

The Future Ratio: A New Metric for Forward-Looking Fiscal Policy in Europe

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Abstract

This study introduces the Future Ratio, a novel indicator designed to assess the future orientation of public expenditure in EU Member States. While traditional investment ratios focus primarily on tangible capital formation, the Future Ratio encompasses a broader concept of capital, including human capital, technical knowledge, natural capital, and growth-relevant infrastructure. By capturing expenditures that strengthen long-term capacities and performance, the Future Ratio provides a more nuanced measure of how fiscal policy serves the interests of future generations.

Using Eurostat's COFOG data, we calculate the Future Ratio for all EU countries from 2001 to 2023. A systematic weighting algorithm classifies spending categories based on well-defined criteria, allowing differentiation between present-oriented and future-oriented expenditures. This approach accommodates the spectrum of future orientation across various policy areas while maintaining comparability across countries and over time.

Our findings reveal both positive and negative trends. After 2015, average future-oriented spending in the EU increased, with temporary setbacks during the COVID-19 pandemic, suggesting a potential learning effect from the euro area debt crisis. Cross-country comparisons highlight significant heterogeneity: Northern and Eastern European countries generally exhibit higher Future Ratios, whereas Southern European countries, along with major economies such as Germany and France, display only average or below-average levels. Correlation analyses indicate that high debt levels strongly constrain future-oriented spending, while factors such as compliance with Stability and Growth Pact rules and performance-based budgeting are moderately associated with higher Future Ratios. Conversely, demographic structure, education levels, voter turnout, and procedural fiscal rules show little systematic relationship.

These results underscore the critical role of fiscal space in enabling governments to invest in the future. High-debt countries appear trapped in a "bad equilibrium," where debt servicing crowds out investment in long-term priorities.

Overall, the Future Ratio provides a tool for national and European policymakers and researchers to monitor the alignment of government expenditure with long-term societal challenges, offering a complementary perspective to conventional fiscal indicators.

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1 Introduction

The fiscal situation in many countries has deteriorated severely in recent years. According to the IMF's latest Fiscal Monitor, global public debt is expected to exceed 100 per cent of GDP by 2029, reaching the highest level since 1948 (IMF, 2025). Periods of crisis-related increases in debt and deficits have too often not been offset during better economic times. This is particularly true of many EU and euro area Member States, which have seen public debt levels and persistently high deficits continue to rise even after the end of the pandemic and energy crises in several countries. The European Fiscal Board recently revealed that net public expenditure growth has accelerated and exceeded potential growth in 2024, even in countries with high debt levels (European Fiscal Board, 2025), contributing to further fiscal risks.

However, the accumulation of dangerously high levels of debt is just one symptom of a policy that disregards the interests of future generations. A second, more neglected, possible symptom is a lack of consideration for the future in the structure of public spending. The same present bias that drives the accumulation of excessive public debt may lead to an emphasis on immediate political benefits in public spending. Therefore, a thorough inspection of the spending structure is warranted for a full analysis of the future-orientation of public spending.

This is where our contribution comes in. We propose the concept of the 'Future Ratio', which provides information on the future orientation revealed in the spending structure. The Future Ratio is, at the same time, both more comprehensive and selective than the conventional investment ratio. The latter is a fairly rough measure of the future orientation of spending. In contrast, the Future Ratio considers spending on a wider spectrum of assets, including human capital and the preservation of nature. The Future Ratio is more selective insofar assigning a lower weight to physical capital formation if it is not used in a future-oriented context.

So far, the Future Ratio has only been applied to Germany's federal budget (Bohne et al., 2024, 2025). In this study, we build on this prior work to assess and compare the future orientation of public spending in EU Member States. We also hope that our work will contribute to discussions on EU fiscal governance and the next Multiannual Financial

Framework (MFF). Shifting the focus towards sustainable and future-oriented public spending at the European and national levels is a key objective of both EU fiscal rules and the EU budget. The new fiscal governance has increased flexibility in debt reduction paths for policies that prioritise reforms and investment. For the next MFF, the European Commission intends to fund National and Regional Partnership Plans (NRPPs) that address countries' resilience and competitiveness issues.

We believe that our Future Ratio could provide valuable analytical insights into these ambitions and potentially assist in monitoring national fiscal policy. This could help to mitigate the risk of greater flexibility being misused to serve short-term political interests. Comprehensive indicators that provide thorough information on the future orientation of public spending can foster transparency and support EU fiscal governance that incentivises future-oriented budgeting.

This study proceeds as follows: Section 2 describes the general concept of the Future Ratio. Section 3 introduces the COFOG (Classification of the Functions of Government) data and explains how the Future Ratio is calculated using this data. Section 4 presents our empirical results and shows how European countries differ in their future orientation and how this has changed over the years. Furthermore, we demonstrate the correlation between the Future Ratio and country characteristics such as debt levels, fiscal institutions, demographics, and political participation. Section 5 concludes the study.

2 The ZEW Future Ratio

While broad consensus exists on long-term priorities—ambitious climate action, early childhood education, and basic research—translating these into annual budgetary allocations remains persistently difficult. Expenditure categories delivering immediate utility systematically receive stronger political support than programs where benefits materialize only after years or decades. This phenomenon, termed "present bias" in fiscal and behavioral economics literature, constitutes a fundamental challenge for forward-looking budget policy (Yared 2019; Busemeyer 2024).

The causes are multifaceted. In aging societies, the average voter time horizon shortens, diminishing political support for long-term projects. Empirically, rapid growth in present-oriented social expenditures correlates with narrowing investment space—what Schuknecht and Zemanek (2021) characterize as the "social dominance" of public spending. Additionally, particularistic interests favor present-oriented programs because beneficiary groups are identifiable, whereas benefits of long-term initiatives (climate and technology policy) are broadly diffused and future beneficiaries remain unknown. Behavioral economics documents pronounced present preference, whereby individuals value current consumption far more heavily than standard discounting would predict (O'Donoghue and Rabin 2015). Risk aversion compounds these effects: societies with high intolerance for uncertainty exhibit stronger present orientation while pursuing long-term environmental policies and technological innovation less frequently (Rieger et al. 2015; Wang et al. 2016).

Ultimately, the drivers of present orientation in expenditure composition parallel those producing high public debt. Just as present interests prevail by shifting financing burdens onto future taxpayers, they manifest in spending structures emphasizing immediate utility. Both fiscal rules and guardrails for expenditure structure aim to counteract present orientation. Present interests likely gain prominence in spending composition precisely when effectively constrained on the financing side through binding debt limits.

Traditional public investment metrics, focused on tangible capital formation (roads, buildings, equipment), provide insufficient information about budget future orientation. "Investment" and "future expenditure" overlap but are not congruent. Personnel expenditures for early childhood education contribute substantially to the future, yet national accounts classify them as consumption. Conversely, some public investments (vehicle purchases) emphasize immediate utility. Construction investments vary dramatically in future orientation between future-focused facilities (research laboratories) and present-oriented uses (recreational facilities). Traditional investment ratios therefore inadequately capture the future orientation of fiscal policy.

The Future Ratio is intended to fill this gap by providing a metric that better distinguishes between the conventional investment definition and future-oriented expenditures by

moving beyond measures of physical capital formation. Rather, the central conceptual starting point is an expanded capital concept.

The expanded capital concept comprises four components grounded in growth literature. Growth-relevant infrastructure includes both traditional network infrastructure (energy, transport, communications) and digital infrastructure. Public infrastructure investments serve as crucial intermediate inputs for private production, substantially influencing firm competitiveness (Pradhan and Bagchi 2013). For mature economies, maintaining and modernizing existing infrastructure proves as critical as new development (Kalyvitis and Kalaitzidakis 2002). Technical knowledge represents a second component. R&D activities constitute keys to sustained economic growth in advanced economies. Public R&D proves growth-effective when complementing rather than crowding out private R&D, particularly by addressing areas with positive externalities like basic research (Diamond 1999). This complementarity relationship provides strong justification for public research expenditure. Human capital formation—particularly through education—has long stood central to productivity discussions. Education yields substantial individual returns and aggregate growth effects (Barro 2013). Consensus has emerged that early childhood education quality proves especially important for both productivity and inclusive growth (Heckman and Cunha 2007). Beyond direct effects on children, childcare provision enables labor market participation that maintains productivity throughout career biographies. Natural capital preservation enters the expanded concept as climate mitigation and adaptation, environmental protection, and ecosystem preservation. Though regulatory and price-based instruments often dominate environmental policy, public expenditures contribute to ecologically sustainable development. Given ambitious emission reduction commitments across the EU, comprehensive deployment of all available policy instruments—including direct expenditure—proves necessary. A guiding question for including specific public expenditures in the Future Ratio is thus whether the position contributes to one of these comprehensive capital components.

These conceptual considerations translate into an operational framework for identifying which expenditure categories merit Future Ratio inclusion. Table 1 presents the evaluation criteria employed. Expenditure is assessed using a criteria-based approach that employs two

exclusion, four primary and three secondary criteria (Bohne et al., 2024). Two tertiary criteria are added in this study to account for differences between COFOG and the national classification system the measure was originally developed for.

Table 1: Overview of the Criteria

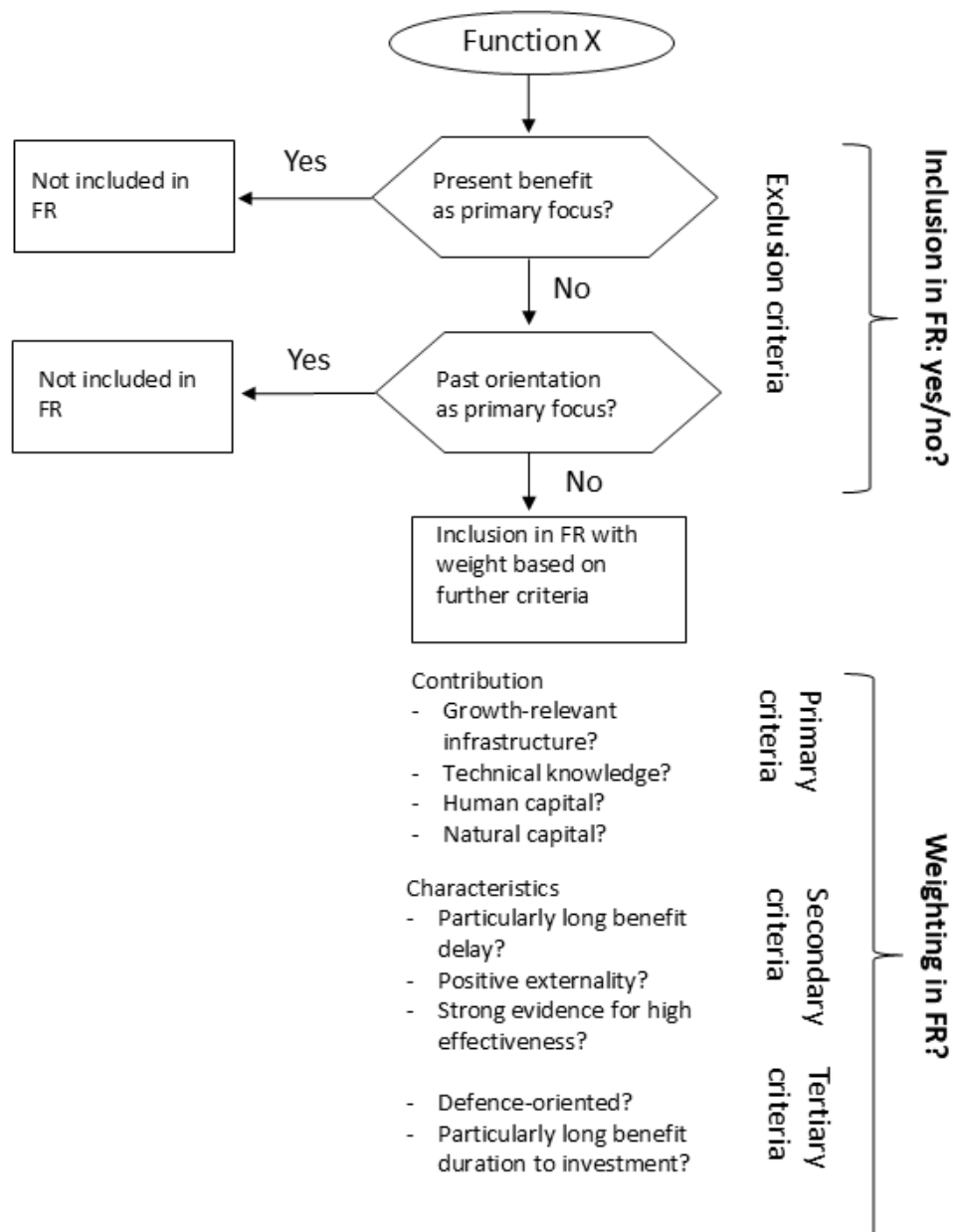
Type	Criterion	Description
Exclusion	Present benefit as primary focus	Does this activity primarily focus on present benefits, e.g., through a current public good?
Exclusion	Past orientation as primary focus	Is there a clear past orientation, e.g., debt service?
Primary	Growth-relevant infrastructure	Does this build growth-relevant infrastructure?
Primary	Technical knowledge	Does this expenditure serve to create technical knowledge?
Primary	Human capital	Does this generate or strengthen human capital?
Primary	Natural Capital	Does this contribute to the preservation of natural capital?
Secondary	Particularly long benefit delay	Are the benefits realized particularly far in the future?
Secondary	Positive externalities/ public good	Is there evidence of positive externalities or a public good?
Secondary	Strong evidence for high effectiveness	Is there evidence of a particularly high impact?
Tertiary	Defense	Does this expenditure support the defense infrastructure?
Tertiary	Investment	Does this expenditure constitute an investment into physical capital?

The primary criteria directly reflect the expanded capital concept components: Does the expenditure contribute to growth-relevant infrastructure, technical knowledge, human capital formation, or natural capital preservation? The secondary criteria assess characteristics strengthening future orientation: particularly long benefit delays, positive externalities and public good provision, or strong evidence of pronounced future effects. The

tertiary criteria address national defense expenditures and particularly long-duration investments.

Figure 1 illustrates the systematic classification process. The exclusion criteria eliminate expenditure clearly focused on present benefits or past-oriented activities, such as debt repayment or interest payments. These automatically receive zero weight in the Future Ratio calculation. Expenditures passing both exclusion criteria proceed to evaluation against primary, secondary, and tertiary criteria. The number of criteria satisfied determines final weighting, which will be elaborated in section 3.2.

Figure 1: Overview of the Assessment Algorithm



3 Methods and Data

This section provides an overview of the data used in the analysis and describes the weighting algorithm employed to calculate the Future Ratio of national government expenditure.

3.1 The COFOG Data

The primary data source in this paper is government expenditure data from Eurostat applying the COFOG (Classification of the Functions of Government) standard. COFOG is an international classification system used to categorize government expenditure according to its function or purpose, such as education, health, defence, and social protection (Eurostat, 2019). It allows for functional analysis of public expenditure by offering comparable and harmonised data definitions across countries.

COFOG data is compiled annually by the EU Member States and the the European Free Trade Association (EFTA) countries. National authorities, such as statistical offices and ministries of finance, are responsible for collecting, preparing and transmitting this data to Eurostat, the Statistical Office of the European Union. Eurostat harmonizes and publishes the data in a comparable framework according to its data definitions (Eurostat, 2019). Following the COFOG standard, government expenditure is classified into a hierarchical structure comprising three levels: divisions, groups, and classes. However, due to data limitations, this paper only uses information on the first two levels (divisions and classes). Table 2 provides an overview of these expenditure categories within COFOG. While divisions include high-level government functions such as health, education, and defense, the second-level groups provide a more detailed breakdown.

In this analysis, we focus on total government expenditure as measured by Eurostat for each of the COFOG categories (Eurostat, 2019).¹ This variable includes expenditure across all levels of government activity, including central, federal, and local. Moreover, expenditure values

¹ The data was downloaded from the official Eurostat website. The specific variable used is “Total general government expenditure” (TE) within the National accounts indicator (ESA 2010) framework. The following link provides access to the dataset: https://ec.europa.eu/eurostat/databrowser/view/gov_10a_exp/default/table?lang=en (last accessed Nov 5, 2025).

also include those within the social insurance systems. Taking this unified approach to assessing overall governmental activity is crucial to facilitate a cross-country comparisons. Our approach therefore abstracts from different forms of governmental organization such as differences in the degree of centralization of resources, or how key social services are provided (e.g. public social insurance systems versus purely tax-funded systems).²

Table 2: The Categorization of the Data among COFOG classifications

Code	First-level functions (divisions)	Second-level functions (groups)
GF01	General public services	(1) Executive and legislative organs, financial and fiscal affairs, external affairs, (2) Foreign economic aid, (3) General services, (4) Basic research, (5) R&D general public services, (6) General public services n.e.c., (7) Public debt transactions, (8) Transfers of a general character between different levels of government
GF02	Defence	(1) Military defence, (2) Civil defence, (3) foreign military aid, (4) R&D defence, (5) Defence n.e.c.
GF03	Public order and safety	(1) Police services, (2) Fire protection services, (3) Law courts, (4) Prisons, (5) R&D public order and safety, (6) Public order and safety n.e.c.
GF04	Economic affairs	(1) General economic, commercial, and labour affairs, (2) Agriculture, forestry, fishing, and hunting, (3) Fuel and energy, (4) Mining, manufacturing, and construction, (5) Transport, (6) Communication, (7) Other industries, (8) R&D Economic Affairs, (9) Economic Affairs n.e.c.
GF05	Environmental protection	(1) Waste management, (2) Waste water management, (3) Pollution abatement, (4) Protection of biodiversity and landscape, (5) R&D Environmental protection, (6) Environmental Protection n.e.c.
GF06	Housing and community amenities	(1) Housing development, (2) Community development, (3) Water supply, (4) Street lighting, (5) R&D Housing and community amenities, (6) Housing and community amenities n.e.c.
GF07	Health	(1) Medical products, appliances, and equipment, (2) Outpatient services, (3) Hospital services, (4) Public health services, (5) R&D Health, (6) Health n.e.c.
GF08	Recreation, culture and religion	(1) Recreational and sporting services, (2) Cultural services, (3) Broadcasting and publishing services, (4) Religious and other community services, (5) R&D Recreation, culture, and religion, (6) Recreation, culture, and religion n.e.c.
GF09	Education	(1) Pre-primary and primary education, (2) Secondary education, (3) Post-secondary non-tertiary education, (4) Tertiary education, (5) Education not definable by level, (6) Subsidiary services to education, (7) R&D Education, (8) Education n.e.c.
GF10	Social Protection	(1) Sickness and disability, (2) Old age, (3) Survivors, (4) Family and children, (5) Unemployment, (6) Housing, (7) Social exclusion n.e.c., (8) R&D Social protection, (9) Social protection n.e.c.

Notes: Overview of the COFOG classifications “divisions” and “groups” based on Eurostat’s COFOG nomenclature (Eurostat, 2019).

² Certain types of in-kind expenditures are excluded from the data to make Eurostat’s COFOG data more comparable to other national account statistics.

3.2 Weighting Algorithm and Calculation of the Future Ratio

As outlined in Section 2, the Future Ratio is a method to assess the future orientation of public expenditure following a set of exclusion, primary, secondary, and tertiary criteria. This approach is based on the theoretical foundations of the Future Ratio for Germany (Bohne et al., 2024), adjusted for the availability of COFOG classification data. We assess whether each of the 69 COFOG categories (combination of first-level “divisions” and second-level “groups”) fulfills the stated criteria. This assessment is based on the definition of the categories and the official Eurostat documentation that defines how national governments should report their expenditure (Eurostat, 2019). To ensure an objective assessment, the researchers independently evaluated all COFOG categories. In case of differences, the whole team discussed the issue and made a decision based on economic theory and empirical evidence. Appendix A provides an overview of each COFOG category, indicating whether it fulfills the stated exclusion, primary, secondary, or tertiary criteria.

Next, we apply a systematic weighting algorithm to translate the fulfillment of the different criteria into a single weight for every COFOG category. The basic intuition is straightforward: the more criteria a category fulfills, the higher its weight. We assign points for fulfilling primary and secondary criteria, with primary criteria receiving two points and secondary criteria receiving one point. This effectively makes a given primary criterion twice as important as a secondary criterion. This process yields a numerical score (points) for each COFOG category, which we then convert into weights according to pre-determined cutoff values. Table 3 provides an overview of the score thresholds. A category requires a minimum of four points to receive a 100% weighting, three points for 75%, two points for 50% and one point for 25%.

In a second step, we augment the information derived from the primary and secondary criteria with the two tertiary criteria, which assess defense spending and investment into physical assets. In case either of these two tertiary criteria receives a positive evaluation, the COFOG category receives a “bonus”. This additional bonus increases the weight by

calculating the average between the previous weight based purely on the primary and secondary criteria and an assumed weight of one for the tertiary criteria. The last column of Table 3 (“With TC”) shows the weights if any of the tertiary criteria are met.³

Taken together, this algorithm provides a final weight for each COFOG category, as detailed in Appendix A. Finally, we multiply the total government expenditure within each COFOG category by its determined weight. The Future Ratio is determined as the ratio of future spending relative to overall government spending.

A word of caution is necessary regarding this algorithm: While this algorithm is soundly based on economic theory and our empirical state of knowledge about future-relevant factors, the actual weighting decisions are not free of arbitrary elements. Therefore, it is not possible to determine a single 'objectively correct' value for level of the Future Ratio.⁴ Nevertheless, these limitations do not diminish the informational value of the indicator when considered across countries and over time. Cross-country differences and changes can be seen as reliable indications of different national degrees of future orientation, as well as changes in future orientation over time. Furthermore, any alternative indicator, such as the conventional 'investment ratio', is subject to the same, and potentially greater, degree of arbitrariness in the weighting decisions, as it necessitates a broad binary decision on the inclusion (i.e. weight of 100%) or exclusion (i.e. weight of 0%) of a spending item. Compared to this simple binary approach, the Future Ratio is a more nuanced indicator.

³ These tertiary criteria contribute to making the COFOG-based Future Ratio as comparable as possible to the original methodology laid out in Böhne et al. (2024), where the German setting allowed for an additional layer of information based on the “*Gruppierungsplan*” within the federal German budgeting rules.

⁴ In Böhne et al. (2024), the authors use a “broad” and “narrow” variant to signal the fuzziness of the level of the Future Ratio.

Table 3: Overview of Weighting Algorithm

Score Thresholds Score = 2*(No. of PC) + (No. of SC)	Weights	
	No TC	With TC
4	100%	100%
3	75%	87.5%
2	50%	75%
1	25%	62.5%
Other	0%	50%

Notes: This table provides information on the weighting algorithm used in the calculation of the Future Ratio. PC refers to primary criteria, SC to secondary criteria, TC to tertiary criteria.

4 Results

This section presents and discusses the empirical results of our analysis.

4.1 Cross-Sectional and Time-Series Results

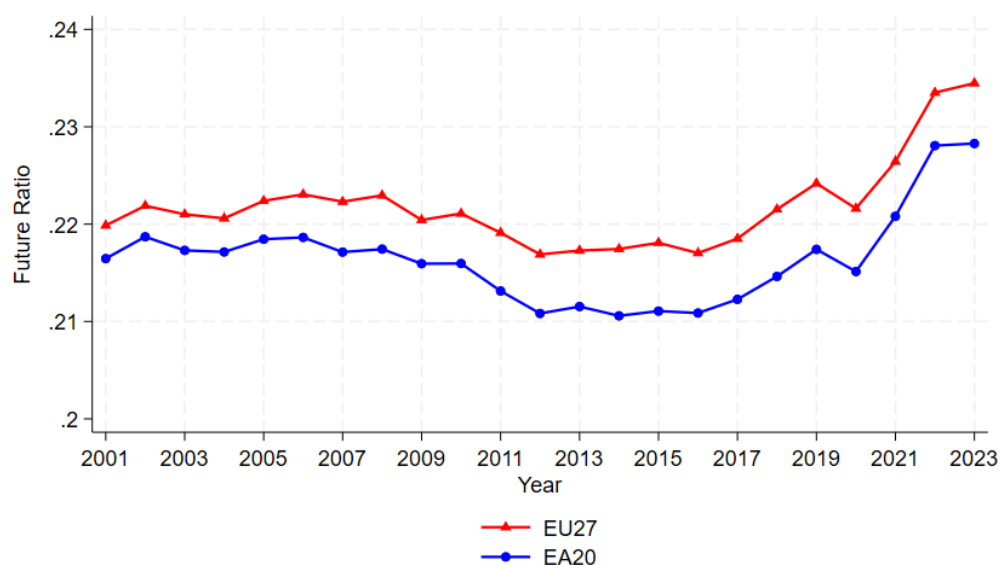
Figure 2 shows a time series graph of the Future Ratio in Europe, presenting the weighted average for all 27 EU countries. In general, the average EU Future Ratio ranges from 21% to 24%. This implies that between a fifth and a quarter of overall government expenditure flows towards future-oriented goals linked to issues such as infrastructure, education, climate protection, and research and development.

While the overall evolution of the average Future Ratios was relatively flat for many years, the time series graph reveals some interesting observations. First, the time period from 2012 to 2016 shows some of the lowest Future Ratios in our sample period. A defining issue during this period were the budgetary adjustments in the aftermath of the eurozone crisis. Since 2017, average future-oriented spending is on the rise in Europe. The covid pandemic in 2020 provided a temporary setback, but the years 2021 and 2022 saw even stronger increases, coinciding with the Next Generation EU programme. Finally, 2023 is characterized by a stagnation in the average future spending of EU governments.

Moreover, the difference between the two groups suggests that the euro area countries (EA20) have slightly lower future-oriented spending than the rest of the EU.

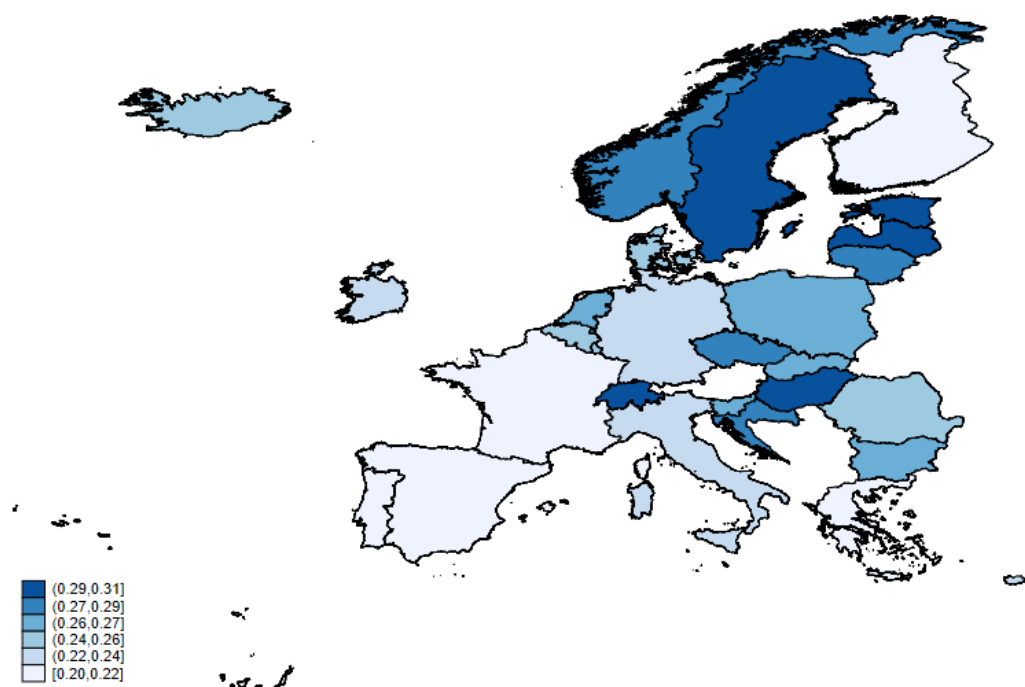
Single-country time series are provided in Appendix B.

Figure 2: Time Series of Average Future Ratio



Notes: This figure provides the time series of the Future Ratio. The red line with triangle is the average of all 27 EU Member States and the blue (dotted) line is the average of the Euro-20 area. The averages are weighted by size of the respective size of the country.

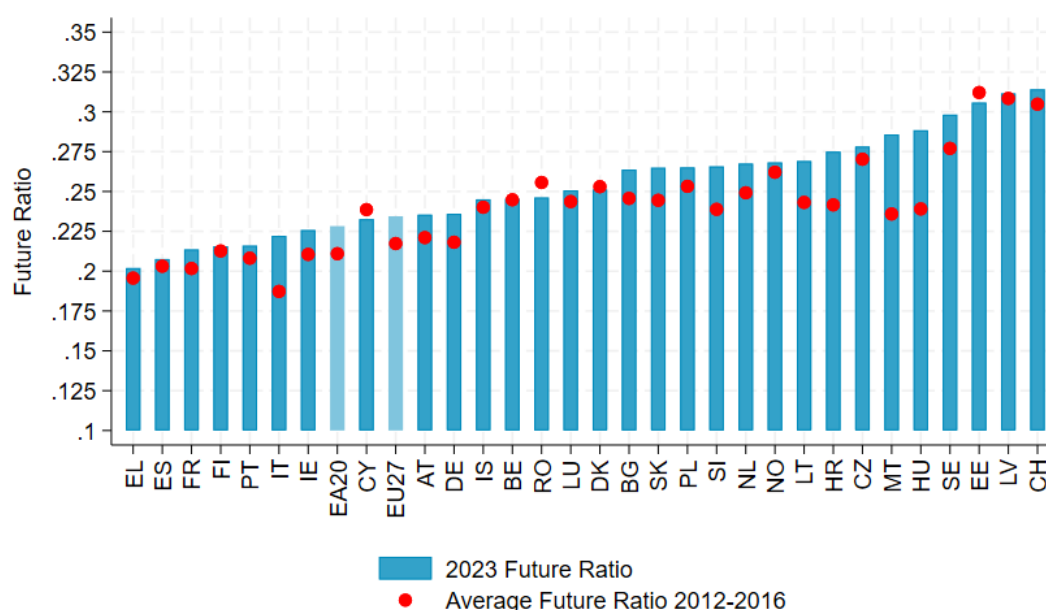
Figure 3: Map of Future Ratios in 2023



Notes: This figure provides a map of EU and EFTA countries and their Future Ratio. Darker colours are associated with a stronger future orientation of total government spending in 2023.

These relatively stable average figures for future spending mask considerable heterogeneity between countries. Figure 3 presents a map of the Future Ratio in 2023, where darker colours represent higher levels of future-oriented public expenditure. In general, the map points to two high-level geographic divisions: North versus South and East versus West. On average, Northern and Eastern countries have higher levels of future-oriented spending.

Figure 4: Ranking of Future Ratios



Notes: This figure presents a ranking of the Future Ratio in 2023, with the bars representing the calculated Future Ratio in the respective country. The red dots depict the average Future Ratio of that country between 2012 and 2016.

Lastly, we present a detailed country ranking. Figure 4 shows the results for the Future Ratio, contrasting the 2023 value for each country (blue bars) with the average for the period 2012-2016 (red dots). This time period is characterized by the lowest aggregate future-oriented spending in the aftermath of the euro area debt crisis. Several observations arise from this ranking. First, all large EU countries – Germany, France, Italy, and Spain – boast only average

or below average future spending. Second, Eastern European countries generally have relatively high future-oriented spending. Third, the top countries are clearly Switzerland, the two Baltic States Latvia and Estonia, and Sweden. Fourth, Southern Europe seems to be lagging behind, with Greece, Spain, Portugal, and Italy all performing below average. One Northern country, Finland, joins this group of countries with a very low future-orientation of spending.

4.2 Correlations

This section examines the cross-country relationship between the Future Ratio and a range of indicators spanning political-economic, macroeconomic, and fiscal governance dimensions. The analysis is descriptive; the correlations presented do not permit causal inference, as the relationships are likely characterized by simultaneity, omitted variable bias, and reverse causality. Nevertheless, these bivariate relationships can reveal important stylized facts about which country characteristics are associated with contemporaneous higher future-oriented spending and can inform hypotheses about the political economy of fiscal priorities across generations.

This analysis uses country averages from 2015 to 2023 to balance excluding the effects of the initial Euro crisis adjustment with capturing medium term trends. The Future Ratio is on the vertical axis and the covariate on the horizontal axis in all figures, blue dots represent individual EU and EFTA Member States. Dashed grey lines indicate the EU 27 average, weighted by country size where appropriate. The correlation coefficient is displayed in the bottom left of each figure.

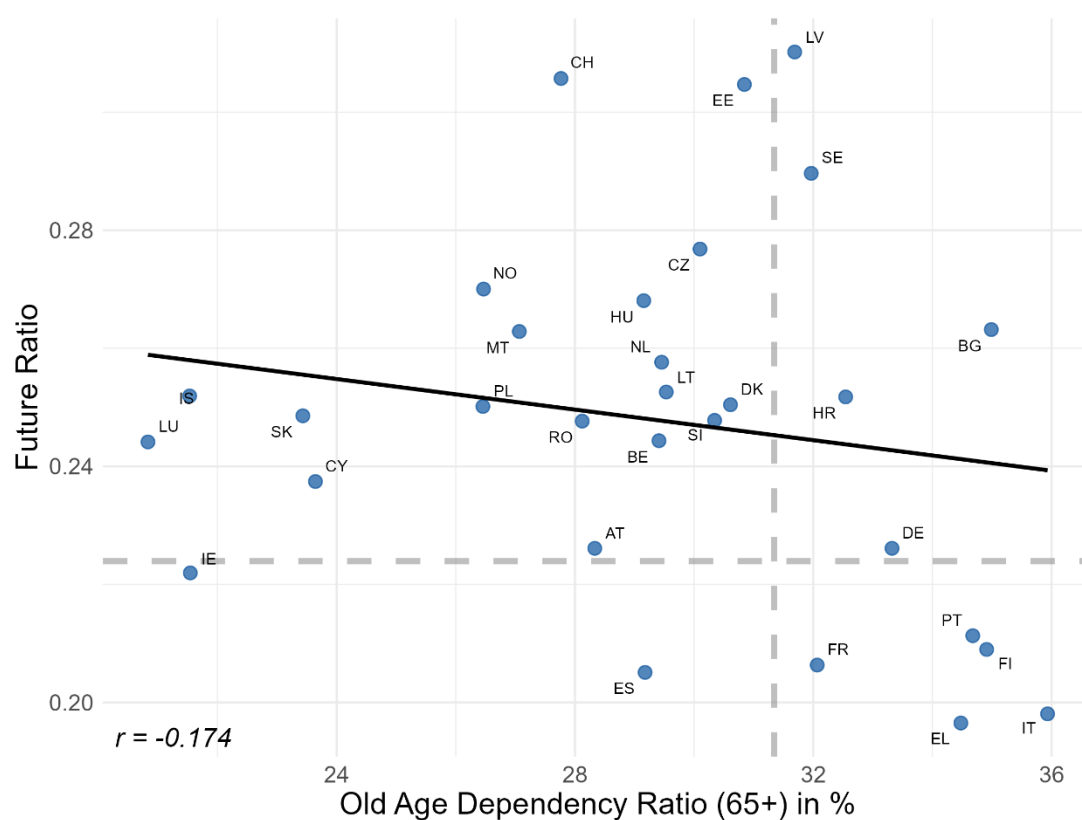
Figure 5 presents the relationship between the Future Ratio and the old age dependency ratio, measured as the share of the population aged 65 and above. The demographic structure of a country could influence future-oriented spending through several channels. On one hand, higher shares of elderly voters may shift political priorities toward current transfers (pensions, healthcare) at the expense of investments benefiting future generations—a prediction consistent with models of intergenerational conflict over public resources. On the other hand, countries with aging populations may recognize the necessity of investing more heavily in education, infrastructure, and innovation to maintain fiscal sustainability as the working-age population shrinks.

The empirical relationship shows a weakly negative correlation. Countries with older populations tend to have slightly lower Future Ratios, suggesting that the political economy channel—where aging societies prioritize current consumption over investment—may dominate the compensatory response. However, the flat slope indicates that demographic aging alone explains little of the cross-country variation in future-oriented spending.

Several individual country patterns merit attention. The Baltic states (Latvia, Estonia, Lithuania) combine relatively high old-age dependency with high Future Ratios, suggesting that post-transition priorities toward convergence and EU cohesion funding may override demographic pressures. Conversely, Southern European countries (Italy, Greece, Portugal) cluster in the bottom-right quadrant with both high aging and low Future Ratios, potentially reflecting binding fiscal constraint. Switzerland, despite moderate aging, maintains among the highest Future Ratios in the sample. Germany and France sit near the EU average on both dimensions, in part due to their size weighting it towards them.

Figure 6 examines the relationship between future-oriented spending and the share of the population with tertiary education. The correlation between education levels and the Future Ratio could reflect both supply and demand mechanisms: countries that invest more in education (a component of the Future Ratio) naturally produce more tertiary-educated citizens, while populations with higher educational attainment may also exert greater political pressure for future-oriented policies through enhanced civic engagement and longer-term planning horizons.

Figure 5: Correlation of Future Ratio and Old Age Dependency Ratio

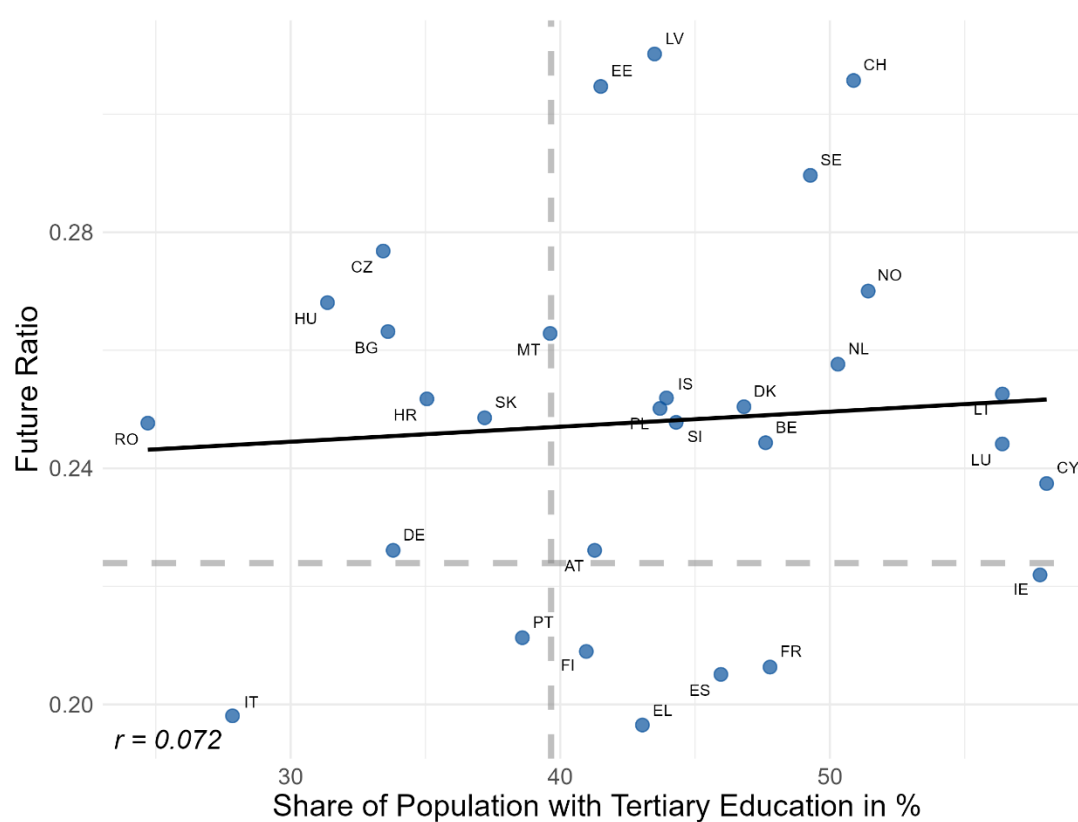


Notes: The vertical axis represents the Future Ratio (own calculation), the horizontal axis represents the share of the population above the age of 65 (Eurostat). Blue dots represent the 2015-23 average values of EU and EFTA Member States. The black line is a linear fit, the dashed grey lines represent the weighted EU27 averages.

The data reveal virtually no correlation, suggesting these mechanisms largely offset each other or that other factors dominate. Eastern European countries (Czech Republic, Hungary, Bulgaria) exhibit relatively high Future Ratios despite below-average tertiary education shares, while Ireland presents the opposite pattern. The lack of a clear pattern indicates that educational composition alone provides limited insight into a country's propensity for future-oriented budgeting.

Figure 7 explores whether political participation, measured by voter turnout in national parliamentary elections, correlates with future-oriented spending. Higher civic engagement might be expected to strengthen democratic accountability and citizens' stake in long-term policy outcomes, potentially favoring investment over consumption.

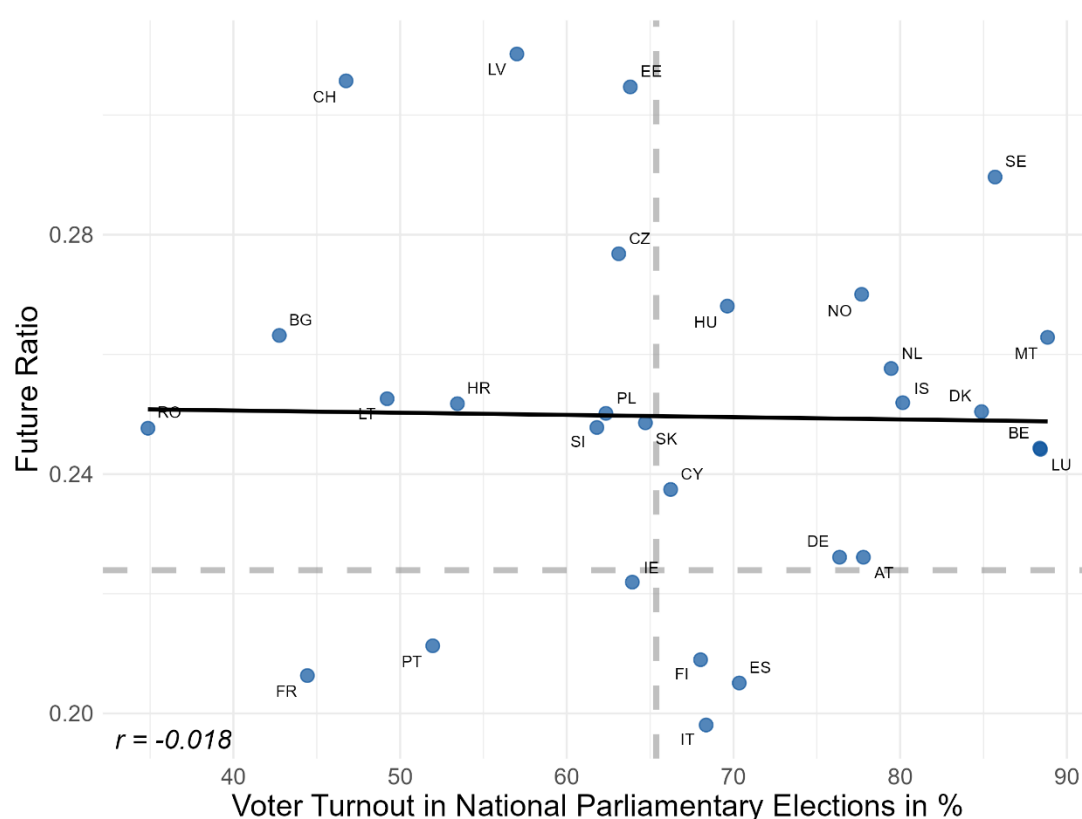
Figure 6: Correlation of Future Ratio and Share of Population with Tertiary Education



Notes: The vertical axis represents the Future Ratio (own calculation), the horizontal axis represents the share of the population with tertiary education (Eurostat). Blue dots represent the 2015-23 average values of EU and EFTA Member States. The black line is a linear fit, the dashed grey lines represent the weighted EU27 averages.

The empirical evidence shows no meaningful relationship. Countries span a wide range of voter turnout—from around 40% (Romania) to over 90% (Belgium)—yet exhibit similar variation in Future Ratios at all turnout levels. Much of the lower end in turnout may also be related to semi-presidential systems. This suggests that general electoral participation does not systematically predict whether governments prioritize future-oriented spending, pointing to the importance of other institutional or political factors beyond aggregate turnout rates.

Figure 7: Correlation of Future Ratio and Voter Turnout in Parliamentary Elections

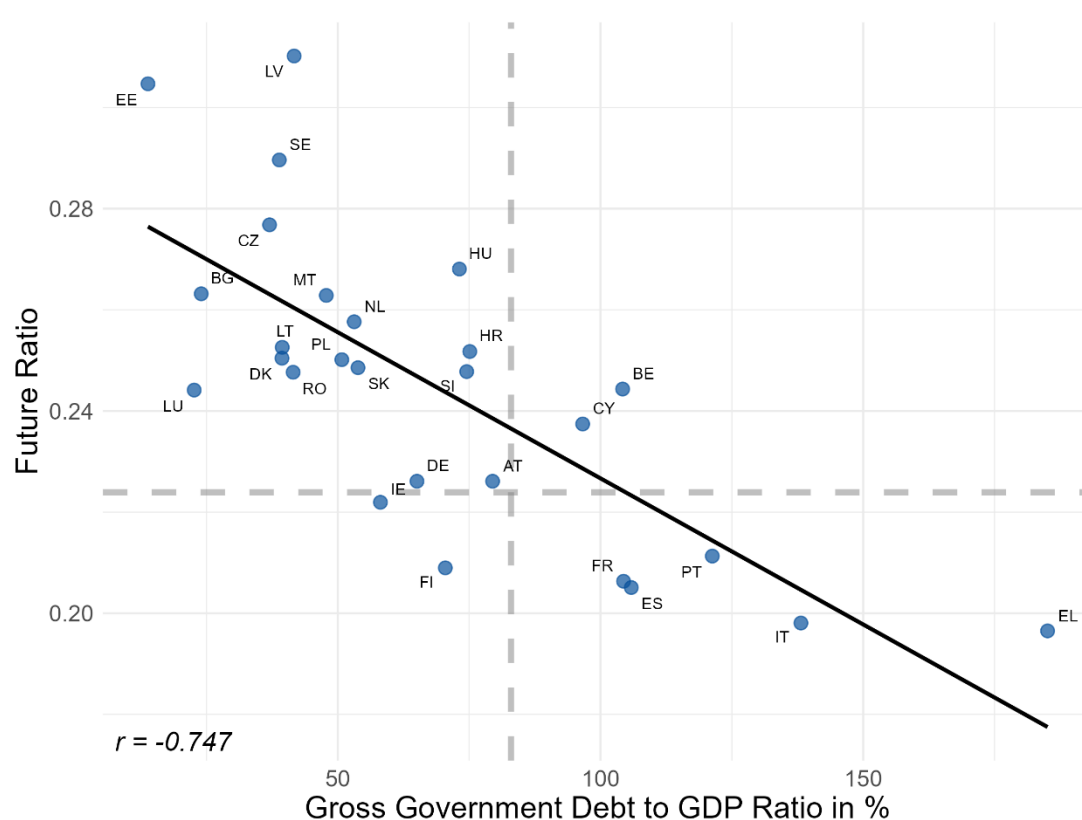


Notes: The vertical axis represents the Future Ratio (own calculation), the horizontal axis represents the voter turnout in national parliamentary elections (IDEA Voter Turnout Database). Blue dots represent the 2015-23 average values of EU and EFTA Member States. The black line is a linear fit, the dashed grey lines represent the EU27 averages, weighted for the Future Ratio and unweighted for voter turnout.

Figure 8 examines the relationship between government debt levels and future-oriented spending, revealing the strongest correlation in this analysis ($r = -0.747$). Countries with higher debt-to-GDP ratios exhibit substantially lower Future Ratios. This pattern may reflect different mechanisms. Since high debt and a low Future Ratio both indicate a disregard for future interests, the correlation may reflect a case of common-cause interdependence, whereby the extent of the present bias drives both the accumulation of debt and spending patterns. Another possible mechanism originates from the budget constraint: elevated debt levels necessitate higher debt servicing payments, crowding out discretionary spending on investment and future-oriented policies. Furthermore, countries experiencing fiscal difficulties may prioritise politically sensitive current expenditure (e.g. pensions and

healthcare) over long-term investments, creating a vicious cycle in which high debt not only restricts fiscal space, but also shifts the composition of remaining expenditure away from categories that enhance growth — potentially undermining future debt sustainability. Whatever the underlying mechanism, this strong negative correlation sends a clear message: EU Member States with high debt levels tend to be in an unfavourable situation with respect to their spending structure at the same time. Therefore, building up high levels of debt in the past was clearly not effective in shifting spending towards a greater future orientation.

Figure 8: Correlation of Future Ratio and Debt to GDP Ratio



Notes: The vertical axis represents the Future Ratio (own calculation), the horizontal axis represents the gross government debt to GDP ratio (Eurostat). Blue dots represent the 2015-23 average values of EU Member States. The black line is a linear fit, the dashed grey lines represent the weighted EU27 averages.

The country distribution starkly illustrates this constraint. The Baltic states (Estonia, Latvia) and Nordic countries (Sweden) combine low debt ratios with high future-orientation,

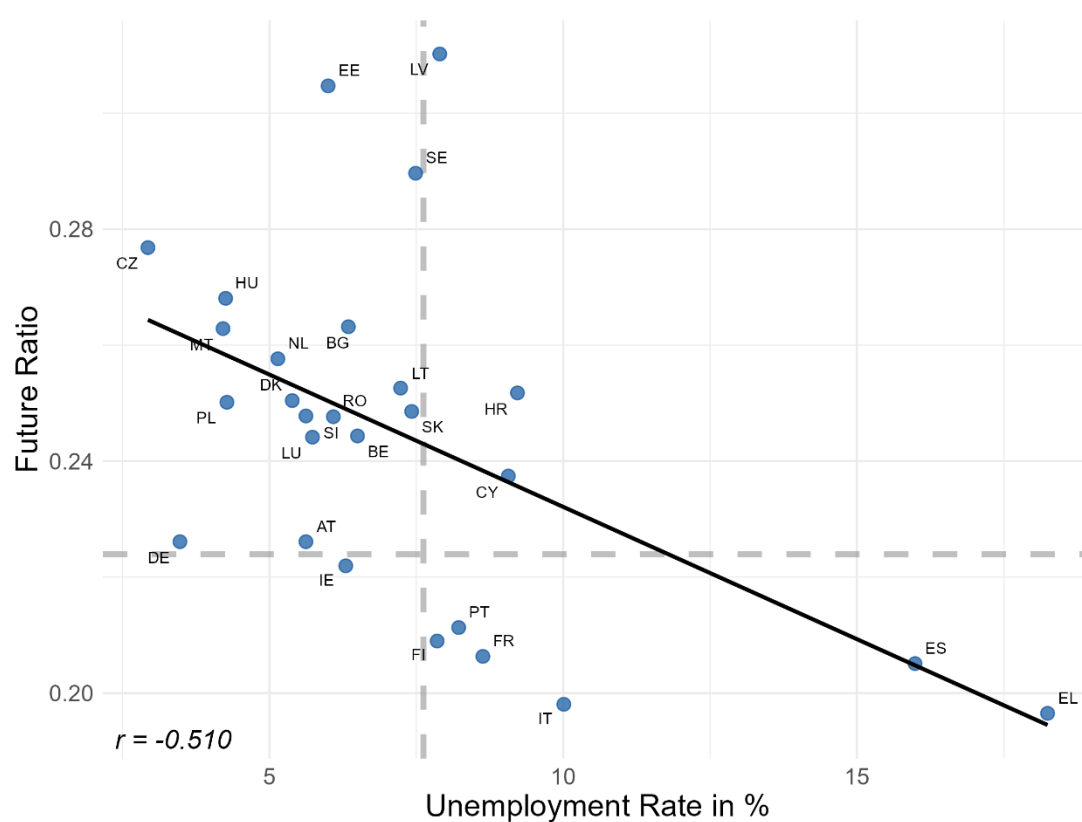
maintaining fiscal space for investment. Conversely, Southern European countries cluster in the bottom-right: Greece, Italy, Portugal, and Spain all face debt ratios exceeding 100% of GDP alongside Future Ratios well below the EU average. Germany and Austria occupy middle positions, though Germany's below-average Future Ratio despite moderate debt suggests additional factors beyond fiscal constraints. The strength of this correlation underscores debt sustainability as a critical precondition for maintaining future-oriented fiscal policy.

Figure 9 presents the correlation between unemployment rates and the Future Ratio. Labor market slack might influence fiscal priorities through both fiscal constraint (higher unemployment benefits reduce available resources) and political economy channels (unemployed populations may demand immediate welfare support over long-term investments).

The data show a moderate negative relationship ($r = -0.510$). Countries with low unemployment (Czech Republic, Hungary, Netherlands, Nordic countries) tend toward higher Future Ratios, while those with elevated unemployment (Greece, Spain) exhibit lower future-orientation. However, the relationship is considerably weaker than for debt, and several countries deviate substantially from the fitted line. Croatia maintains relatively high future-oriented spending despite above-average unemployment, while Ireland shows below-average Future Ratios with very low unemployment. This suggests that while labor market conditions matter, they operate through complex interactions with fiscal space and political priorities rather than as a mechanical constraint.

The final set of correlations examines whether different dimensions of fiscal governance frameworks relate to future-oriented spending patterns. This analysis is particularly relevant given the evolution of EU fiscal governance—from the original Stability and Growth Pact rules to the broader adoption of national numerical fiscal rules and medium-term budgetary frameworks, culminating in the 2024 SGP reform that substantially elevated the role of national medium-term plans.

Figure 9: Correlation of Future Ratio and Unemployment Rate

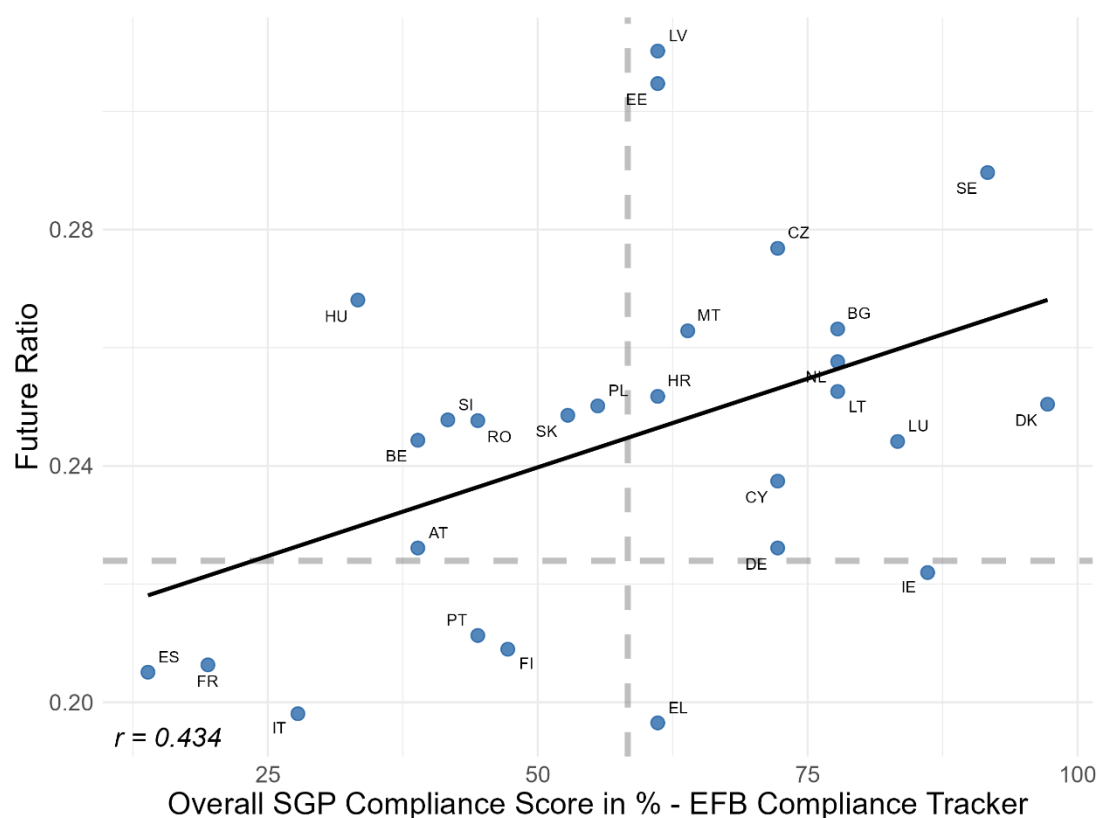


Notes: The vertical axis represents the Future Ratio (own calculation), the horizontal axis represents the unemployment rate (Eurostat). Blue dots represent the 2015-23 average values of EU and EFTA Member States. The black line is a linear fit, the dashed grey lines represent the weighted EU27 averages.

Figure 10 presents the relationship between compliance with the four core SGP rules (deficit, debt, structural balance, and expenditure rules) as recorded in the European Fiscal Board's Compliance Tracker (Larch et al., 2023) and the Future Ratio, showing a moderate positive correlation. Countries with stronger SGP compliance records tend to exhibit higher future-oriented spending. The Baltic states (Latvia, Estonia) and Sweden combine strong compliance with high Future Ratios, while Southern European countries (Greece, Spain, Italy) show both weak compliance and low future-orientation. This pattern suggests that fiscal discipline and investment orientation may be complementary rather than competing priorities—countries that maintain fiscal discipline appear better positioned to allocate resources toward future-oriented objectives. Simultaneously it may also reflect the vicious cycle commented on

previously, where long periods out of compliance are linked to tighter fiscal constraints on investive and future oriented spending.

Figure 10: Correlation of Future Ratio and SGP Compliance

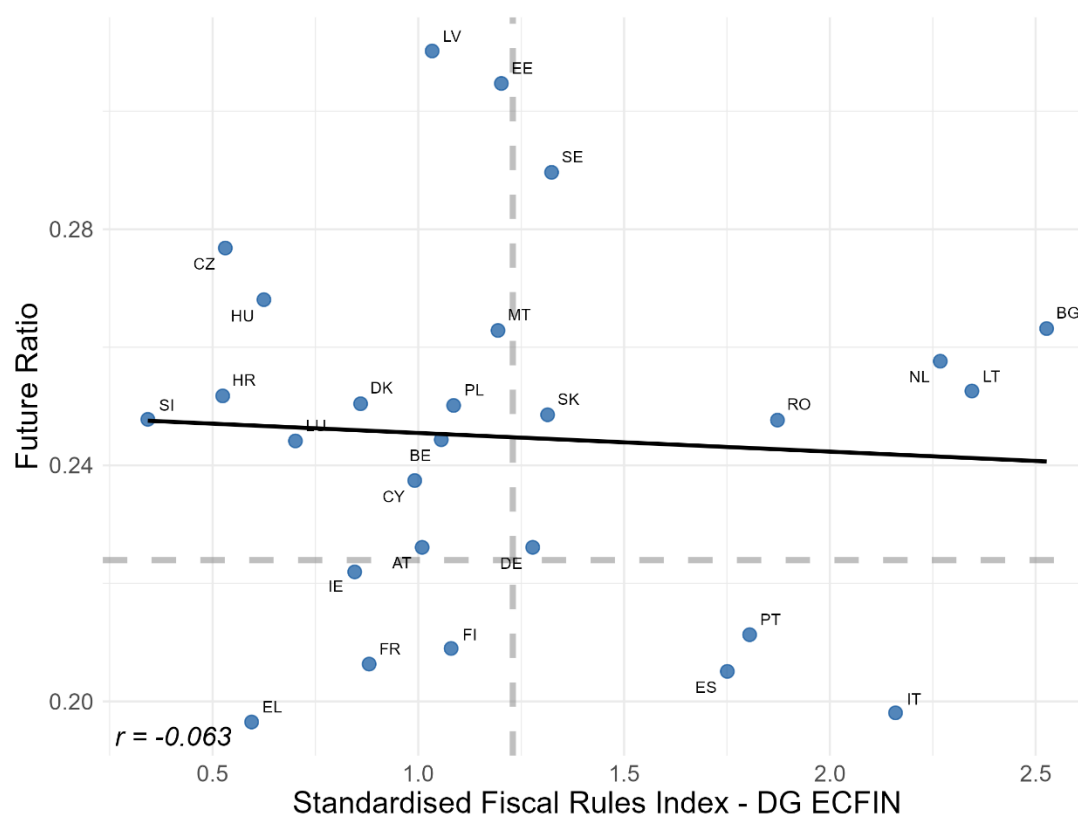


Notes: The vertical axis represents the Future Ratio (own calculation), the horizontal axis represents the average compliance across the four SGP rules (EFB). Blue dots represent the 2015-23 average values of EU Member States. The black line is a linear fit, the dashed grey lines represent the EU27 averages, weighted for the Future Ratio and unweighted for SGP Compliance Score.

Figure 11 examines the European Commission's (DG ECFIN) Fiscal Rules Index, which measures the strength of domestic numerical fiscal rules based on their legal base, bindingness, monitoring mechanisms, correction procedures, and resilience to shocks. Despite strong EU support for the adoption of robust national fiscal rules, the relationship with future-oriented spending is virtually non-existent. Countries span the full range of rule strength—from Greece and Slovenia with relatively weak frameworks to Bulgaria, Netherlands, and Lithuania with strong numerical rules—yet exhibit no systematic pattern in

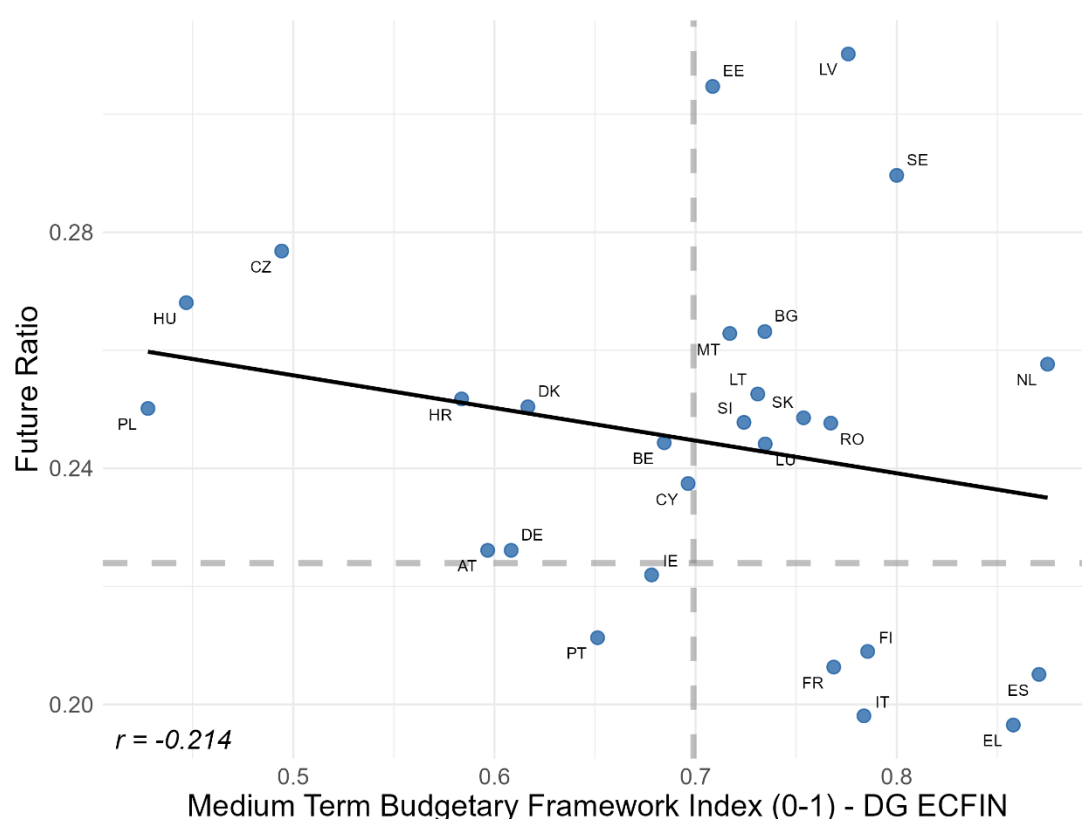
their Future Ratios. This absence of correlation may reflect an endogeneity problem: countries that experienced fiscal crises often responded by adopting stricter rules, meaning strong fiscal frameworks could be markers of past fiscal stress rather than drivers of forward-looking policy.

Figure 11: Correlation of Future Ratio and Strength of Fiscal Rules



Notes: The vertical axis represents the Future Ratio (own calculation), the horizontal axis represents the Standardised Fiscal Rules Index measuring the strength of numerical fiscal rules (DG ECFIN). Blue dots represent the 2015-23 average values of EU Member States. The black line is a linear fit, the dashed grey lines represent the EU27 averages, weighted for the Future Ratio and unweighted for the FRI.

Figure 12: Correlation of Future Ratio and Medium-Term Budgetary Framework



Notes: The vertical axis represents the Future Ratio (own calculation), the horizontal axis represents the Medium-Term Budgetary Framework Index assessing the quality of Member State MTBF processes (DG ECFIN). Blue dots represent the 2015-23 average values of EU Member States. The black line is a linear fit, the dashed grey lines represent the EU27 averages, weighted for the Future Ratio and unweighted for the MTBF Index.

Figure 12 explores the European Commission's (DG ECFIN) Medium-Term Budgetary Framework (MTBF) Index, which assesses the quality of national medium-term fiscal planning through criteria including target coverage, connectedness to annual budgets, parliamentary involvement, independent fiscal institution participation, and level of detail. An evolution of these frameworks has become central to EU fiscal governance following the 2024 SGP reform. Counterintuitively, the correlation with future-oriented spending is weakly negative ($r = -0.214$). Countries with high-quality MTBFs like the Netherlands, Spain, and Romania do not systematically achieve higher Future Ratios, while some Eastern European countries (Hungary, Poland) maintain relatively high future-orientation despite weaker MTBF scores. This pattern may again reflect the endogenous adoption of stronger frameworks following

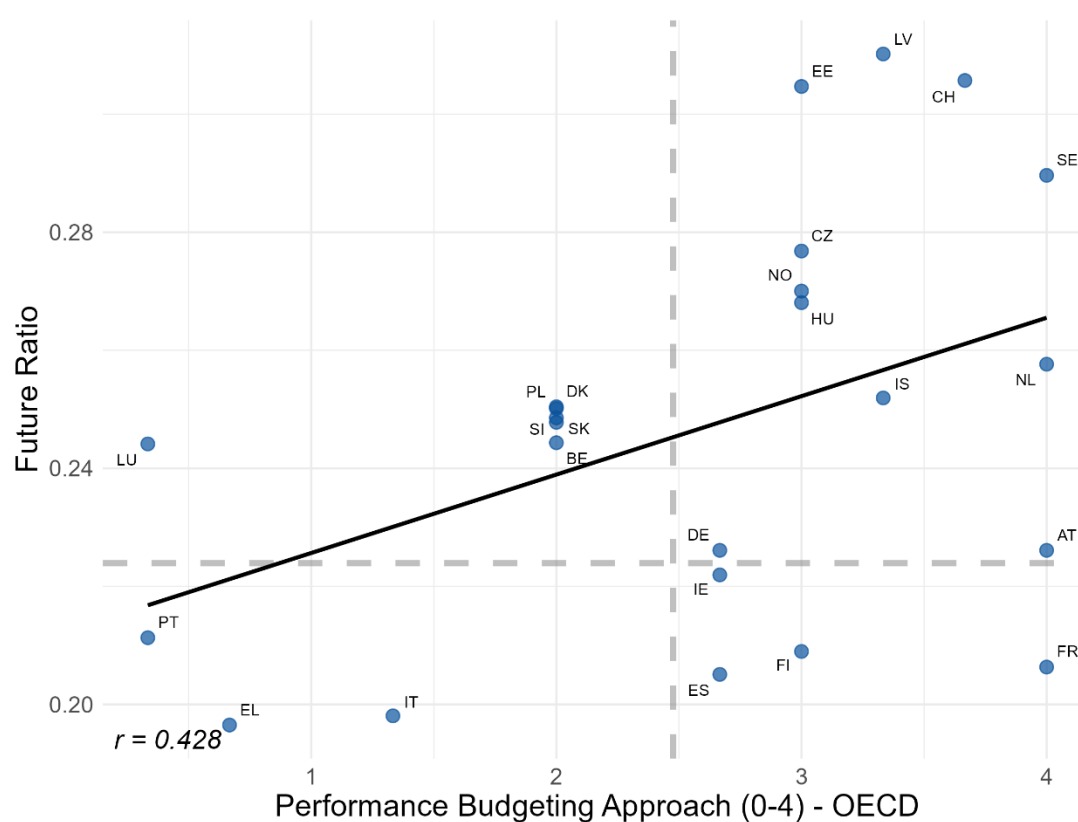
fiscal difficulties or suggest that procedural quality alone does not guarantee substantive shifts toward future-oriented priorities without complementary political commitment. Depending on fiscal constraints, present bias and political economy factors, present commitments to future period budgets risks incentivising past-oriented spending priorities.

Figure 13 presents the correlation with the Performance Budgeting Approach score from the OECD Survey on Public Policy Evaluation, which measures the extent to which countries link budget allocations to policy performance and outcomes (OECD, 2016, 2018, 2023). Here a moderate positive correlation emerges ($r = 0.428$), similar in magnitude to SGP compliance. Nordic countries and the Netherlands combine strong performance budgeting with high Future Ratios, while Southern European countries (Italy, Portugal, Greece) show weaker performance orientation alongside lower future-oriented spending. This relationship suggests that governance mechanisms emphasizing accountability for results—rather than merely procedural compliance—may better align with future-oriented fiscal priorities.

Taken together, these patterns reveal a complex picture. Compliance-based and results-oriented frameworks (SGP compliance, performance budgeting) show moderate positive correlations with future-oriented spending, while the presence of strong procedural rules (FRI, MTBF) exhibits weak or absent relationships. This divergence likely reflects endogeneity—countries often adopt stricter frameworks following fiscal crises—and highlights that formal institutional design alone does not guarantee substantive policy reorientation.

More importantly, these patterns underscore that if future-oriented spending is a policy priority, procedural reforms alone are unlikely to overcome binding fiscal constraints. As Figure 8 demonstrated, high debt levels represent the strongest predictor of low Future Ratios, creating a constraint that better budgetary procedures cannot easily circumvent. Countries trapped in this dynamic—facing high debt service obligations that crowd out investment while simultaneously adopting stronger fiscal frameworks to restore credibility—may require external support to break the cycle.

Figure 13: Correlation of Future Ratio and Performance Budgeting Approach



Notes: The vertical axis represents the Future Ratio (own calculation), the horizontal axis represents the score of the Performance Budgeting Approach assigned through the OECD Survey on Public Policy Evaluation. Blue dots represent the 2015-23 average values of EU and EFTA Member States who participated in at least one survey during that time. The black line is a linear fit, the dashed grey lines represent the EU27 averages, weighted for the Future Ratio and unweighted for the Performance Budgeting Approach.

This points to a potentially important role for EU-level instruments that could complement national fiscal governance reforms. The NextGenerationEU program demonstrated how grant-based financing can temporarily boost investment in constrained countries, while the revised fiscal framework's National Medium-Term Fiscal-Structural Plans explicitly recognize the need to balance debt reduction with reform and investment priorities. Looking ahead, instruments such as the proposed National and Regional Partnership Plans under the next Multiannual Financial Framework, expanded InvestEU facilities, or reformed Cohesion Policy could provide fiscal space for future-oriented policies in debt-constrained Member States. Future research will have to analyze whether such EU instruments effectively increase future-

oriented spending in fiscally constrained countries, and under what conditions they complement rather than substitute for national efforts.

5 Conclusion

We argue that the Future Ratio provides a valuable compass for assessing the future orientation of Member States' spending structures. This novel indicator can support efforts to better align both national and European expenditure with future challenges. Unlike traditional measures such as the investment ratio, the Future Ratio captures future-oriented investment in a broader sense — including the formation and preservation of human capital, natural resources, and technological knowledge, in addition to physical capital.

The Future Ratio may also serve as a useful tool for monitoring the effects of the reformed European fiscal governance framework. One major risk of greater debt flexibility and more lenient adjustment paths is that this flexibility may be misused — not to promote future investment, but to postpone necessary yet politically difficult reforms. The recent experience with Germany's reform of the debt brake illustrates the creative accounting and partial misuse of debt-financed funds for present purposes, contrary to the reform's stated objectives. The Future Ratio offers a way to detect such tendencies.

Our time-series and cross-sectional analyses of the Future Ratio yield both encouraging and discouraging findings. The good news is that the ratio began to rise after 2015, with only a brief dampening effect during the pandemic. While further research is needed to identify the drivers behind this development, the trend may reflect a learning effect from the euro area debt crisis, when fiscal consolidation may have insufficiently considered the quality of public spending.

The bad news, particularly for high-debt EU countries, is the strong negative correlation between debt levels and the future orientation of public expenditure. High-debt countries appear trapped in an unfavourable equilibrium — burdened by rising debt-servicing costs and a related inability to invest in the future. Our results provide no evidence that higher debt accumulation has paved the way for more future-oriented spending; quite the opposite seems to be true.

To some extent, our findings seem to rehabilitate the old Stability and Growth Pact: strong compliance with its rules was not an obstacle to future-oriented spending — if anything, it helped countries move towards a favourable equilibrium of low debt and high future orientation.

Further research is needed to identify the most effective fiscal and economic policy strategies and reforms to support a transition towards this 'good equilibrium'. However, high fiscal transparency is integral to any such strategy, an area in which the Future Ratio can contribute.

6 Literature

Barro, R. (2013), Education and Economic Growth, *Annals of Economics and Finance* 14(2), 329-366.

Bohne, A., Heinemann, F., & Niebel, T. (2025). Zukunftsquote im Bundeshaushalt 2024: Neuer Höchstwert für den Gesamthaushalt bei Rückschlag im Kernhaushalt, ZEW Policy Brief, 2025-01.

Bohne, A., Heinemann, F., Niebel, T., & Thöne, M. (2024). Die Zukunftsquote: Ein neuer Kompass für den Bundeshaushalt. *Perspektiven der Wirtschaftspolitik*, 25(2), 113–129.

Busemeyer, M. R. (2024), Who cares for the future? Exploring public attitudes towards the needs of future generations in Germany, *Journal of European Public Policy* 31(3), 680–705.

Deloitte & ZEW (2024). Abschlussbericht für das Bundesministerium der Finanzen: Erstellung eines Konzepts zur Einführung einer ziel- und wirkungsorientierten Haushaltsführung.

Diamond, A. R. (1999), Does Federal Funding 'Crowd In' Private Funding of Science? *Contemporary Economic Policy* 17(4), 423-431.

European Commission, Directorate-General for Economic and Financial Affairs (2025). Fiscal Governance EU Database

- European Fiscal Board (2025). Annual Report 2025, October, Brussels.
- Eurostat (2019). Manual on sources and methods for the compilation of COFOG statistics, Classification of the Functions of Government (COFOG), 2019 Edition. Luxembourg: Publications Office of the European Union, 2019.
- Heckman, J. and F. Cunha (2007), The Technology of Skill Formation, *American Economic Review* 97(2), 31-47.
- Heinemann, F. (2025). Der Weg zu mehr Wirkungsorientierung im Bundeshaushalt, *Wirtschaftsdienst*, 105(2), 112–117.
- Heinemann, F., & Steger, P. (2024). Mehr finanzielle Spielräume, mehr öffentliche Investitionen? ZEW Policy Brief, 24-09, Juni.
- IMF (2025). Fiscal Monitor, Spending Smarter: How Efficient and Well-Allocated Public Spending Can Boost Economic Growth, October, Washington DC.
- Kalyvitis, S., and P. Kalaitzidakis (2002), Financing 'New' Public Investment and/or Maintenance in Public Capital for Long-run Growth? The Canadian Experience. Athens University of Economics and Business.
- Larch, M., J. Malzubris, and S. Santacroce (2023). Numerical compliance with EU fiscal rules: Facts and figures from a new database. *Intereconomics*, 58(1): 32-42
- O'Donoghue, T., and M. Rabin (2015), Present bias: Lessons learned and to be learned. *American Economic Review*, 105(5), 273-279.
- OECD (2016). 2016 OECD Performance Budgeting Survey. Paris: OECD Publishing.
- OECD (2018). 2018 OECD Performance Budgeting Survey. Paris: OECD Publishing.
- OECD (2023). 2023 OECD Survey on Public Policy Evaluation. Paris: OECD Publishing
- Pradhan, R. P., and T. P. Bagchi (2013), Effect of Transportation Infrastructure on Economic Growth in India: The VECM Approach, *Research in Transportation Economics* 38(1), 139-148.
- Rieger, M.O., M. Wang, and T. Hens (2015), Risk Preferences around the World. *Management Science*. 61(3), 637-648.

- Schuknecht, L., and H. Zemanek (2021), Public Expenditures and the Risk of Social Dominance, *Public Choice*, 188(1), 95-120.
- Wang, M., M.O. Rieger, and T. Hens (2016), How Time Preferences Differ: Evidence from 53 Countries, *Journal of Economic Psychology*. 52, 115-135.
- Yared, P. (2019), Rising Government Debt: Causes and Solutions for a Decades-Old Trend, *Journal of Economic Perspectives*. 33(2), 115-40.

Appendix A: Criteria and Weighting

Cofog Number & Description		Exclusion Criteria		Primary Criteria				Secondary Criteria			Tertiary Criteria		Weights	
		Present use dominated	past-related issues	Technical Knowledge	Human Capital	Growth Relevant	Preservation of Natural	Long Delay in Benefits	Public Good / Positive	Indicator of Strong Effect	Defence Orientated	Investive	Narrow Weight	Broad Weight
GF0101	Executive and legislative organs, financial and fiscal affairs, external affairs								x				0	.25
GF0102	Foreign economic aid						x		x				.5	.75
GF0103	General services	x											0	0
GF0104	Basic research			x	x			x	x	x			1	1
GF0105	R&D General public services			x	x				x	x			1	1
GF0106	General public services n.e.c.								x				0	.25
GF0107	Public debt transactions		x										0	0
GF0108	Transfers of a general character between different levels of government	x											0	0
GF0201	Military defence								x		x		.5	.625
GF0202	Civil defence								x		x		.5	.625
GF0203	Foreign military aid								x		x		.5	.625
GF0204	R&D Defence			x	x				x	x			1	1
GF0205	Defence n.e.c. (not elsewhere classified)								x		x		.5	.625
GF0301	Police services	x											0	0
GF0302	Fire-protection services	x											0	0
GF0303	Law courts	x											0	0
GF0304	Prisons	x											0	0
GF0305	R&D Public order and safety			x	x				x	x			1	1
GF0306	Public order and safety n.e.c.	x											0	0
GF0401	General economic, commercial and labour affairs								x				0	.25
GF0402	Agriculture, forestry, fishing and hunting	x											0	0
GF0403	Fuel and energy						x		x				.5	.75

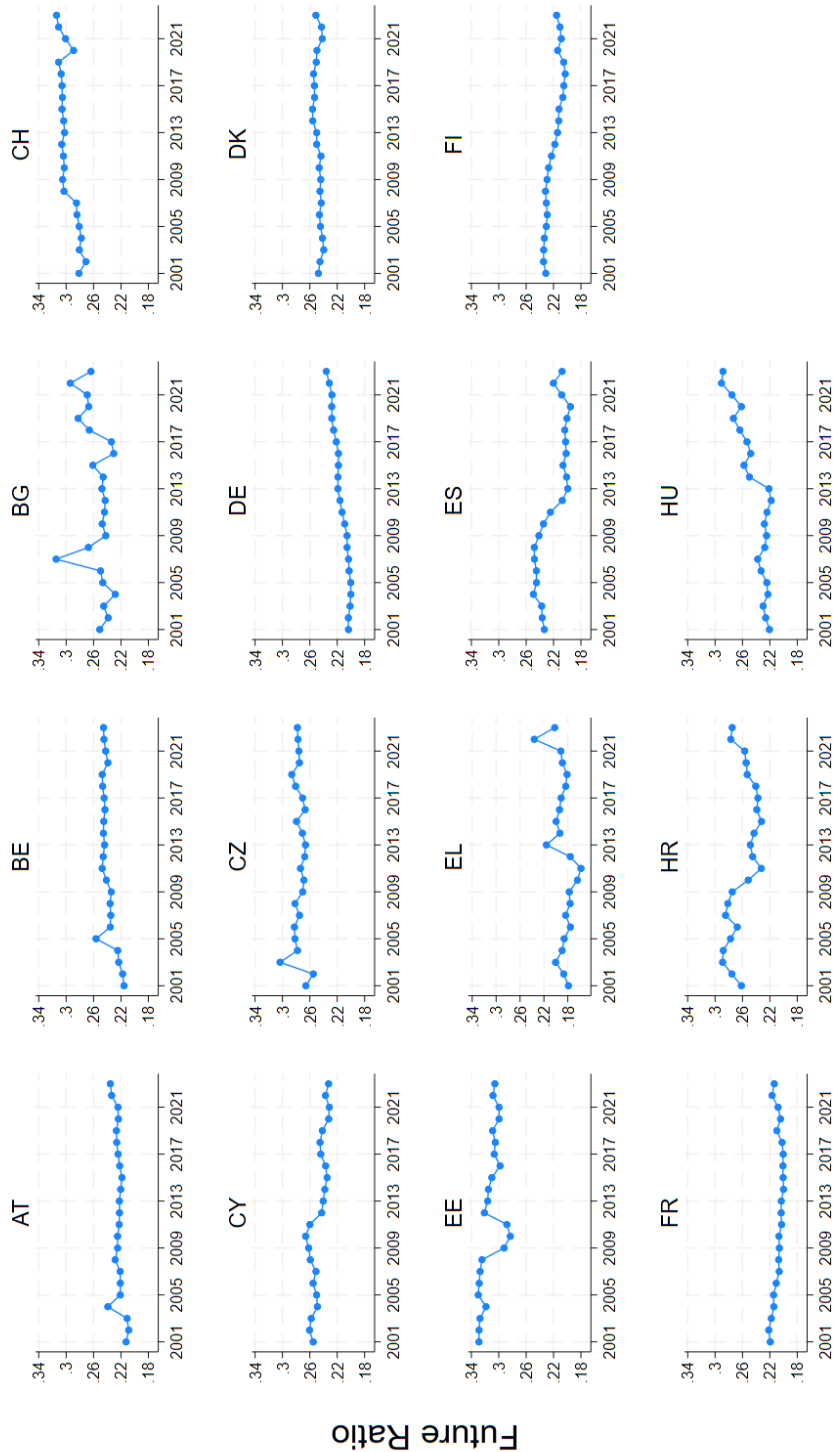
Appendix A: Criteria and Weighting

GF0404	Mining, manufacturing and construction	x											0	0
GF0405	Transport					x			x				.5	.75
GF0406	Communication					x			x	x			.75	1
GF0407	Other industries					x							.25	.5
GF0408	R&D Economic affairs			x	x				x	x			1	1
GF0409	Economic affairs n.e.c.	x											0	0
GF0501	Waste management	x											0	0
GF0502	Waste water management	x											0	0
GF0503	Pollution abatement						x	x	x				.75	1
GF0504	Protection of biodiversity and landscape						x	x	x				.75	1
GF0505	R&D Environmental protection			x	x		x	x	x				1	1
GF0506	Environmental protection n.e.c.						x	x	x				.75	1
GF0601	Housing development								x			x	.5	.625
GF0602	Community development								x				0	.25
GF0603	Water supply								x			x	.5	.625
GF0604	Street lighting								x			x	.5	.625
GF0605	R&D Housing and community amenities			x	x				x	x			1	1
GF0606	Housing and community amenities n.e.c.								x				0	.25
GF0701	Medical products, appliances and equipment	x											0	0
GF0702	Outpatient services	x											0	0
GF0703	Hospital services	x											0	0
GF0704	Public health services								x				0	.25
GF0705	R&D Health			x	x				x	x			1	1
GF0706	Health n.e.c.								x				0	.25
GF0801	Recreational and sporting services								x				0	.25
GF0802	Cultural services								x				0	.25
GF0803	Broadcasting and publishing services								x				0	.25
GF0804	Religious and other community services								x				0	.25

Appendix A: Criteria and Weighting

GF0805	R&D Recreation, culture and religion			x	x				x	x			1	1
GF0806	Recreation, culture and religion n.e.c.								x				0	.25
GF0901	Pre-primary and primary education				x			x	x	x			1	1
GF0902	Secondary education				x				x	x			.75	1
GF0903	Post-secondary non-tertiary education				x				x				.5	.75
GF0904	Tertiary education				x				x				.5	.75
GF0905	Education not definable by level				x				x				.5	.75
GF0906	Subsidiary services to education				x								.25	.5
GF0907	R&D Education			x	x			x	x	x			1	1
GF0908	Education n.e.c.				x				x				.5	.75
GF1001	Sickness and disability	x											0	0
GF1002	Old age		x										0	0
GF1003	Survivors		x										0	0
GF1004	Family and children	x											0	0
GF1005	Unemployment	x											0	0
GF1006	Housing	x											0	0
GF1007	Social exclusion n.e.c.	x											0	0
GF1008	R&D Social protection			x	x				x	x			1	1
GF1009	Social protection n.e.c.								x				0	.25

Appendix B: Country Time Series - Future Ratio



Appendix B: Country Time Series - Future Ratio

