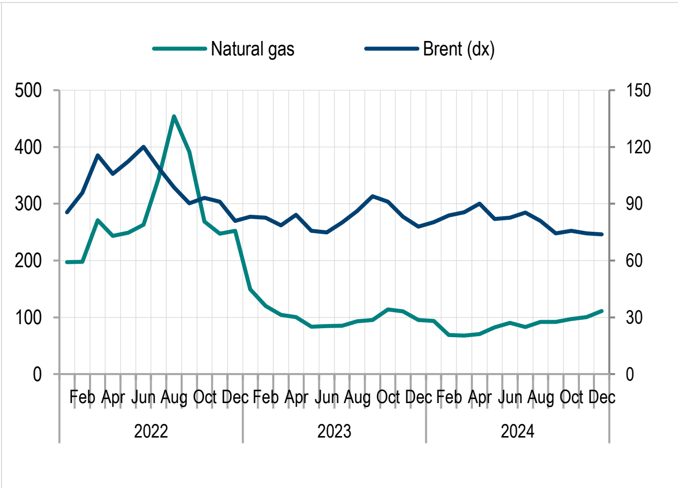
Index 2021=100, >50 = growth



Source: CPB and IHS

FIGURE 2. TRENDS IN OIL AND NATURAL GAS PRICES.

Brent: dollars per barrel; Natural gas: index 2010=100



Source: World Bank

Global trade stabilises, but the outlook deteriorates. After a moderate increase in the first quarter of 2024 (+0.5% quarter-on-quarter), international merchandise trade volumes grew stronger in the second and third quarters (+0.9% and +0.8%, respectively), driven by Chinese exports. In October, global trade remained stable compared to the previous month. However, the outlook is worsening: the global Purchasing Managers' Index (PMI) for new export orders, which predicts global trade dynamics, declined further in December, remaining below the expansion threshold of 50 (falling to 48.7 from 49.2, Figure 1).

In this context, the potential evolution of the "trade war" between the United States and China is critical to assessing the future evolution of global trade.

Gas prices are on the rise. The volatility of energy commodity prices heavily influences international inflation trends. Since August 2024, gas prices have continued to rise, though remaining well below the peaks seen in 2022: the natural gas index reached a high of 454 in August 2022, compared to 111.2 in December and an average of 87.4 in 2024 (Figure 2). The price increase is primarily linked to the ongoing war in Ukraine, which has created uncertainty over Russian gas flows to Europe (i.e. the expiration of the Russian gas supply contract to Europe via Ukraine). Gas prices may remain volatile in the coming months. However, the overall situation is expected to improve gradually, driven by increased diversification of supply sources, expanded storage capacity, and subdued demand. Unlike gas, Brent crude oil prices have followed a downward trend (albeit with some volatility) since last April, reaching $73.8 per barrel in December, compared to an average of $80.7 in 2024.

At the end of 2024, the euro depreciated against the dollar. On average, the euro remained at similar nominal values to 2023 against the dollar (1.08). After seven months of relative stability, the euro appreciated in August and September before a sharp depreciation in December (1.04 dollars per euro), driven by the change in the U.S. administration, differing growth prospects, and the divergent timing of interest rate cuts in the two regions.

The worsening outlook for the euro area. In December, the European Commission's Economic Sentiment Indicator (ESI) decreased by 1.9 points. The decline was led by reduced confidence in industry, construction, and among consumers, partially offset by improved sentiment in the services sector. Retail trade confidence remained broadly stable. Among the major economies, the ESI dropped significantly in France (-3.0 points), Germany (-2.5), and Italy (-1.1) while improving in Spain (+0.9).

THE ITALIAN ECONOMIC SITUATION

Industrial production is still on the rise. The most recent economic data show positive signs for Italy's industrial sectors in the last two available months despite quarterly averages continuing to indicate a decline. In November, the industrial production index recorded its second consecutive increase (+0.3% compared to October), slightly accelerating from the previous month's growth (+0.1% Figure 3). Growth was observed across all major industrial sectors except capital goods (-0.6%). The most significant increase was in energy goods production (+1.6%), followed by consumer goods and intermediate goods (+0.9% and +0.3%, respectively). In the September-November quarter, capital goods contracted (-0.2%), a milder decline than the 0.7% drop in intermediate goods, while consumer goods posted a 0.3% increase. Over the same period, the overall index showed a quarter-on-quarter contraction (-0.4%).

The construction sector is growing. In October, the production index for the construction sector posted its second consecutive monthly increase (+1.6%). However, the August-October quarter slightly declined (-0.3% compared to the previous three months). Compared to the first ten months of 2023, the calendar-adjusted index indicates strong growth (+5.8%). Mixed signals emerge from building permit data for the third quarter of 2024. Residential buildings recovered following a significant decline in the previous three months, with increases in new dwellings (+2.2%) and usable floor area (+2.4%). In contrast, non-residential construction experienced a sharp quarter-on-quarter contraction (-6.3%) after a highly positive second quarter. The real estate market remains dynamic. In the third quarter, house prices increased by 0.8% quarter-on-quarter, driven by rising prices for both new (+2.2%) and existing homes (+0.6%). This growth occurred alongside a 2.7% year-over-year increase in transaction volumes.

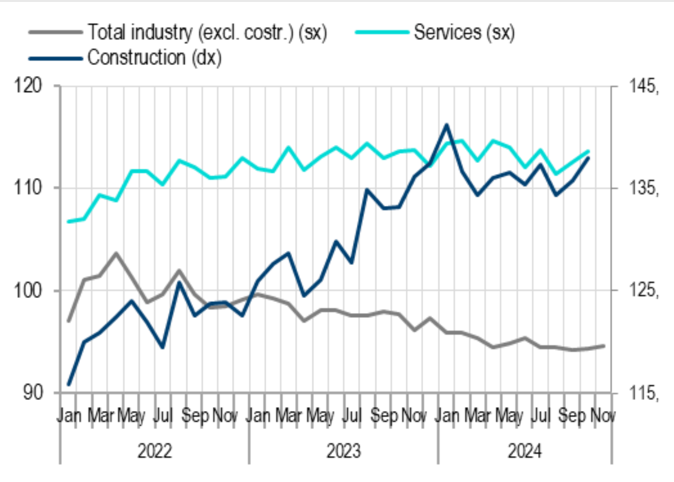
Service sector revenue volume increases. In October, the revenue volume index of the service sector recorded its second consecutive month of growth (+1.3%), with gains spread across all sectors. The most significant increases were in wholesale trade, motor vehicle and motorcycle sales and repair, and information and communication services (+2.8% and +1.9%, respectively). However, the index fell (-0.6%) for the August-October quarter compared to the previous three months.

Fixed capital investments by non-financial corporations declined further between July and September, down -1.1% from the prior quarter, a slightly steeper drop than the -0.9% seen previously. As a result, the investment rate decreased for the second consecutive time (-0.4 percentage points), settling at 21.7%.

During the same period, the profit share continued its downward trend, though the decline was less pronounced than before, falling to 42.4% (-0.3 p.p.), extending the slowdown that began in the second quarter of 2023.

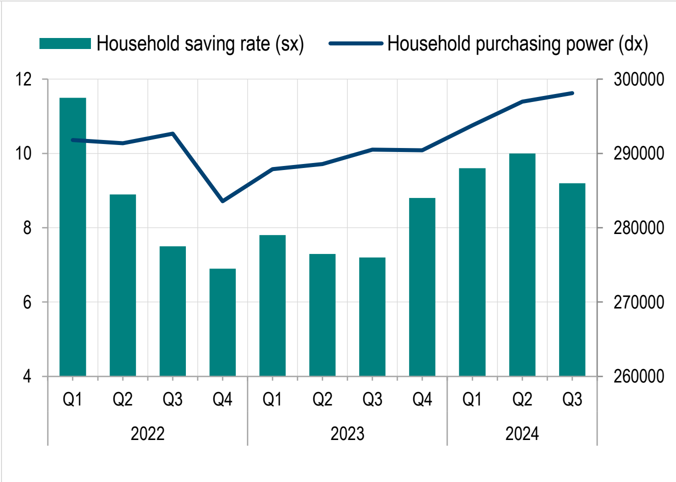
Business confidence rebounds in December after two consecutive months of decline, driven by gains in the market services sector. Notable increases in business confidence were observed in information and communication, business services, and other service industries. In contrast, confidence weakened in the construction and manufacturing sectors. Specifically, in manufacturing, only production expectations have improved. In the fourth quarter, there was also an increase in the share of manufacturing companies reporting obstacles to production and exports, primarily related to expectations of higher costs and prices.

FIGURE 3. INDEX OF INDUSTRIAL PRODUCTION, CONSTRUCTION AND SERVICES.
Seasonally adjusted data, Index numbers base 2021=100



Source: Istat

FIGURE 4. HOUSEHOLD SAVINGS RATE AND PURCHASING POWER. Chained values, millions of euros, and percentage values



Source: Istat

International trade in goods remains weak. Italian exports in the August-October 2024 quarter registered only a slight increase compared to the previous quarter (+0.6%). For the first ten months of the year, export values showed a slight decrease (-0.5%) due to a reduction in export volumes that was more significant than the increase in average unit values. The decline in export performance was influenced by reduced sales to the EU, reflecting economic weakness in the region and lower sales to relevant non-EU markets, such as the United States, Switzerland, and China.

The decline in Italian exports in the year's first ten months affected only some industrial sectors. Specifically, textiles and clothing, metals and metal products, machinery, and transport equipment saw a decrease. Conversely, there was an increase in the export of food and beverages, as well as in the chemical and pharmaceutical sectors and other manufacturing industries. Imports in the first ten months of 2024 recorded a significant decrease (-4.6%), reflecting a price drop and reduced imported volumes. Notably, purchases from Germany, Switzerland, and countries in North Africa and OPEC have decreased.

These trade dynamics contributed to a significant improvement in Italy's trade balance, which showed a surplus of over 45 billion euros between January and October, almost doubling the surplus during 2023 (+24.6 billion).

Household purchasing power continues to grow. In the third quarter of 2024, household purchasing power continued its recovery, albeit slower (+0.4% compared to +1.1% in the second quarter). This growth was driven by an increase in disposable income (+0.6%), which outpaced the rise in the consumption deflator (+0.2%). Final consumption expenditure rose significantly (+1.6% versus +0.6% in the first two quarters), supported by a decline in the household saving rate, which dropped to 9.2% from 10.0% (Figure 4).

Negative signals for consumption in Q4 2024. Retail trade declined again in November, both in value (-0.4%) and volume (-0.6%), marking the second consecutive negative monthly change. However, the August-November quarter remained positive overall.

Employment decreased in November. The number of employed persons fell to 24.065 million (-0.1%), with decreases among men and individuals under 35 years old. By professional position, employment decreases only among temporary employees, while it increases among permanent employees and remains largely stable among self-employed workers. The employment rate stood at 62.4%, unchanged from October.

Unemployment declined slightly compared to the previous month due to a decline involving women and individuals aged between 25 and 49. In the monthly comparison, the unemployment rate in the euro area remained unchanged at 6.3%, while it dropped to 5.7% (-0.1 points) in Italy. However, the youth unemployment rate has increased to 19.2% (+1.4 points). Finally, compared to October, the inactivity rate has risen to 33.7% (+0.1 points).

Quarterly data show progress in the dynamics of employment. Comparing the September-November 2024 quarter with the previous one, employment rose by 0.2%, adding 49,000 jobs. This increase was observed across both genders, permanent employees, self-employed workers, and individuals over 50 (Figure 5). The quarterly rise in employment coincided with a significant decrease in job seekers (--8.4 %, or 136,000 fewer people) and a 0.9% rise in inactive persons (+115,000).

Year-over-year, employment increased by 328,000 (+1.4%), with the employment rate up 0.5 points compared to November 2023. The number of unemployed dropped by 459,000 (-1.8 percentage points), with youth unemployment falling by 2.7 points. However, inactivity increased by 2.6% (+323,000) over the year, raising the inactivity rate by 0.7 points.

Consumer confidence declines for the third consecutive month in December. The consumer confidence index continued its negative trend, driven by worsening expectations regarding general economic conditions and personal financial situations. Sentiment on family budgets and the current suitability of saving also declined.

Uncertain future for employment in industry. Employment outlooks remain mixed. December data indicate a continued decline in employment expectations within the manufacturing and construction sectors. In contrast, forecasts improved in market services and showed significant optimism in retail trade.

Consumer inflation remains stable in December. Preliminary data for December show a month-on-month increase of 0.1% in the national consumer price index (NIC), a slight recovery from the -0.1% recorded in November. The annual inflation rate remains steady at 1.3%, unchanged from the previous month (Figure 6).

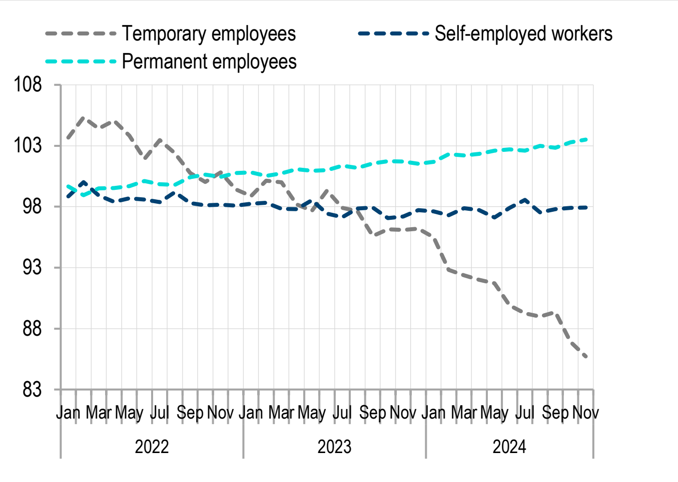
Following a cumulative rise of 1.4% up to August 2024 compared to December 2023, in the remaining part of 2024, overall inflation stabilised in the last four months of the year, showing a slight decline of -0.2% by December. This dynamic was driven during the same period by a reduction in service prices (-0.9%) and the resumption of the decline in energy prices (-0.7%), which offset the acceleration in food prices (+1.8%), particularly in unprocessed food (+4.8%).

The annual inflation rate in 2024 stood at 1.0%, marking a sharp decline from the 5.7% recorded in 2023. This deceleration is primarily attributed to slower price increases for services (+2.8% compared to +4.2% in 2023) and a reduction in the prices of goods (-0.5% versus +6.4% in 2023). The decrease in goods prices was driven by a significant drop in energy prices (-10.1% after a +1.2% increase in 2023), partially offset by higher prices for food products (+2.3%, lower than the +9.8% seen in 2023) and tobacco (+3.4%, up from +2% in 2023). Prices for other goods remained relatively stable, rising only +0.6% compared to +4.2% in the previous year.

Core inflation remains below 2%. Core inflation (calculated by excluding fresh food and energy items from the overall index) has stabilised below 2.0% since June (+1.9% in November and +1.8% in December). On average, for 2024, core inflation stood at 2.0% (+5.1% in 2023).

FIGURE 5. INCIDENCE OF PERMANENT EMPLOYEES, TEMPORARY EMPLOYEES, AND SELF-EMPLOYED WORKERS ON TOTAL EMPLOYMENT.

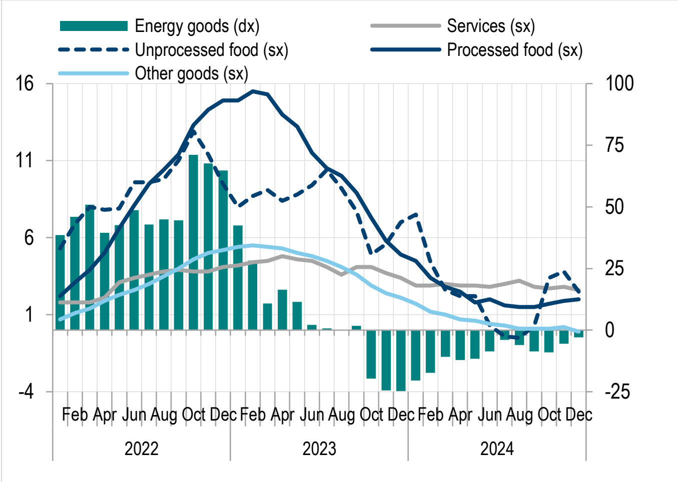
Seasonally adjusted data, Index Numbers Base year 2021 Average



Source: Istat

FIGURE 6. CONSUMER INFLATION IN ITALY.

Index of Import and Industrial Production Prices, Year-on-Year variations



Source: Istat

The shopping basket price decreased in December after four months of increases. Inflation related to the "shopping basket" (which includes prices of food and household and personal care items), after gradually decelerating until August (from +5.1% in January to +0.6% in August), showed a progressive acceleration in the following three months (from +1% in September to +2.3% in November), before exhibiting a new slowdown in December, according to preliminary data (+1.9%). The average inflation for the "shopping basket" in 2024 was 2.1% (down from +9.5% in 2023).

Italy's inflation remains below the euro area average. In December, Italy's Harmonized Index of Consumer Prices (HICP) increased by 1.4% year-over-year, significantly lower than the euro area average of 2.4%. Comparatively, inflation reached 2.8% in Germany and Spain and 1.8% in France. Over 2024, Italy's harmonised inflation stood at 1.1%, compared to 2.4% for the euro area (2.5% in Germany, 2.9% in Spain, and 2.3% in France).

Import price decline continues. In October 2024, import prices fell by 0.1% compared to the previous month, following a 0.7% drop in September. Year-over-year, import prices decreased by 1.5% in October (-0.5% in September). This decline was driven by a significant reduction in energy prices (-11.9% in October, -5.2% in September), partially offset by a slight increase in non-energy goods prices (+0.2% in October, +0.3% in September).

Industrial producer prices confirm an upward trend. Industrial producer prices continued their upward trajectory since May, with a month-over-month increase of 1.2% in November (following +0.7% in October). However, on an annual basis, prices decreased by 0.5% in November, showing a slower decline than in October (-2.8%). Significant changes primarily influence this year-over-year dynamic in energy prices, while non-energy sectors remain stable.

In November, construction prices for buildings rose slightly by 0.1% month-over-month but fell by 0.9% year-over-year (-1.3% in October). Prices for constructing roads and railways remained flat month-over-month while showing a year-over-year decline of 1.2% (a moderate improvement from the -1.8% decrease recorded in October).

Among consumers, expectations of inflation containment weaken. In December, among consumers, expectations of inflation decline weakened: the share of those expecting a slowdown in prices over the next twelve months, although still predominant, decreased (42.4%, down from 44.2% in November), as did the share expecting stability (18.1%, down from 19.3% in November), while expectations of price increases strengthened (38.4%, up from 35% the previous month).

Businesses' intention to raise prices increases. Among businesses, in December, the share of those planning to keep their prices stable over the next three months, although still largely predominant, decreased in both the construction sector (from 92.1% to 90.5%) and in the manufacturing (from 85.1% to 82.7%) and services sectors (from 86.7% to 83.7%). In these last two sectors, the share of companies expecting a price increase rose (from 9.4% to 12.2% in manufacturing and from 9% to 11.8% in services) focus

THE TRAJECTORIES OF MAIN EURO AREA COUNTRIES TOWARDS SUSTAINABLE DEVELOPMENT*

The development policies of advanced countries and those in transition and developing countries are progressively reoriented towards "sustained and resilient" and "sustainable and equitable" economic growth goals. This paradigm has been effectively embodied in the 2030 Agenda for Sustainable Development, an ambitious programme of action adopted in 2015 by all UN member states, divided into 17 Sustainable Development Goals (SDGs).

The European Union (EU) has been among the main actors in this change process, playing an essential role in the definition and adoption of the 2030 Agenda. Indeed, since 2015, the European Commission has been particularly active in promoting policies for member states that aim to achieve the 17 goals. Of course, the speed of transposition and effectiveness of sustainable development policies at the national level may have been mixed.

This in-depth study aims to analyse the trajectories followed by the main countries of the Economic and Monetary Union (EMU)[1] from 2003 to 2021 in achieving the 17 Sustainable Development Goals of the UN 2030 Agenda. Detailed information on the methodology adopted can be found in the relevant section of this focus.

In what follows, we assessed the convergence towards these goals between and within two groups of countries that were defined as "*core*" and "*periphery"*, identified in the cluster analysis, by measuring how the distances within and between the two groups have changed over the period under observation through the calculation of the coefficient of variation of the SDG Index (Summary Indicator of the 17 goals of the 2030 Agenda for each country) provided by the United Nations Sustainable Development Solutions Network (SDSN).

The results of the classification procedure determine relatively clear-cut and persistent profiles over time: Austria, Belgium, Finland, Germany, Ireland, and the Netherlands are considered core countries each year during the period under review, while Greece, Italy, Portugal, and Spain are always classified as *periphery*. Only for France is the classification more uncertain, but with a greater tendency towards a *core* classification. The results are broadly consistent with the existing literature on *core-periphery* dualism among euro-area countries (Campos and Macchiarelli, 2021) and are confirmed by robustness and sensitivity analyses[2].

Table F1 presents some descriptive statistics to assess the intra- and inter-group convergence dynamics of the two *clusters of* identified countries. On average, over the period considered, peripheral countries improved faster than core countries in achieving the targets (the SDG index showed higher increases). However, a more significant reduction in inequality (identified by the dispersion of the data around the mean, as measured by the coefficient of variation) can be observed for the whole set of countries rather than within each group (the coefficient of variation decreases by almost 27% when considering all 11 countries, while it decreases by 15.7% for the group of *periphery* countries and 11.5% for the group of *core* countries).

TABLE F1. SDG INDEX BY GROUPS OF EURO AREA COUNTRIES CLASSIFIED AS "CORE" AND "PERIPHERY". Years 2003, 2021

	2003		2021		CHANGE (%)		DISTANCE CORE-PERIPHERY		
	Mean	Coeff. var.	Mean	Coeff. var.	Mean	Coeff. var.	2003	2021	Change (%)
Periphery	72,7	1,4	79,3	1,2	9,2%	-15,7%	2,96	1,59	-46,4%
Core	77,1	3,4	81,9	3,0	6,2%	-11,5%			
Total	**75,5**	**4,1**	**81,0**	**3,0**	**7,3%**	**-26,9%**			

Source: Istat elaboration on SDNS data.
Note: The *Core-Periphery* distance is calculated as the absolute value of the difference between the average *Core* and *Periphery* values, divided by the sum of the two values and multiplied by 100.

* The Focus was realised by Roberta De Santis and Lorenzo di Biagio. The analyses reported are taken from De Santis, Di Biagio and Esposito (2025). https://doi.org/10.1007/s10644-024-09842-3.

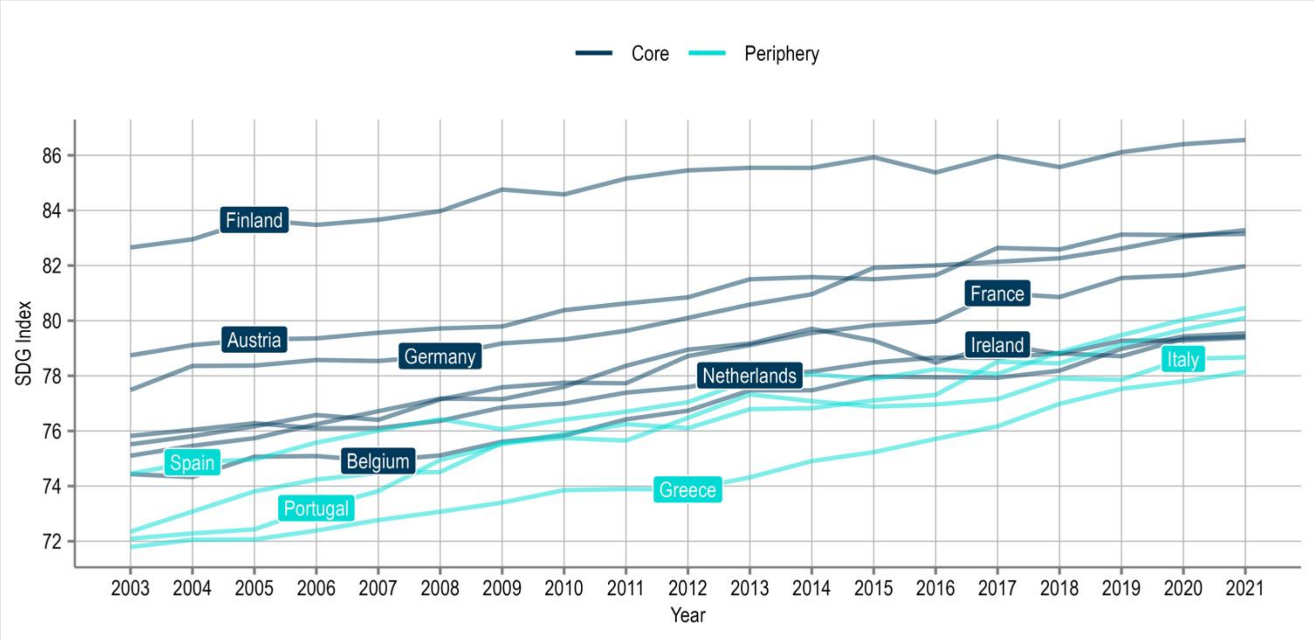
[1] Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy, the Netherlands, Portugal and Spain.

[2] In particular, this literature highlights the presence of different characteristics between the two groups of countries in terms of e.g. productivity, integration of financial and trade flows, economic structure and public debt. This distinction is constantly evolving.

These results, on the whole, suggest both the persistence of a *core-periphery* structure over the period analysed and the beginning of a convergence process between the two groups, with the gap almost halved between 2003 and 2021.

In the ranking of the 11 EMU countries, according to the values of the SDG Index, Italy, in addition to being permanently in the *periphery* group, ranks between the penultimate and third-last place in all 19 years considered. In particular, it ranks third to last in 2003-2007 (followed by Portugal and Greece), and since 2015, consistently in second to last place, followed only by Greece.

FIGURE F1. SDG INDEX, BY EURO AREA COUNTRIES. Years 2003-2021



Source: Istat elaboration on SDNS data.

Between 2003 and 2021, however, Italy recorded an increase in the values of its SDG Index higher than that of almost all other countries (around 9%), lower only than Portugal and Greece (Figure 1). Italy's convergence in the dynamics of achieving the Sustainable Development Goals has also occurred concerning all core countries, except France; in particular, the distance between Italy and Finland (always the front-runner in the 19 years) has fallen from over 10 points in 2003 to less than 8 points in 2021.

Methodology

To assess, over the period 2003-2021, the progress of 11 major countries of the Economic and Monetary Union (EMU) in achieving the 17 Sustainable Development Goals of the UN 2030 Agenda, individual Goal-level scores provided by the United Nations Sustainable Development Solutions Network (SDSN) were used, based on a framework of 125 indicators (Sachs et al., 2023). The SDSN calculates scores, also retroactively from 2000, to assess the overall performance of each country against each of the 17 Sustainable Development Goals. The score for each Goal indicates a country's position between the greatest possible distance from achieving the Goal (score equals 0) and its full achievement (score equals 100): the scores can thus be interpreted as the percentage of Goal achievement. In addition, SDSN calculates an overall score per country (SDG Index), which is the arithmetic mean of the scores of the 17 Goals.

The SDNS methodology adheres to established principles from the academic and policy literature. Despite some data limitations, SDSN scores have been used to compare countries' performance on the SDGs and monitor their progress over time (e.g. Çağlar and Gürler, 2022).

Through the use of a "k-means clustering" classification procedure (MacQueen, 1967), a technique widely used in data analysis due to its simplicity, computational efficiency and proven effectiveness in various applications (Jain 2010), individual countries were grouped based on Goal scores, into two "clusters", referred to as "*core*" (Austria, Belgium, Finland, France, Germany, Ireland, Netherlands) and "*periphery*" (Greece, Italy, Portugal, Spain). The name *core-periphery* was chosen because the two country clusters are similar to those identified in the economic literature on optimal currency areas, highlighting the presence of different characteristics persistent over time among EMU countries (De Grauwe, 2018). In particular, this literature highlights the presence of different characteristics between the two groups of countries in terms of productivity, integration of financial and trade flows, economic structure and public debt. Significantly, this distinction is constantly evolving. The so-called core-periphery dualism thus seems to find its new dimension within the euro area concerning achieving sustainable development goals.

Calculating the coefficient of variation of the SDG Index (overall indicator for each country) is as follows. The coefficient of variation at time t is $CV_t = 100 \cdot \frac{\sigma_t}{|\mu_t|} = 100 \cdot$, where $x_{i,t}$ is the score for the country i at time t, μ_t is the average over i of all $x_{i,t}$ and $\sigma_t = \sqrt{\frac{1}{\#Cou}\sum_{i \in Cou}\left(x_{i,t} - \mu_t\right)^2}$ is the standard deviation at time$t$ of all $x_{i,t}$. Cou is the set of countries considered Convergence between countries was assessed through the dynamics of the coefficient of variation. This methodology, called σ-convergence (Sala-i-Martin, 1996), has the advantage of being a simple, non-parametric and non-biased method, widely used in the scientific literature and official statistics (Chelli et al. 2022, Istat 2024).

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For technical and methodological clarifications

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