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EU Cohesion Policy 2021–2027: Absorption Trends and Structural Challenges in Romania

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ABSTRACT

The study examines the dynamics of European funds absorption in Romania, using official data published by the Ministry of Investments and European Projects as of July 31, 2025. The analysis uses descriptive and applied statistics to assess general progress as well as differences between programs. Findings highlight significant variability in performance and a concentration of absorption around infrastructure programs, while social and digital sectors face persistent delays and compliance challenges. The assessment of financial efficiency reveals notable discrepancies across programs, indicating the need for operational adjustments and strengthened institutional capacity. Projections for the 2025–2027 period suggest that the final trajectory will depend on the administrative ability to streamline procedures, establish strategic priorities, and accelerate implementation. The overarching conclusion emphasizes that optimizing EU funds absorption requires diversifying performance drivers and reducing reliance on a limited number of dominant programs.

1. Introduction

The absorption of European funds represents one of the main indicators of a Member State's capacity to capitalize on the opportunities made available through the European Union's Cohesion Policy. In the case of Romania, these resources have strategic importance, as they contribute to financing investments in infrastructure, sustainable development, digitalization, social inclusion, and human capital—sectors at the center of the process of economic and social convergence. However, past programming periods (2007–2013 and 2014–2020) revealed that delays, institutional hurdles, and considerable variations between programs and regions frequently hindered the efficient use of these funds.

The current context of the 2021–2027 programming period further amplifies these challenges. Given that Romania benefits from the largest financial allocation in its history of participation in the European Union, absorption capacity is no longer only a technical or administrative matter, but a genuine issue of public policy with direct implications for economic and social development.

Programme themes and institutional differences, variations in how quickly implementation occurs across regions, and the focus of funding through only a few channels are all factors that affect how sustainably funds are used.

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From an analytical perspective, this study aims to examine Romania's performance in absorbing European funds through a multidimensional statistical approach. Descriptive indicators (absorption rate, dispersion, coefficient of variation, range), comparative analysis tools (ANOVA test), as well as applied interpretation methods (Pareto analysis, projections based on the average monthly absorption rate, and financial efficiency indicators) are employed. This approach allows not only the quantification of progress but also the identification of structural imbalances and systemic risks.

The originality of this research lies in the correlation between descriptive, inferential, and applied dimensions, which provides an integrated perspective on how Romania is utilizing European resources at the mid-point of the programming period. The relevance of the study derives from the fact that the results go beyond a retrospective evaluation and provide public policy directions and recommendations for optimizing absorption in the following years. In this sense, the article seeks to contribute to the understanding of implementation mechanisms and to the substantiation of solutions that ensure a more efficient, balanced, and sustainable use of European funds.

2. Literature review

Romania's trajectory within the European Union is closely tied to its ability to efficiently utilize Community financial instruments, which represent not only punctual economic support but also a means of strengthening institutional and economic convergence. The absorption rate of European funds thus becomes an indicator of the country's positioning on the path of European integration and of the effectiveness of the governance mechanisms that sustain this process (Matei, 2020).

A study by Oprescu, Constantin, Ilie, and Pîslaru (2006) highlights that the absorption of Community funds is not conditioned exclusively by the availability of financial resources but, to a decisive extent, by the institutional capacity of the state, the simplification of administrative procedures, and the prior preparation of projects. The authors also emphasize that European funds should not be interpreted merely as external financial assistance but as a genuine test of governance functionality and institutional maturity.

The management of European funds has not only economic implications but also relevance for national security, as institutional vulnerabilities and financial blockages can amplify risks with a direct impact on the overall stability of the country. Economic risk factors are directly correlated with security interests, making the efficient absorption of European resources an element of strategic resilience (Peptan, 2020).

Dumitrescu and Dumitrescu (2016) argue that the absorption of European funds plays an essential role in strengthening macroeconomic stability, by stimulating investments, reducing structural imbalances, and supporting real convergence with the economies of the European Union. According to the authors, the efficiency of using these resources goes beyond their immediate financial dimension, contributing to long-term stability and enhancing economic resilience.

Ciucă (2020) underscores that European funds are a key instrument in Romania's development and modernization, contributing both to reducing economic and social disparities compared to the EU average and to strengthening institutional capacity. The author points out that efficient use of resources is shown not just through financial gains, but also through national-level structural changes supported by strategic projects in infrastructure, innovation, and social cohesion.

Romania's experience during the 2014–2020 programming period confirms that the absorption of European funds was marked by significant delays in the early stages of the cycle, followed by considerable acceleration toward the end, due to institutional mobilization and the application of the "n+3 rule." This evolution highlights the cyclical nature of performance and its dependence on administrative and governance factors (Paul, 2021).

According to Ateşoae (2023), institutional strategic planning constitutes a central element in achieving public policy objectives, as it enables the alignment of available resources with national and European priorities. In this context, European funds should not be regarded merely as a source of financing, but as an integral part of the planning process, since their efficiency depends on the capacity of the administration to integrate them into a coherent framework of governance and strategic development. Thus, the success of absorption derives not exclusively from the scale of allocations but, more importantly, from the way in which they are anticipated, programmed, and managed in relation to policy objectives.

A relevant example is education, where funding policies and European funds have been determining factors in the modernization of infrastructure and in adapting the system to European standards. Non-reimbursable funds have contributed to expanding access to modern educational resources and to reducing structural disparities, thereby confirming their importance as instruments of social and institutional development (Tușa, 2023).

Studies indicate that Romanian small and medium-sized businesses faced significant challenges during the COVID-19 pandemic, revealing not only the necessity for digital transformation but also the value of European funding support. Non-reimbursable financing became not only a solution for economic recovery but also a means of structural adaptation, guiding small and medium-sized enterprises toward innovation, sustainability, and resilience (Stratone, 2021).

European structural funds have also played a vital role in the modernization of Romania's agricultural sector, contributing to the improvement of rural infrastructure, the increase of productivity, and the diversification of economic activities. These funds supported both physical investments, such as farm modernization and equipment acquisition, and the strengthening of human capital and competitiveness on the European market. However, the absorption rate was hindered by bureaucracy, co-financing difficulties, and a lack of expertise in project design, which reduced the efficiency of resource utilization (Manolache et al., 2023).

The analysis conducted by Marcu, Kandzija, and Dorotic (2020) demonstrates that the absorption of European funds in Romania is not determined exclusively by the volume of financial allocations but more importantly by the quality of the institutional framework and the coherence of public policies. The authors point out that, compared to other Member States, Romania faces persistent challenges such as excessive bureaucracy, legislative instability, and institutional fragmentation—factors that reduce the predictability of the process and slow down the transformation of allocated funds into effective investments. This situation generates a gap between the financial potential available and the results achieved, suggesting that the mere existence of European resources does not automatically guarantee high absorption.

Moreover, the study highlights that in the absence of clear governance mechanisms and an integrated strategic vision, European funds risk being used in a fragmented manner, without producing convergent long-term effects on economic and social development. This issue is further accentuated by weak inter-institutional coordination and the lack of an administrative culture oriented toward performance and accountability. In this sense, low absorption is not only a technical implementation deficit but also an indicator of the state's structural vulnerabilities in relation to European governance requirements (Marcu, Kandzija & Dorotic, 2020).

Therefore, the perspective of this study confirms that Romania must overcome not only the obstacles linked to procedures and human resources but also develop a governance framework capable of transforming European funds into a strategic instrument for modernization and convergence.

3. Results

Dispersion of Absorption Rates Across Operational Programs

The comparative analysis of absorption rates of European funds across Romania's main operational programs—Transport, Sustainable Development, Education and Employment, Inclusion and Social Dignity, Health, Just Transition, Smart Growth, Digitalization and Innovation, as well as Technical Assistance—highlights notable differences in progress. These variations, illustrated in Figure 1, reveal the existence of high-performing sectors with accelerated implementation rhythms, alongside domains where absorption remains marginal or even non-existent. The pronounced dispersion of results suggests an imbalanced distribution of mobilized resources and outlines major challenges for ensuring a coherent and unified trajectory in the implementation of European funds at the national level.

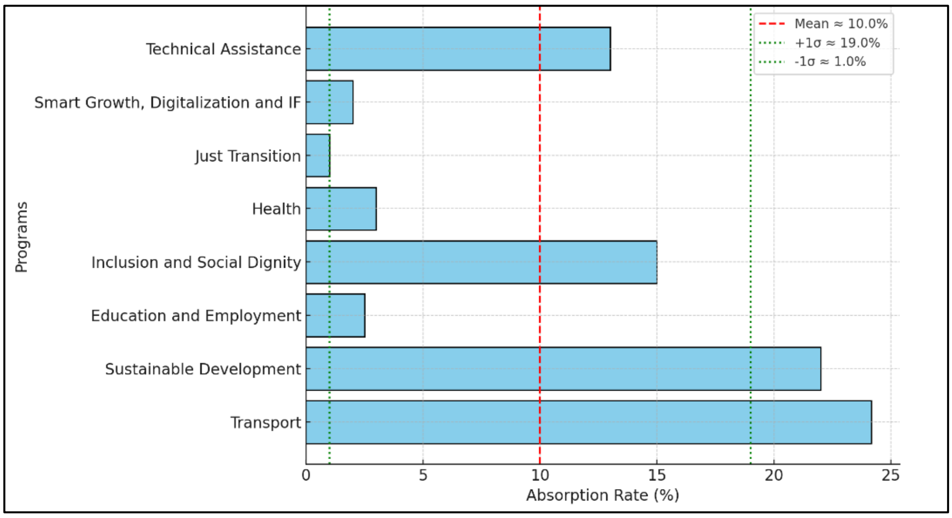

Figure 1. Absorption rate by programs and standard deviation (31 July 2025)

Source: Author, data processing based on the Ministry of Investments and European Projects, 2025

The analysis of the dispersion of absorption rates across programs financed from European funds highlights a high degree of heterogeneity, signaling profound performance differences between sectors. The calculation of the coefficient of variation (CV)—defined as the ratio between the standard deviation and the arithmetic mean—confirms this reality. With a value well above the 50% threshold, the indicator shows that variations between programs cannot be regarded as marginal but rather reflect an unbalanced distribution of progress in fund absorption. In practical terms, this implies that some programs approach performance levels comparable to the European average, while others remain completely stagnant.

Another relevant statistical element is the amplitude, namely the difference between the maximum and minimum absorption rates. In Romania, as of July 2025, this amounts to 24.16 percentage points, corresponding to the contrast between the Transport Program, which reached an absorption rate of 24.16%, and the Just Transition Program, which recorded no reimbursements from the European Commission. Such a sharp discrepancy underscores the fragmented character of implementation: while infrastructure-related domains succeed in attracting substantial resources, other sectors, particularly social programs, or those aimed at structural reconversion, remain significantly behind.

The interpretation of these results suggests that Romania faces a dual challenge. Absorption mainly occurs within a small number of established programs, demonstrating strong institutional capacity and previous experience in handling infrastructure projects. On the other hand, there are persistent risks of underperformance in sectors where administrative capacity, the attractiveness of calls for proposals, or the technical complexity of requirements generate considerable delays. Consequently, the high dispersion and significant amplitude of absorption rates constitute warning signals regarding the long-term sustainability of the implementation process and emphasize the need for corrective interventions aimed at balancing performance across programs.

The analysis of the financial efficiency indicator, presented in Table 1, measured as the ratio between payments made to beneficiaries and reimbursements received from the European Commission, further reveals major differences in performance between programs financed under the 2021–2027 Cohesion Policy. This ratio serves as an essential tool for assessing Romania's capacity to transform national expenditures into effective reimbursements, thereby functioning as a direct indicator of the operational effectiveness of the European financial mechanism.

Table 1. Financial efficiency across operational programmes

Programme	Efficiency ratio
Transport	1.07
Sustainable Development	2.00
Education and Employment	3.25
Inclusion and Social Dignity	1.31
Health	1.23
Just Transition	0
Digitalization	1.42
Technical Assistance	1.11

Source: Author, data processing based on the Ministry of Investments and European Projects, 2025

The results indicate that infrastructure programs, particularly the Transport Program, stand out with an optimal level of efficiency (ratio ≈ 1.07). This value shows that for each euro disbursed to beneficiaries, Romania obtained almost one euro reimbursed, reflecting a stable financial flow and a high degree of compliance of expenditures with European requirements. From a statistical perspective, this outcome confirms the maturity of infrastructure projects and the robustness of the corresponding administrative framework.

In contrast, the Education and Employment Program reveals a severe imbalance, with a ratio of 3.25, meaning that Romania disbursed more than three times the amount it succeeded in reimbursing. Such a discrepancy suggests major delays in the validation of expenditures and potential deficiencies in documentation, project selection, or monitoring. The situation is particularly problematic given the substantial allocation of this program, which amplifies the risk of fund loss if efficiency is not corrected.

The Just Transition Program is a unique case because payments have been made to beneficiaries, yet no reimbursements from the European Commission have been received so far. This equates to zero efficiency and highlights a structural blockage, either at the stage of call launching and accreditation or in the beneficiaries' capacity to meet eligibility criteria.

The Sustainable Development (2.00) and Digitalization (1.42) programs also register supra-unitary ratios, indicating persistent gaps between national expenditures and their formal recognition by European institutions. By contrast, the Inclusion and Social Dignity (1.31), Health (1.23), and Technical Assistance (1.11) programs are closer to the unit value, which reflects relatively stable functioning and a reasonable degree of efficiency.

Overall, the comparative analysis reveals a gradient of financial efficiency across programs, reflecting structural differences in implementation capacity. Transport infrastructure is performing optimally and serves as an example of best practices, while several social and technical support initiatives demonstrate satisfactory operation. On the other hand, strategic domains such as education, digitalization, and just transition display critical deficiencies that could compromise absorption if not promptly addressed.

From a macroeconomic and statistical perspective, this efficiency indicator shows that Romania's challenge is not only related to the volume of attracted funds but also to performance inequalities across programs. Reducing this gap is essential to ensure coherent use of resources and to avoid significant losses in the coming years.

Correlations between financial dimensions and absorption performance

The analysis of the relationships between the main financial dimensions of the programs provides an in-depth perspective on the mechanisms of European funds absorption. A first finding concerns the link between the size of financial allocations and the actual absorption rate. Programs with substantial budgets, such as Transport and Sustainable Development, not only manage the largest volumes of resources but also record absorption levels above the national average. This correlation suggests that infrastructure-related domains, characterized by mature projects and consolidated experience in the implementation of European financing, succeed in transforming financial allocations into tangible results more efficiently. Consequently, it can be argued that the allocation size is positively correlated with absorption performance, reflecting the institutional and strategic advantages of large investment sectors.

A second meaningful relationship refers to the ratio between pre-financing granted by the European Commission and the level of actual reimbursements. In an ideal scenario, programs benefiting from consistent pre-financing should, within a reasonable time limit, generate proportional reimbursements, thus confirming the efficient use of resources. However, the situation is heterogeneous. Certain programs, such as Just Transition and Education, reveal a visible gap: although they received substantial pre-financing, the level of reimbursements remains low or even nonexistent. This imbalance highlights inefficiencies in converting advanced funds into eligible expenditures and reflects structural issues related to implementation, delays in launching calls for projects, or difficulties in meeting administrative compliance requirements.

Overall, the correlation analysis highlights two distinct patterns: on the one hand, infrastructure programs where generous allocations are converted into high absorption; on the other hand, social and transition programs where the pre-financing mechanism fails to generate tangible outcomes. These findings not only describe the current situation but also outline priority directions for intervention, through adjustments in public policy and the strengthening of institutional capacity, aimed at reducing performance inequalities across programs.

To illustrate the relationship between the size of financial allocations and absorption performance, a scatter plot (Figure 2) was generated, representing for each operational program the total allocation from the European Union and the absorption rate recorded up to 31 July 2025. The inclusion of a regression line makes it possible to observe the general direction of the relationship between the two variables, thus facilitating the identification of programs positioned above or below the statistically correlated level. This visual representation complements the descriptive analysis and provides an empirical basis for interpreting the performance differences among domains.

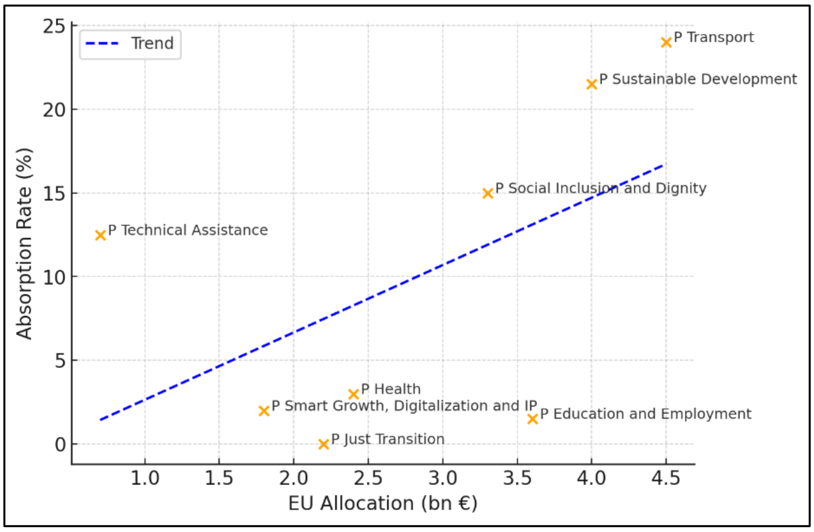

Figure 2. EU Allocation vs. Absorption Rate

Source: Author, data processing based on the Ministry of Investments and European Projects, 2025

The graph, which correlates the financial allocation of programs with the absorption rate recorded up to July 31, 2025, allows for the formulation of relevant conclusions regarding the dynamics of European funds implementation in Romania. The distribution of points highlights the existence of a positive relationship between the size of the allocation and absorption performance, a finding further confirmed by the regression line. In general, programs with larger allocations tend to also achieve higher absorption rates, suggesting that infrastructure-related domains—such as transport and sustainable development—benefit from consolidated institutional capacity and a portfolio of mature projects capable of rapidly transforming available financial resources into eligible results.

The descriptive analysis shows that the average absorption rate for the eight major programs is approximately 10.1%, while the standard deviation exceeds 9%, indicating high dispersion and significant discrepancies in performance. The amplitude is also substantial (24.16 percentage points), between the upper extreme—Transport Program (24.16%)—and the lower extreme—Just Transition Program (0%). This high variability indicates that, although a core of programs performs strongly, a significant share of interventions remains well below potential. From the perspective of positioning relative to the trend line, Transport and Sustainable Development are clearly above it, confirming the hypothesis of a positive correlation between allocated resources and absorption rates. Social Inclusion and Technical Assistance, although with smaller allocations, also remain close to or above the national average, denoting efficient use of funds. By contrast, Education, Health, and Digitalization are visibly below the trend line, confirming systemic difficulties in operationalization. The Just Transition Program stands out as the most crucial example, with a significant amount of funds allocated but no reimbursements yet recorded, suggesting serious obstacles remaining.

Thus, the descriptive statistical analysis confirms a polarized landscape: on the one hand, large infrastructure programs drive absorption, while on the other hand, social and innovative-oriented domains hinder overall progress. This structural imbalance amplifies the risk of fragmented absorption and highlights the need for governance adjustments and the prioritization of interventions to reduce significant variation between programs and ensure more balanced convergence by the end of the programming period.

Structural Disparities in the Absorption of European Funds

The comparative analysis of absorption rates highlights significant differences between the main categories of programs. A first distinction emerges between national and regional programs. As of July 31, 2025, the absorption rate of national programs is approximately 12.3%, while regional programs reach only 6.3%. This almost twofold difference suggests that central implementation was faster due to stronger administrative capacity and pre-planned large projects. On the other hand, at the regional level, there are notable delays caused by more complicated accreditation processes, limited institutional experience, and, in some instances, challenges in engaging local beneficiaries.

A second relevant comparison concerns infrastructure programs versus those with a social dimension. Infrastructure programs, such as Transport and Sustainable Development, register high absorption rates exceeding 20%. These results confirm that infrastructure investments benefit from stronger planning, high demand from beneficiaries, and prioritization as strategic objectives by authorities. In contrast, socially oriented programs, such as Education and Employment or Health, show limited progress, with absorption rates situated at only 2–3%, reflecting limited mobilization of the actors involved and a reduced capacity to generate eligible projects.

This structural contrast between categories underscores the unequal dynamics of European funds absorption in Romania. While infrastructure programs enjoy a clear advantage, social and regional sectors lag, which may lead to imbalances in achieving economic and social cohesion objectives. The polarization of performance suggests the need for differentiated interventions: strengthening technical and administrative support for regional and social programs while maintaining the accelerated pace of implementation in infrastructure, so that absorption is distributed more evenly in the coming period. As illustrated in Figure 3, these differences are also statistically visible, confirming the polarization between program types.

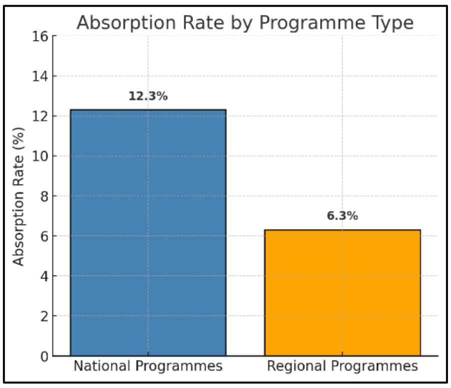

Fig. 3. Absorption rate of national and regional programs

Source: Author, data processing based on data from the Ministry of European Funds, 2025

The comparative analysis between national and regional programs highlights the existence of a structural gap in the absorption of European funds. The differences observed primarily reflect distinct institutional capacities and implementation mechanisms.

National programs benefit from a more consolidated administrative framework, accumulated experience from previous programming cycles, and large-scale infrastructure projects with a high degree of maturity, which enables them to convert available resources into tangible results more efficiently.

In contrast, regional programs face institutional limitations and procedural delays, while difficulties in mobilizing local beneficiaries further exacerbate their underperformance. From a statistical perspective, they can be regarded as negative outliers, since their values fall below the overall median of the distribution.

The interpretation based on the bar chart confirms the performance differences between national and regional programs; however, formal statistical analysis, such as one-way ANOVA, provides a more nuanced perspective. The test results ($F = 0.014$; $p \approx 0.91$) indicate that the variations between the meanings of the two categories are not statistically significant, suggesting that the observed descriptive difference cannot be generalized with a high degree of confidence. In other words, although the aggregated absorption rate is nearly double in the case of national programs, this gap is not statistically significant, as it is mitigated by the high internal dispersion of values within each group.

This finding emphasizes an important methodological aspect: the descriptive significance of mean differences must be interpreted cautiously when internal variability is very high. In this case, national programs include both top performers (e.g., Transport) and programs with very low absorption (e.g., Just Transition), while the same situation is observed among regional programs, where sharp contrasts exist between high-performing regions and those with minimal absorption. Consequently, internal heterogeneity obscures the difference between category means and reduces the explanatory power of a simple national–regional comparison.

In analytical terms, the results suggest that the polarization visible in the graphical representation reflects more the fragmented and uneven character of program-level performance than a clear structural distinction between central and territorial levels. This conclusion underscores the need to combine descriptive analysis with inferential statistical methods to obtain a comprehensive and robust picture of the dynamics of European fund absorption.

Trends and Projections

The analysis of trends in the absorption of European funds allows for the formulation of projections regarding how Romania may evolve until the closure of the 2021–2027 programming period. Data available as of July 31, 2025, indicates an average monthly absorption rate of approximately 1.3% of the total European Union allocation. If this pace is maintained through 2027, Romania could reach a final absorption rate of around 60%, which would imply the loss of a considerable share of the available resources. As illustrated in Figure 4, the statistical projections distinguish between an inertial scenario, characterized by suboptimal absorption, and an accelerated scenario, which would allow the achievement of the maximum target by the end of the programming period.

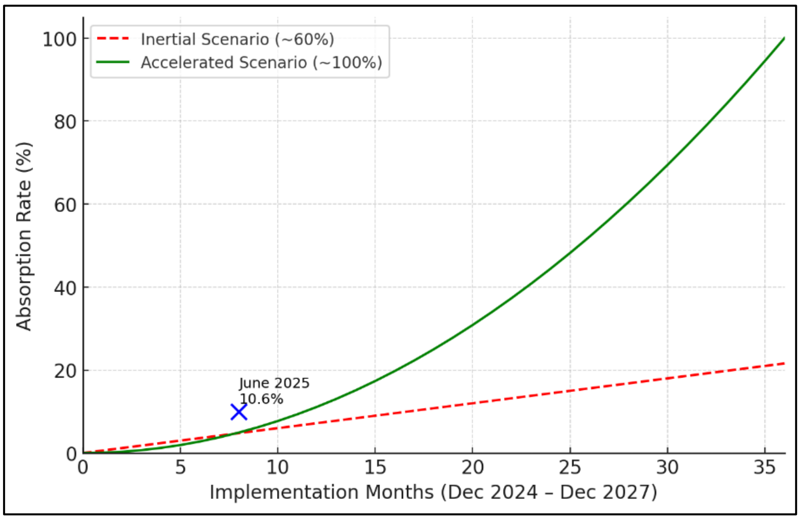

Figure 4. Projections of EU Funds Absorption (2024–2027)

Source: Author, data processing based on Ministry of European Funds, 2025

An inertial scenario, based on the linear projection of current performance, highlights the structural limitations of implementation capacity. Maintaining this pace would confirm the persistence of institutional bottlenecks, delays in launching calls, and administrative difficulties in processing reimbursements, with direct negative effects on the final degree of fund utilization. From a statistical perspective, this conservative scenario shows that the current performance is insufficient to meet European standards or to avoid the risk of financial disengagement.

In an optimistic scenario, an acceleration of absorption could enable Romania to surpass the 60% level and approach the 100% target. Such an outcome, however, would require a multiplication of the average monthly absorption rate, which in turn necessitates firm corrective measures: simplification of procedures, strengthening of administrative capacity, more effective mobilization of beneficiaries, and prioritization of projects with high strategic impact. In this case, the absorption curve would experience exponential acceleration during the second half of the period, a phenomenon also observed in other Member States that managed to recover initial delays through intensified implementation towards the end of the programming cycle.

Thus, the statistical projections outline two distinct scenarios: an inertial one, which would lead to suboptimal absorption and a loss of resources, and an optimal one, which entails accelerated administrative and political mobilization to transform European funds into a genuine driver of development. The difference between the two scenarios reflects not only mathematical calculations but also the capacity of the institutional system to learn from past experiences and to adapt governance mechanisms to fully exploit the financial potential provided by the European Union.

Although the statistical projections as of July 31, 2025, provide a useful picture of the possible evolution of EU funds absorption, it should be emphasized that they are influenced by a high degree of uncertainty. The average monthly absorption rate of approximately 1.3% reflects performance during the first eight months of implementation; however, maintaining or modifying this pace depends on multiple factors, both political and administrative as well as economic. Legislative changes, fluctuations in institutional capacity, the macroeconomic context, or even unforeseen crises (health, energy, or security) may significantly influence absorption dynamics, either accelerating or slowing down the process.

From a comparative perspective, past experiences confirm that Romania has faced similar difficulties in previous programming periods. During 2007–2013, implementation progressed extremely slowly in the first part of the period, but absorption grew in the final years, reaching a final level of over 90% due to the "n+3 rule" mechanism and accelerated mobilization towards the end of the cycle. A similar scenario took place between 2014 and 2020: after several years of delays at the start, progress picked up with concentrated payments and increased efforts as the deadline approached. These precedents show that an inertial scenario is not inevitable and that, in the context of strong institutional and political mobilization, a considerable acceleration of absorption is possible in the second half of the programming period.

From an applied perspective, the difference between the two scenarios—inertial and optimal—generates significant implications for Romania. Maintaining the current pace would result in a final absorption rate of around 60%, which would translate into substantial financial losses and the blockage of essential investments for infrastructure development, public services, and economic competitiveness. Conversely, an optimal scenario, based on accelerating the implementation pace, could enable the achievement or even surpassing of the 90% threshold, with direct positive effects on economic growth, the reduction of regional disparities, and the strengthening of the European convergence process. In this sense, the absorption of European funds is not merely an issue of administrative efficiency but an essential condition for long-term development and for ensuring a sustainable trajectory of modernization.

Analysis of Absorption Distribution through the Pareto Principle

The application of the Pareto principle (80/20) to the absorption of European funds in Romania, as of July 2025, reveals a disproportionate concentration of performance around a limited number of programs. The analysis, based on actual reimbursements from the European Commission, involved ranking the programs in descending order and calculating the cumulative share of each in total absorption.

The results show that two programs, Transport and Sustainable Development—together account for over 60% of total absorption, confirming the dominant role of infrastructure-related fields, characterized by mature projects and consolidated administrative capacity. When adding the Inclusion and Social Dignity program, the top three programs jointly represent 80% of effective absorption, highlighting the polarized nature of the implementation process.

By contrast, the remaining five programs—Education, Health, Just Transition, Digitalization, and Technical Assistance—contribute less than 20% to total absorption. This distribution reflects a structural asymmetry: a narrow core of high-performing programs dominates the overall picture, while the rest play only a marginal role.

From the perspective of Pareto analysis, the findings indicate that Romania relies excessively on a few infrastructure programs to sustain the overall absorption rate. Such dependency entails significant risks, as potential bottlenecks in the implementation of major projects could directly undermine national outcomes. At the same time, the limited contribution of social and digital programs underscores the need for corrective measures aimed at diversifying the sources of performance to ensure a more balanced and sustainable development model.

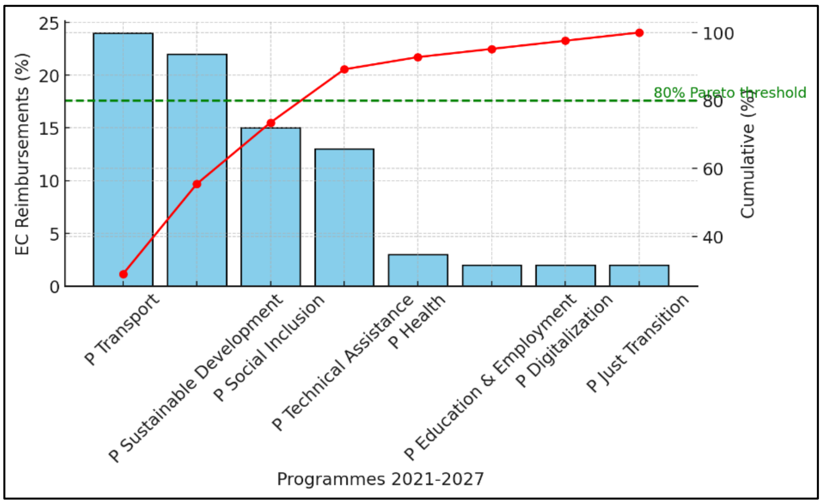

Figure 5. Distribution of absorption according to the Pareto principle

Source: Author, data processing based on Ministry of European Funds, 2025

The interpretation of this result highlights a pronounced polarization of performance: on the one hand, infrastructure and sustainable development programs occupy the upper segment of the distribution, exerting a disproportionate influence on the national average; on the other hand, social sectors and those undergoing structural transition remain at the lower end, contributing only marginally to actual absorption. This polarization amplifies inter-program variability, as confirmed by the high coefficient of variation (≈ 80%), which points to a significant degree of dispersion among programs.

From an applied perspective, the Pareto analysis reveals a systemic risk: Romania's heavy reliance on a small number of large-scale programs to achieve national absorption targets. Given that overall performance is overwhelmingly driven by infrastructure, any administrative blockages or delays in these programs could have a direct and severe impact on total absorption. At the same time, the weak contribution of social and digital programs reflects suboptimal resource utilization and underscores the need for corrective interventions aimed at diversifying the "drivers" of absorption.

Therefore, the Pareto framework should not be regarded merely as a descriptive tool of fund distribution, but also as a strategic warning indicator. It demonstrates that, in order to reduce dependence on a limited set of programs and avoid the risk of fund losses, Romania must accelerate the implementation of sectors currently underperforming. Only in this way can a more balanced absorption be ensured, along with a sustainable distribution of development benefits across both regional and sectoral dimensions.

4. Conclusions

The results highlight a high degree of heterogeneity in performance across operational programs. The pronounced dispersion of absorption rates confirmed both by the elevated coefficient of variation (≈80%) and by the amplitude of differences (24.16 percentage points between the highest and lowest values), indicates an uneven distribution of progress. The Pareto analysis shows a substantial concentration of absorption around a limited set of infrastructure programs, particularly Transport and Sustainable Development—supplemented by Inclusion and Social Dignity. Most activity depends on a few areas with established projects and solid administrative functions. The positive relationship between financial allocations and absorption rates, as illustrated by the scatterplot and regression line, further confirms the hypothesis that programs with substantial budgets can convert available resources more effectively into eligible results.

In contrast, programs with a social dimension and those oriented towards innovation and digitalization consistently remain below the national average, indicating difficulties in operationalization, compliance, and beneficiary mobilization. Differences between national and regional programs are evident at the descriptive level, yet inferential testing through a one-way ANOVA demonstrates that the gap between the two categories is not statistically significant, due to the high internal variability within both groups. This finding underscores the need for a cautious interpretation of the "national–regional" divide and draws attention to intragroup heterogeneity, where both high-performing and stagnating programs coexist.

The evaluation of financial efficiency through the ratio of payments to beneficiaries and reimbursements from the European Commission also reveals significant disparities across programs. The Transport program approaches the optimal level (≈1.07), reflecting a stable financial flow and high compliance. Inclusion and Social Dignity, Health, and Technical Assistance are positioned near unity, indicating consistent functioning. By contrast, Sustainable Development and Digitalization exhibit supra-unitary ratios, signaling delays between national expenditure and actual reimbursements, while Education and Employment reach a critical level (≈3.25), reflecting validation delays and administrative shortcomings. The case of the Just Transition program, where no reimbursements have been recorded despite payments made, highlights a severe structural blockage and constitutes a negative outlier that undermines overall performance.

Relying on a few major programs creates systemic risk, as infrastructure blockages could impact national absorption. Projections to 2027 confirm this vulnerability. Maintaining the current monthly absorption pace of approximately 1.3% would lead to an inertial scenario, with a final absorption level of around 60% and a substantial risk of financial decommitment. By contrast, an accelerated scenarios supported by procedural simplification, institutional strengthening, and strategic prioritization—could allow for absorption levels approaching full utilization. Nevertheless, both scenarios remain overly sensitive to political, legislative, and macroeconomic factors, while previous programming periods demonstrate that accelerated recovery is possible in the latter half of the cycle, provided effective institutional mobilization is achieved.

Against this backdrop, clear directions for action emerge. Diversifying sources of performance requires strengthening social and digital programs through simplified calls, dedicated technical assistance, and eligibility criteria tailored to beneficiaries' capacities. Correcting financial inefficiencies calls for compliance plans and rigorous documentation monitoring, with clearly defined milestones to reduce the gap between payments and reimbursements. At the same time, mitigating concentration risk necessitates developing an alternative project pipeline, ready for implementation outside the infrastructure sector. In parallel, procedural acceleration—through the digitalization of verifications, standardization of documentation, and strict deadlines for evaluation and payment—could increase the speed of converting expenditures into reimbursements. Finally, systematic analytical monitoring, based on indicators such as the coefficient of variation, amplitude, regression R^2, and the payments-to-reimbursements ratio, would ensure data-driven governance and timely correction of deviations.

Viewed as a whole, the absorption of European funds in Romania is not merely a question of volume, but a direct reflection of institutional quality and the balance of implementation. Without corrective measures targeted at underperforming sectors and without reducing dependence on a limited number of dominant programs, the dual risk persists significant financial losses and the perpetuation of unbalanced development. Conversely, a public strategy built on diversification, efficiency, and decision-making transparency can transform current vulnerabilities into an opportunity for sustainable economic and social convergence.

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