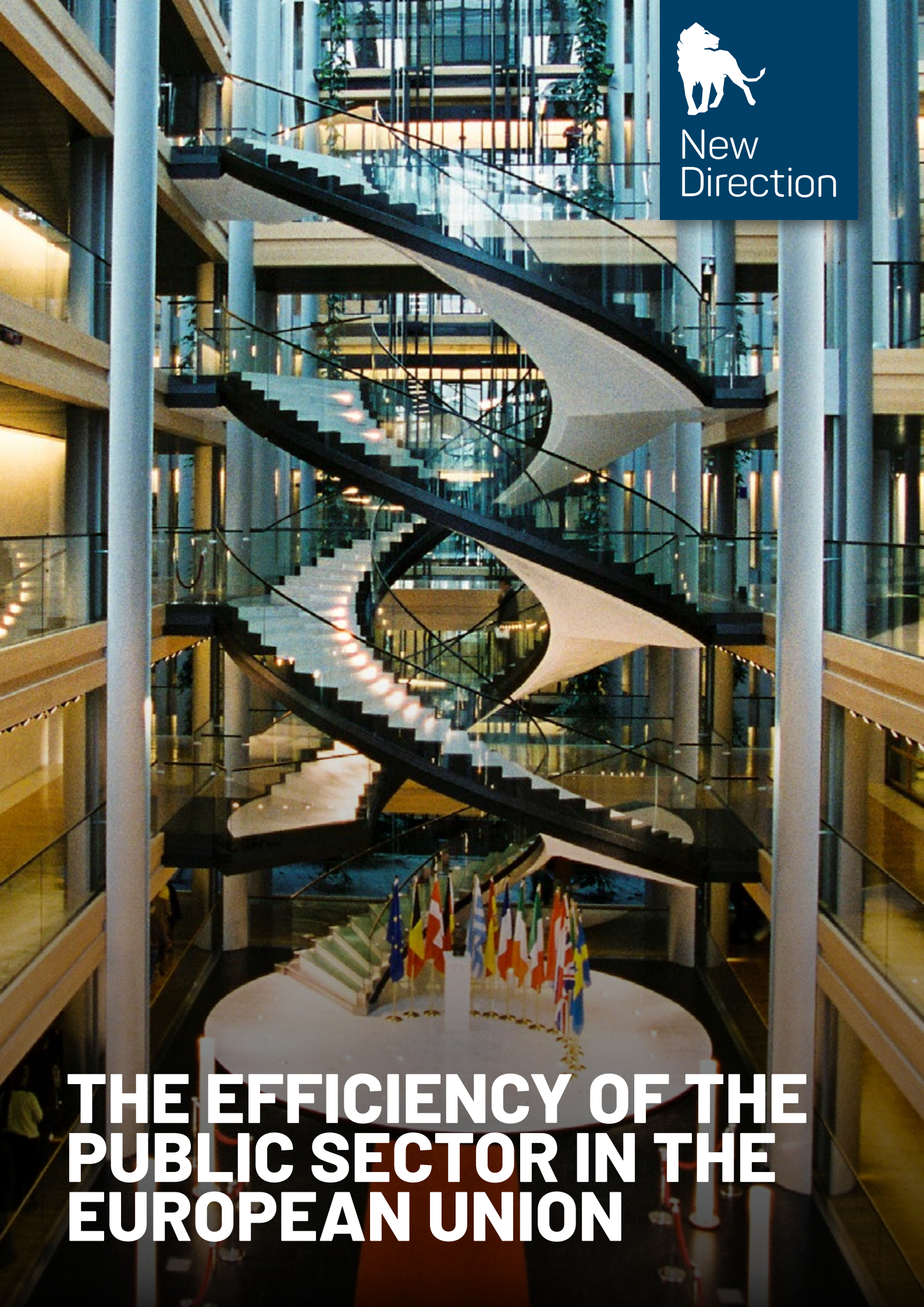

New Direction

THE EFFICIENCY OF THE PUBLIC SECTOR IN THE EUROPEAN UNION

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THE IMPORTANCE OF PUBLIC SECTOR EFFICIENCY

The public sector plays a critical role in providing essential goods and services and promoting economic stability and social welfare. However, the efficiency with which public resources are managed and distributed is critical to the impact of public spending on economic growth. An efficient public sector can create favorable conditions for development by providing quality infrastructure, education, health, and security, while fostering a sound institutional environment conducive to investment and productivity.

However, excessive public spending, especially if it is poorly managed or directed at unproductive sectors, can become an obstacle to economic growth. When the size of government expands beyond what the economy can efficiently sustain, it can create economic distortions, such as a higher tax burden, which reduces incentives for private investment, and an increase in public debt, which can lead to a vicious cycle of budget deficits and lower growth. In this sense, it is essential to find a balance in the size of the public sector so that its intervention is effective and does not limit opportunities for economic development.

The relationship between public spending and economic growth is therefore complex and depends on several factors, such as the quality of institutions, the structure of spending, and the government's ability to implement public policies efficiently. An inefficient public sector not only wastes resources but can also crowd out private initiative, thereby limiting growth and innovation. Therefore, when analyzing public sector efficiency, it is essential to assess both the level and quality of spending to ensure that it contributes positively to sustainable economic development.

It is therefore appropriate to begin by analyzing how public spending, if not properly managed, can become an obstacle to economic performance. This initial approach is fundamental to understanding the dynamics that limit growth and justify the need to assess the efficiency of the public sector. In the following sections, a detailed analysis of the efficiency of the public sector in the countries of the European Union is carried out, exploring how different levels and structures of spending affect economic growth and the ability of governments to promote the overall well-being of their citizens.

Finding the sweet spot for public expenditure

The mud curve is a key concept in the economic literature that describes a non-linear relationship between the size of government and economic growth. This approach suggests that there is an optimal point of government spending that maximizes economic growth; however, beyond this point, further increases in the size of government can have negative effects on growth. Specifically, when government spending is low, increasing the size of government can stimulate economic growth by providing essential public goods and services, improving infrastructure, and reducing transaction costs. However, as the size of government increases, the associated costs, such as bureaucracy and inefficiency, begin to outweigh the benefits, leading to a slowdown in economic growth.

Hajamini and Falahi (2018)[1] explore these positive and negative aspects of government size in detail. On the positive side, they argue that an efficient government can reduce transaction costs, improve resource allocation, and provide essential public services that the private sector cannot effectively provide. These services include infrastructure, health, education, and security, which are critical to fostering a healthy and dynamic economic environment. On the other hand, when the size of government exceeds a certain threshold, negative effects begin to predominate. Transaction costs increase due to centralization and bureaucracy, which reduces creativity and efficiency in both the public and private sectors. In addition, financing public spending through taxes and debt can distort the allocation of resources, discourage private investment, and increase future tax burdens, ultimately limiting economic growth.

Accordingly, the Barro curve illustrates this non-linear relationship between the size of government and economic growth in the form of an inverted U-curve. The theory posits

1 Mehdi Hajamini and Mohammad Ali Falahi, "Economic growth and government size in developed European countries: A panel threshold approach," *Economic Analysis and Policy* 58 (June 2018): 1-13, https://doi.org/10.1016/j.eap.2017.12.002.

that there is an optimal level of government spending that maximizes growth; beyond this point, any further increase in the size of government has a negative effect on growth. This approach not only helps to identify the ideal level of government intervention but also highlights the importance of efficiency in public sector management to avoid the detrimental effects of an excessively large government.

In their study, Hajamini and Falahi (2018) examine the nonlinear relationship between government size and economic growth in 14 European Union countries over the period 1995-2014. The authors employ a threshold model to ascertain that government spending exerts a dichotomous influence on economic growth, contingent on the type of spending and whether an optimal threshold is surpassed. In particular, government final consumption expenditure and gross fixed capital formation have a positive impact on growth until an optimal level is reached, after which the effects become negative. In contrast, other categories of current spending exhibited a persistently adverse correlation with economic growth.

The results indicate that the optimal level of final consumption expenditure as a proportion of GDP is 16.63 percent, while the optimal level of gross fixed capital formation is 2.31 percent. When these levels are exceeded, the effect on economic growth is reversed, indicating that an excessive government size may have a detrimental impact on the economy. Furthermore, the authors observe that current spending, which encompasses social transfers and subsidies, consistently exerts a detrimental impact on growth, indicating that this category of spending may be largely unproductive.

Most EU countries included in the study are above the optimal public spending thresholds estimated by the authors. In particular, final consumption expenditure as a share of GDP exceeds the 16.63 percent threshold in many countries, including Belgium, Denmark, France, Finland, the Netherlands, and Sweden. This suggests that in these cases, public spending may be exerting a detrimental impact on economic growth. With regard to gross fixed capital formation, while a number of countries are approaching the 2.31 percent threshold, a few, including Belgium, Germany, and Sweden, have exceeded this level. This suggests a potential risk that this type of public spending is also becoming less productive and may be detrimental to growth.

The following pages will present a similar analysis, with the results updated to the most recent year (2022) and all 27 European Union countries included in the sample. This approach will facilitate an evaluation of the effects of public spending in a more comprehensive and up-to-date context. Prior to undertaking this analysis, it is first necessary to present a number of stylized facts regarding the evolution of public spending in the member states. This will provide the essential context for the subsequent analysis.

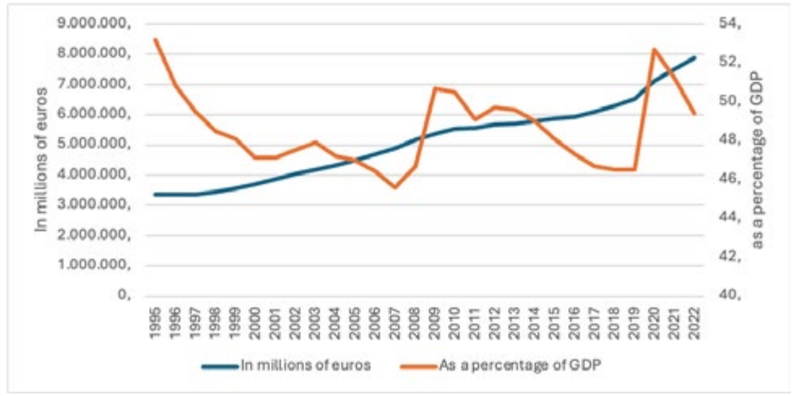
Stylized facts about public finances in Europe

In 2022, public expenditure in the 27 countries of the European Union reached 49.4 percent of GDP, indicating that nearly one-half of all euros produced in the European economy originated from the public sector. As can be observed, the ratio of expenditure to GDP remains above the pre-pandemic level, which was 46.5 percent. In 2020, the figure exceeded 50 percent, only to decline in the subsequent two years. It is important to note, however, that this decline is driven by the increase in GDP, as expenditure in absolute terms grew between 2020 and 2022 by 10.9 percent.

A review of the entire period since 1995 reveals that public expenditure has grown at an annual rate of 3.22 percent in absolute terms. In terms of expenditure as a percentage of GDP, there is a countercyclical trend. This can be defined as a situation in which, despite an increase in absolute terms, expenditure growth is lower than the evolution of the economy. Conversely, in times of recession, automatic stabilizers and discretionary fiscal policies come into play to expand this ratio once again.

FIGURE 1.

Evolution of public expenditure in the European Union of 27, in millions of euros and as a percentage of GDP.

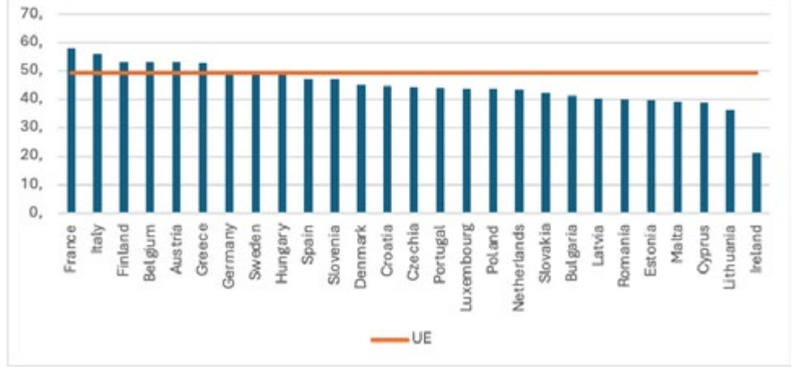


Source: Eurostat.

It is noteworthy that there are considerable discrepancies in the degree of public expenditure across different countries. As illustrated in Figure 2, countries such as France (58.3 percent) and Italy (56.1 percent) exhibit expenditure levels that are considerably higher than the EU average, with expenditures accounting for over 50 percent of their respective annual GDP. Conversely, Eastern European countries, in addition to Ireland, exhibit lower levels of public expenditure. It is notable that Ireland has a public expenditure of 21.2 percent, which is considerably lower than the 36.4 percent of the next country on the list, Lithuania.

FIGURE 2.

Public expenditure as a percentage of GDP in European Union countries, 2022.



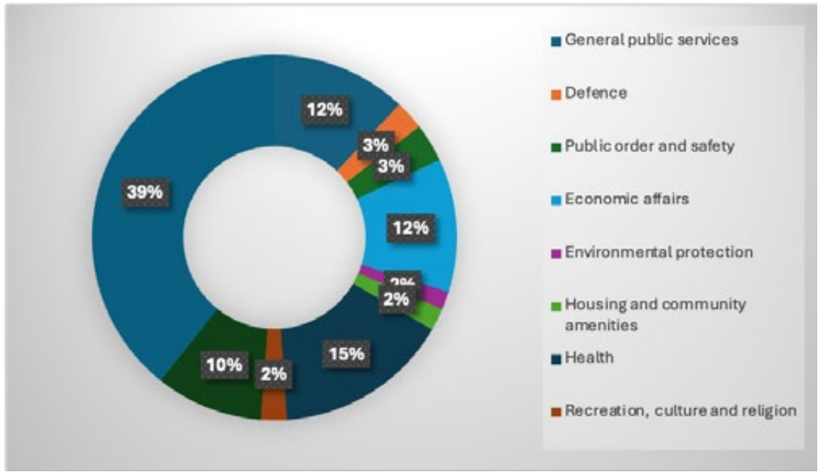
Source: Eurostat.

The distribution of public expenditure across the European Union is shaped by a set of key functions that reflect the government's priorities in terms of services and social protection. As evidenced by the data presented, the largest proportion of public expenditure is allocated to social protection, representing 39.3 percent of the total. This encompasses pensions, unemployment benefits, and other social assistance programs, thereby emphasizing the significance of social security within the region.

Secondly, 15.5 percent of total expenditure is allocated to health, with general public services accounting for a further 12.0 percent. Other significant areas of expenditure include economic affairs (11.8 percent), education (9.5 percent), and public order and security (3.4 percent). Functions such as defense (2.6 percent), housing and community services (2.0 percent), environmental protection (1.6 percent), and recreation, culture, and religion (2.3 percent) receive a smaller share of expenditure, indicating a narrower focus on these areas compared to social protection and health. This distribution of resources reflects the social and economic priorities of European governments in supporting the well-being of their citizens.

FIGURE 3.

Distribution of public expenditure in the European Union by function, 2022.



Source: Eurostat.

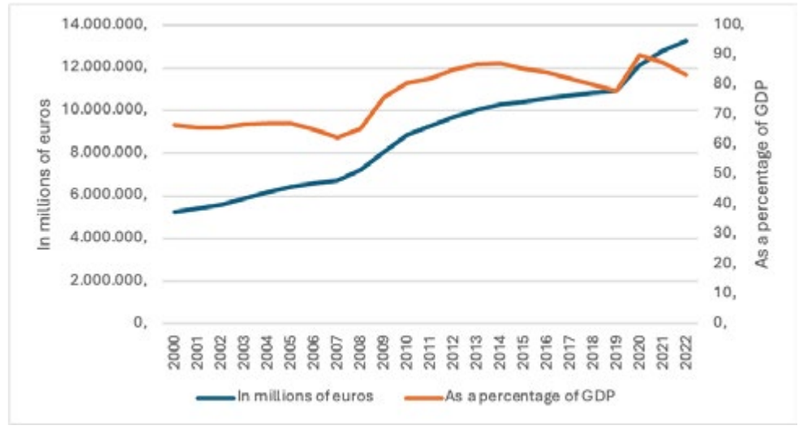
In addition to public expenditure, it is imperative to underscore the significance of preserving the soundness of public finances. This can be assessed through both flow variables, such as the budget surplus or deficit, and stock variables, including public debt. A well-balanced budget and manageable levels of public debt are indispensable for the long-term sustainability of government finances and overall economic stability. In the event that attempts to increase expenditure in order to balance public accounts result in adverse economic consequences, such as a reduction in growth or an increase in inflation, it becomes imperative for governments to undertake structural reforms with the aim of moderating government outlays. Such reforms may include improvements in the efficiency of public spending, reductions in wasteful expenditures, and the prioritization of investments that yield long-term economic benefits. This approach ensures the continued health of public finances without compromising economic growth or social welfare.

The accumulation of public debt in European Union countries has exhibited an upward trajectory in both absolute terms and as a percentage of GDP over the past two decades. In absolute terms, the debt has exhibited a gradual increase from approximately EUR 5.2 trillion in 2000 to EUR 13.3 trillion in 2022. This represents an average annual increase of approximately 4.4 percent. This growth reflects the accumulation of debt by governments to finance a range of public policies and respond to economic crises, including the 2008 global financial crisis and the ongoing Covid-19 pandemic.

Furthermore, significant fluctuations have been observed with regard to the ratio of public debt to GDP. In 2000, the debt-to-GDP ratio was 66.5 percent, while by 2022 it had risen to 83.4 percent. During periods of economic crisis, such as the global financial crisis of 2009 and the subsequent pandemic of 2020, the debt-to-GDP ratio reached significant peaks. In 2011, it reached 82.0 percent, and in 2020, it reached 90.0 percent. These figures reflect the impact of expansionary fiscal policies and economic stimulus programs adopted to mitigate the effects of the crises. Despite a slight decline in the debt-to-GDP ratio in recent years, it remains at elevated levels, emphasizing the necessity for prudent and sustainable financial management in the region.

FIGURE 4.

Evolution of public debt in the European Union of 27, in millions of euros and as a percentage of GDP.



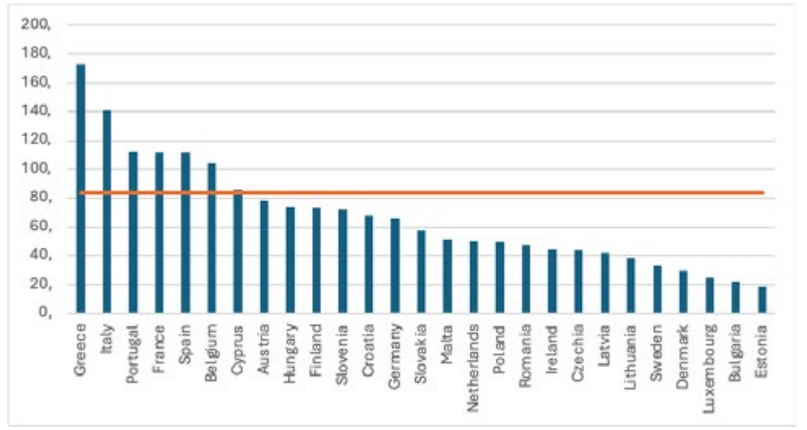
Source: Eurostat.

In 2022, there was considerable variation in the ratio of public debt to GDP among European Union countries. Greece recorded the highest level of public debt, with a ratio of 172.7 percent of GDP, followed by Italy at 140.5 percent and Portugal at 112.4 percent. France and Spain also exhibited elevated levels of public debt, with figures approaching 111 percent. These debt levels reflect the significant fiscal challenges these countries have encountered, often exacerbated by economic crises and expansionary fiscal policies.

Conversely, a number of countries demonstrated relatively low levels of public debt in comparison to the EU average of 83.4 percent. For instance, Estonia exhibited the lowest public debt, amounting to merely 18.5 percent of GDP, followed by Bulgaria at 22.6 percent and Luxembourg at 24.7 percent. These countries have demonstrated a capacity for maintaining tighter fiscal discipline, which has enabled them to sustain debt at significantly lower levels than the EU average.

FIGURE 5.

Public debt as a percentage of GDP in European Union countries, 2022.



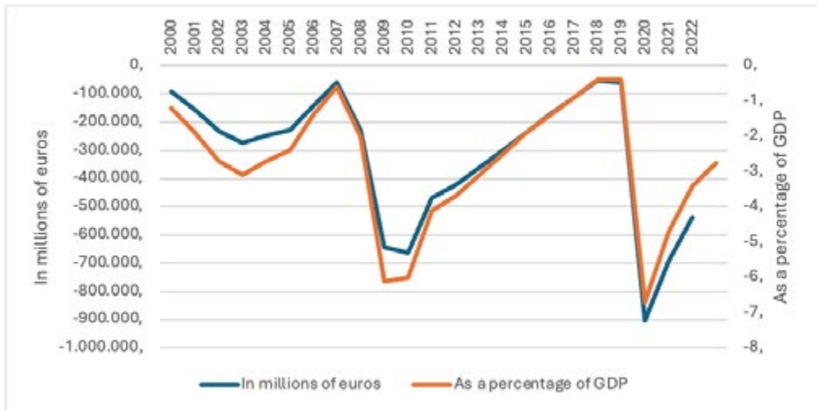
Source: Eurostat.

The public deficit in the European Union has remained consistently negative from 2000 to 2022, indicating that a fiscal deficit has been recorded on average every year during this period. In absolute terms, the deficit has exhibited considerable variation over the years, with figures ranging from approximately -92.2 billion euros in 2000 to a peak of -902.6 billion euros in 2020. This reflects the significant economic impact of crises such as the global financial crisis and the SARS-CoV-2 pandemic. In 2022, the deficit reached -537.4 billion euros, underscoring persistent fiscal challenges despite efforts to stabilize public finances.

In percentage terms, the deficit has also exhibited fluctuations as a proportion of GDP, with an average deviation of -2.8 percent over the period. The most severe deficits were recorded during periods of economic downturn, such as in 2009 and 2020, when the deficit reached -6.1 percent and -6.7 percent of GDP, respectively. In 2022, the deficit was -3.4 percent of GDP, which, although lower than in the peak years, still indicates a significant fiscal imbalance. This persistent trend serves to underscore the ongoing fiscal challenges faced by EU member states in the management of public finances, in response to economic shocks and in the maintenance of social and economic stability.

FIGURE 6.

Evolution of fiscal surplus (+) or deficit (-) in the European Union of 27, in millions of euros and as a percentage of GDP.



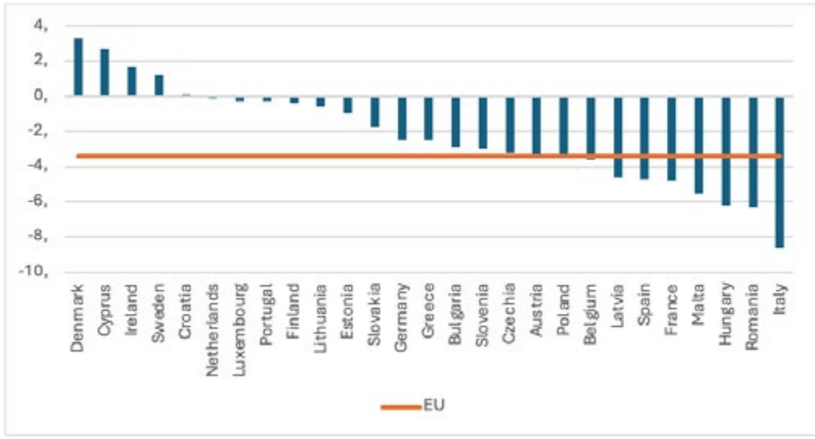
Source: Eurostat.

In 2022, there was considerable variability in the fiscal balances of European Union countries as a percentage of GDP, with some countries recording surpluses while others faced significant deficits. Among the countries with positive fiscal balances, Denmark exhibited the most pronounced surplus, reaching 3.3 percent of GDP. This was followed by Cyprus (2.7 percent), Ireland (1.7 percent), and Sweden (1.2 percent). These countries demonstrated effective fiscal management, with public finances remaining in a sound position despite outperforming the EU average of a deficit of -3.4 percent. This suggests either more prudent fiscal management or robust economic growth that enabled higher tax revenues.

Conversely, a number of countries experienced significant fiscal deficits in 2022. Italy recorded the most significant deficit, amounting to -8.6 percent of its GDP, followed by Romania (-6.3 percent) and Hungary (-6.2 percent). Similarly, other countries such as France and Spain exhibited considerable deficits, at -4.8 percent and -4.7 percent, respectively. These deficits reflect the fiscal pressures these countries have faced, potentially resulting from elevated expenditures in response to recent economic, social, and health challenges. In sum, these data illustrate the considerable diversity in the fiscal situation among EU member states, with some demonstrating a more balanced approach to financial management and others facing more significant fiscal challenges.

FIGURE 7.

Fiscal surplus (+) or deficit (-) as a percentage of GDP in European Union countries, 2022.



Source: Eurostat.

2

THE COST OF PUBLIC EXPENDITURE IN THE EUROPEAN UNION

As previously stated, this section aims to ascertain the financial implications of public expenditure in the countries of the European Union. The objective of this section is to justify the necessity of proposing measures of the efficiency of public expenditure in order to reduce the increasing expenditure of member state governments, as well as the concerning state of their public finances.

In this study, we employ the methodology of Hajamini and Falahi (2018) to estimate the impact of public sector size on economic growth, with certain adaptations to extend the analysis to the 27 countries of the European Union and update the data to 2022. The original methodology is based on a panel threshold model, which enables the identification and estimation of non-linear relationships between government size and economic growth. This technique is particularly useful for identifying inflection points, or points at which the effect of government expenditure on growth changes direction, which is essential for determining the optimal size of government.

The panel threshold model, as proposed by Hajamini and Falahi (2018), estimates the relationship between different types of government expenditure and economic growth using panel data for several European countries over the period 1995-2014. In their analysis, the authors consider three main measures of government size: government final consumption as a percentage of GDP (FCE), government current expenditure other than final consumption as a percentage of GDP (OCE), and government gross fixed capital formation as a percentage of GDP (GFCF). To address potential endogeneity issues, the authors employ the generalized method of moments (GMM), which enabled them to obtain robust estimates and control for country- and time-specific effects.

In the replication and update of this model, the analysis is extended to include all 27 European Union countries and data up to 2022 are used, thus enabling a more contemporaneous assessment of the impact of public sector size on economic growth. Additionally, consideration is given to the inclusion of supplementary variables that can more accurately capture structural and economic differences across EU countries. This updated approach offers a comprehensive view of the role of government size in modern European economies, facilitating the identification of optimal policies to promote economic growth in the region.

More specifically, The GGDP variable represents the growth rate of real GDP and serves as the primary dependent variable in the analysis. The variable measures annual economic growth in real terms, i.e., adjusted for inflation, and is therefore critical for assessing the impact of fiscal policies and the size of government on economic growth. The LAB variable is a measure of the growth rate of the working-age population, which is of particular importance given that an increase in the labor force can stimulate economic growth by increasing the productive capacity of the economy.

The variables designated as INV and INVP represent the total amount of investment and the proportion of this investment that is private investment, respectively, as a percentage of GDP. The variable INV encompasses both public and private investment, whereas the variable INVP exclusively pertains to private investment. These variables are of great importance in understanding the influence of investment in fixed capital, whether public or private, on economic growth. Similarly, the EXP and IMP variables represent the growth rates of exports and imports of goods and services, respectively. These variables reflect the economic openness of countries and their integration into international trade, which is also a key determinant of growth.

Finally, the FCE, OCE, and GFCF variables correspond to distinct components of public expenditure as a percentage of GDP. The FCE (final consumption expenditure) variable measures government final consumption expenditure, the OCE (other current expenditure) variable includes current expenditure other than final consumption, and the GFCF (gross fixed capital formation) variable captures government gross fixed capital formation, that is to say, investment in infrastructure and other fixed assets. The aforementioned variables permit the disaggregation of the impact of government expenditure across distinct areas, thereby facilitating a more detailed assessment of its influence on economic growth.

In addition to the aforementioned variables, the GOV variable, which represents total government expenditure as a percentage of GDP, is included in the analysis. This variable is pivotal for evaluating the comprehensive impact of the public sector's size on economic growth. It allows us to examine not only the distinct elements of expenditure but also its collective impact. The incorporation of the GOV variable allows for a more comprehensive understanding of the influence of public expenditure on economic growth dynamics at the national level.

Estimates will be made for the 23 European Union countries[2], thereby providing a comprehensive view of the impact of government size on economic growth at the regional level. Furthermore, disaggregated analyses will be conducted to capture potential discrepancies between the more developed countries and those that joined the EU at later stages. In particular, estimates will be conducted separately for countries that are part of the EU15 group (the original 15 member countries prior to the 2004 expansion and subsequent additions) and for countries that do not belong to this group (non-EU15). This disaggregation will allow us to ascertain whether there are notable discrepancies in the correlation between government size and economic growth contingent on the group to which countries belong.

The following three tables present descriptive statistics for three distinct samples. The initial table presents the descriptive statistics for the complete sample, which encompasses all countries. The second table presents the descriptive statistics for the countries that are part of the EU-15, which refers to the original members of the European Union before its expansion. The third table provides the descriptive statistics for the countries that are not part of the EU-15, thus enabling a comparison of the differences between these two groups.

With regard to the full sample (Table 1), it is observed that real GDP growth (GGDP) has a mean of 2.58 percent with a standard deviation of 3.67, and values varying between -14.84 percent and 24.62 percent. The growth rate of the working-age population (LAB) is relatively low, with a mean of 0.16 percent and a range of -2.69 percent to 3.30 percent. The mean value of gross fixed investment (INV) is 22.43 percent of GDP, while the mean value of private investment (INVP) is slightly lower at 18.74 percent. There is considerable variation in exports (EXP) and imports (IMP), with averages of 3.35 percent and -3.18 percent, respectively. With regard to the public expenditure variables, FCE, OCE, GFCF, and GOV demonstrate disparate levels of expenditure, with means of 20.13 percent, 20.72 percent, 3.69 percent, and 45.84 percent of GDP, respectively.

In the second sample (Table 2), which corresponds to the EU-15 countries, the mean real GDP growth (GGDP) is slightly lower than in the full sample, at 2.08 percent with a standard deviation of 3.40. The growth rate of the working-age population (LAB) is higher in these countries, with a mean of 0.38 percent. The means of gross fixed investment (INV) and private investment (INVP) are analogous to those observed in the full sample. In this sample, exports and imports remain at their established levels, with a mean of 2.82 percent and -2.47 percent, respectively. The public expenditure levels in this sample are slightly higher. The mean values for FCE and OCE are 20.75 percent and 22.77 percent, respectively, while the mean value for GOV is 48.15 percent of GDP.

In the sample of non-EU-15 countries (Table 3), the mean real GDP growth rate is 3.36 percent, with a standard deviation of 3.94 percent. The growth rate of the working-age population (LAB) is negative in this sample, with a mean of -0.19 percent. The mean value of gross fixed investment (INV) is 23.66 percent, while the mean value of private investment (INVP) is 19.57 percent. In this sample, exports (EXP) are higher, with an average of 4.17 percent, while imports (IMP) average -4.28 percent. In these countries, public expenditure levels are comparatively low. The average for FCE and OCE is 19.18 percent and 17.52 percent, respectively, while the average for GOV is 42.25 percent of GDP.

TABLE 1.

Descriptive statistics of the complete sample.

VARIABLE	OBSERVATIONS	MIN	MEAN	MAX	STANDARD DEVIATION
GGDP	621	-14.84	2.58	24.62	3.67
LAB	621	-2.69	0.16	3.30	0.92
INV	621	10.69	22.43	54.27	4.20
INVP	621	6.91	18.74	52.00	3.96
EXP	621	-13.48	3.35	45.26	4.91
IMP	621	-37.97	-3.18	21.51	5.16
FCE	621	11.30	20.13	27.94	2.94
OCE	621	7.40	20.72	31.84	5.01
GFCF	621	1.50	3.69	7.61	1.05
GOV	621	21.20	45.84	64.89	6.80

2 The threshold model requires the panel to be balanced for the whole period, so the year 1995 and the countries for which there is no data for the whole sample, i.e. Bulgaria, Croatia, Malta and Romania, have been dropped.

TABLE 2.

Descriptive statistics for the EU-15 countries.

VARIABLE	OBSERVATIONS	MIN	MEAN	MAX	STANDARD DEVIATION
GGDP	378	-11.17	2.08	24.62	3.40
LAB	378	-1.34	0.38	3.25	0.76
INV	378	10.69	21.64	54.27	3.82
INVP	378	6.91	18.21	52.00	3.78
EXP	378	-11.70	2.82	45.26	4.94
IMP	378	-37.97	-2.47	11.86	4.59
FCE	378	11.30	20.75	27.94	3.31
OCE	378	7.40	22.77	31.84	4.49
GFCF	378	1.54	3.43	5.95	0.95
GOV	378	21.20	48.15	64.89	6.75

TABLE 3.

Descriptive statistics for the non-EU-15 countries.

VARIABLE	OBSERVATIONS	MIN	MEAN	MAX	STANDARD DEVIATION
GGDP	243	-14.84	3.36	13.05	3.94
LAB	243	-2.69	-0.19	3.30	1.02
INV	243	12.83	23.66	36.85	4.46
INVP	243	10.66	19.57	32.05	4.10
EXP	243	-13.48	4.17	18.14	4.77
IMP	243	-21.08	-4.28	21.51	5.77
FCE	243	13.15	19.18	25.88	1.88
OCE	243	7.52	17.52	26.09	4.00
GFCF	243	1.50	4.10	7.61	1.09
GOV	243	32.93	42.25	60.27	5.11

Table 4 presents the optimal size points for different types of public expenditures in three distinct samples: the full sample, the EU-15 countries, and the non-EU-15 countries. These optimal points represent the boundaries beyond which the impact of public expenditure on economic growth can undergo a notable shift.

With regard to government final consumption expenditure, the optimal size in the full sample is determined to be 18.25 percent of GDP. In the EU-15 countries, the optimal size threshold is significantly lower, at 12.84 percent of GDP. This suggests that a lower level of final consumption expenditure may be more beneficial for economic growth in these countries. In the non-EU-15 countries, the optimal size is slightly lower than in the full sample, with a threshold of 18.02 percent. These findings suggest that the relationship between final consumption expenditure and economic growth may exhibit considerable variation across different country groups.

With regard to current expenditure other than final consumption, the optimal size in the full sample is 12.87 percent of GDP, which is statistically significant at the 10 percent level. In the EU-15 countries, the threshold is slightly lower, at 11.60 percent of GDP. In contrast, the optimal threshold in the non-EU-15 countries is significantly lower, at 10.05 percent of GDP, and is significant at the 5 percent level. This indicates that a reduction in the level of other current expenditures may prove more advantageous for economic growth in non-EU-15 countries.

With regard to gross fixed capital formation, the results indicate that the optimal size is relatively low across all samples. In the full sample, the threshold is 2.03 percent of GDP, while in the EU-15 countries it is slightly higher, at 2.68 percent of GDP. In the non-EU-15 countries, the threshold is notably lower, at 1.60 percent of GDP. These findings indicate that public investment in fixed capital should be managed with caution, as higher levels of expenditure in this area may not yield a substantial return in terms of economic growth.

Finally, for total government expenditure, the results indicate that the optimal size in the full sample is 32.17 percent of GDP, which is highly significant at the 1 percent level. For the EU-15 countries, the threshold is slightly lower at 30.57 percent of GDP, which is also significant at the 1 percent level. On the other hand, in the non-EU-15 countries, the optimal size is somewhat

larger, reaching 33.44 percent of GDP. These results suggest that a higher level of total government expenditure could be beneficial in the non-EU-15 countries, while in the EU-15 countries a lower level of total expenditure could be more favorable for economic growth.

TABLE 4.

Optimum size point for each type of expenditure and sample, as a percentage of GDP.

VARIABLE	COMPLETE SAMPLE	EU15	NON-EU15
Final Consumption expenditure	18.25	12.84**	18.02
Other current expenditure	12.87*	11.60	10.05**
Gross Fixed Capital Formation	2.03	2.68	1.60
Total Government Expenditure	32.17***	30.57***	33.44

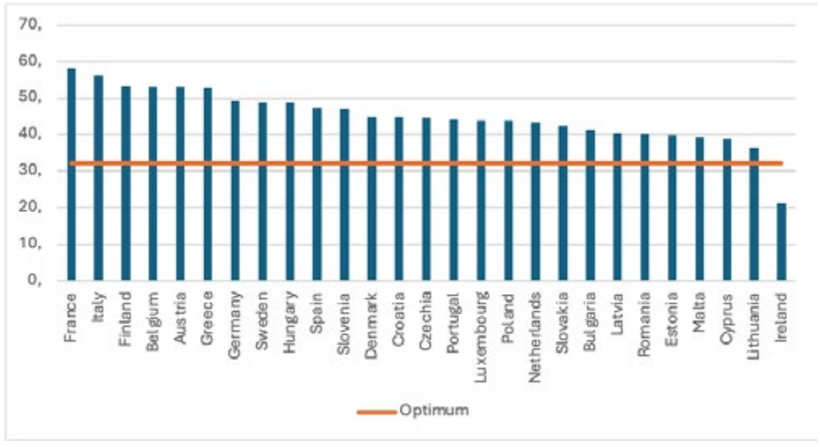
Note: *, ** and *** indicate significance at 1 percent, 5 percent and 10 percent, respectively.

Figure 8 shows that the level of public spending in all EU countries is above the recommended level of public spending, with the exception of Ireland, where it is estimated at 32.17 percent of GDP. This situation suggests that most EU countries, with expenditures ranging from 30 to more than 50 percent of GDP, may be crossing a critical threshold, which could have negative implications for long-term economic growth.

Although this paper suggests an optimal expenditure level based on an econometric model estimated for the EU countries as a whole, it is important to note that such a model may not take into account all country-specific characteristics. However, the results obtained underline the need to consider a reduction in public expenditure, especially considering that the average public expenditure in the EU in 2022 is 49.4 percent of GDP. Significantly exceeding the estimated optimal size could lead to slower economic growth or even negative effects on the economies of these countries.

FIGURE 8.

Public expenditure in the European Union and recommended level of expenditure, as a percentage of GDP, 2022.



Source: own elaboration and Eurostat.

3

PUBLIC EXPENDITURE AND ECONOMIC PERFORMANCE: A MORE NUANCED RELATIONSHIP

The previous sections has shown that public expenditure above a certain threshold can impose costs on society in the form of lower economic growth. It is a simple exercise that allows us to observe that there are no free lunches. When citizens demand public services, the government must divert resources from private activity, which throws sand in the gears of the economy. So a first step is to improve the performance of the public sector to mitigate these costs.

The quality of institutions plays a crucial role in mitigating the negative impact that the size of the public sector can have on economic growth. Effective and well-designed institutions enable policymakers to make more informed and efficient decisions, which can reduce the inefficiencies associated with public spending. A public administration that operates under principles of transparency, responsibility, and accountability is able to allocate resources more efficiently, thereby avoiding waste and maximizing the economic return on each euro spent. In this sense, improving institutional quality not only reduces the costs associated with a large public sector, but also optimizes the use of public resources, thereby promoting a more favorable environment for economic growth.

Moreover, when public policy decisions are made in a sound institutional environment, it facilitates the implementation of more effective fiscal policies. The existence of clear and respected fiscal rules, together with a sound legal framework, ensures that fiscal policies are sustainable over the long term and that volatility, which can be detrimental to growth, is avoided. The predictability and stability provided by strong institutions create a climate of confidence that encourages private investment, a key driver of economic growth. Thus, improved institutional quality not only reduces the negative impact of public spending, but also creates conditions conducive to sustainable economic growth.

Finally, improved institutional quality is reflected in the government's ability to adapt and adjust its policies in a flexible and timely manner in response to economic changes. In a sound institutional environment, policymakers can respond more quickly and effectively to economic shocks, thereby minimizing their adverse effects. The ability to implement necessary structural reforms with broad social support is an additional benefit of high institutional quality, allowing markets to maintain confidence and continue to attract investment even in times of uncertainty.

Afonso and (2011)[3] confirm the hypothesis that better institutional quality reduces the negative impact of government size on economic growth. Their analysis, which covers a panel of 108 countries between 1970 and 2008, shows that institutional quality has a significant positive effect on real GDP per capita growth, while government size tends to have a negative effect. The authors highlight that the negative effect of government size on growth is stronger in countries with low institutional quality. This suggests that improving institutions can significantly mitigate the negative effects of a large public sector.

In particular, Afonso and Jalles's study demonstrates that in developed countries, particularly in European countries, the adverse impact of government size on growth is less pronounced due to the high levels of institutional quality observed in these nations. The effect of government size on growth is less pronounced in Scandinavian countries, which have particular legal origins. This underscores the importance of strong institutions. Furthermore, the authors find that stricter fiscal rules in the European Union have also contributed to improved economic growth. This reinforces the idea that institutional quality is a key factor for the sustainability of growth in environments with large public sectors.

3 António Afonso and João Tovar Jalles, "Economic Performance an Government size," *European Central Bank*, Working Paper Series 1399 (November 2011).

The role of economic freedom

An additional variable that may be considered is economic freedom. Economic freedom can be defined as the capacity of individuals and businesses to make economic decisions autonomously, with minimal governmental intervention. This concept is comprised of several dimensions, including the freedom to establish businesses, engage in trade, invest capital, and utilize capital without undue state restrictions. Economic freedom is regarded as an effective surrogate for institutional quality, as it reflects the extent to which institutions facilitate and safeguard these fundamental freedoms. An environment of high economic freedom is indicative of a government that is efficient in its administration, respects property rights, and minimizes its intervention in the economy, thus creating a favorable framework for economic growth.

In the European context, where countries typically have more extensive government structures, economic freedom can serve as a mechanism to mitigate the adverse effects of such state intervention. The efficiency of the government, as gauged by indicators of economic freedom, ensures the optimal allocation of resources, thereby reducing waste and promoting productivity. It has been demonstrated that countries with higher levels of economic freedom, such as some Nordic states, are able to maintain a large public sector without compromising economic growth, provided that economic policies are implemented within a robust and transparent institutional framework.

Furthermore, economic freedom has been demonstrated to enhance competition, innovation, and foreign direct investment, which are pivotal elements for sustained growth. In Europe, nations that have implemented reforms to enhance their economic freedom have observed notable advancements in their economic performance, underscoring the significance of policies that foster a greater degree of openness and flexibility in markets. In summary, economic freedom serves as an indicator of institutional quality and a fundamental pillar for ensuring robust and sustainable economic growth in European countries.

The study by Uzelac et al. (2020)[4] examines the influence of economic freedom on economic growth in 19 Central and Eastern European countries over the period from 1999 to 2016. The study employs a random effects model and principal component analysis (PCA) to construct a hybrid measure of economic freedom. The findings indicate that economic freedom, in conjunction with other institutional factors such as political stability and control of corruption, exerts a positive and significant influence on GDP growth.

In particular, the authors conclude that an increase in economic freedom is associated with accelerated economic growth in Central and Eastern European economies. This is due to the fact that economic freedom enables the effective distribution of resources and reduces transaction costs, which in turn stimulates investment and innovation. The findings of the study serve to reinforce the importance of institutional reforms that are aimed at increasing economic freedom as a means of accelerating economic development in these countries.

In conclusion, the relationship between public expenditure and economic performance is complex and multifaceted. While it is evident that excessive public spending can impede economic growth by redirecting resources from more productive private activities, the impact of this spending is not consistent across all contexts. The quality of institutions is of pivotal importance in determining the efficacy with which public resources are utilized and whether the potential negative effects of a large public sector can be mitigated. The presence of robust institutions guarantees that government interventions are conducted in an efficient, transparent, and economically stable manner.

Furthermore, the incorporation of economic freedom as a surrogate for institutional quality underscores the intricate relationship between public spending and economic growth. When governments operate in an environment of high economic freedom, they are better equipped to make informed and efficient policy decisions, thereby minimizing the disruptive effects of public sector expansion. This not only preserves the dynamism of the private sector but also fosters a more resilient and growth-oriented economy. Ultimately, the key to balancing public expenditure with economic growth lies in enhancing the quality of institutions and maintaining a high degree of economic freedom.

It is therefore crucial for governments to be efficient in order to maximize the benefits of public expenditure and minimize its adverse effects on economic growth. An efficient government not only optimizes the allocation of resources but also ensures that public interventions are made within a framework of responsibility and transparency. This creates an environment in which public policies can contribute to economic development in a positive manner, even in countries with a large public sector. The efficiency of government, supported by sound institutions and a high degree of economic freedom, is essential to achieve a sustainable balance between social needs and economic growth. This enables countries to attain a higher level of well-being without sacrificing their economic dynamism.

4 Ozren Uzelac, Milivoje Davidovic, y Marijana Dukic Mijatovic, "Legal framework, political environment and economic freedom in central and Eastern Europe: do they matter for economic growth?" *Post-Communist Economies* 32:6 (Marzo 2020): 697-725, https://doi.org/10.1080/14631377.2020.1722583.

The growing need of the provision of public services

Prior to undertaking a detailed examination of the efficacy of governmental institutions within the European Union, it is essential to acknowledge the mounting pressure for enhanced public service provision. This pressure has intensified due to factors such as the global pandemic of 2020, which has demanded rapid and comprehensive responses from the public sector, and the aging of the population, which increases the need for health and social security services. These demographic and health challenges compel governments to reconsider the allocation of resources and to identify strategies for enhancing efficiency in order to meet the growing demands of their populations without jeopardizing fiscal sustainability.

Wagner's Law, as formulated by German economist Adolph Wagner in the 19th century, provides a theoretical perspective on the growth of public expenditure in relation to economic development. In accordance with this law, as an economy expands, the proportion of government expenditure in GDP tends to rise. Wagner posited that in a more complex society, with greater urbanization and division of labor, a greater proportion of public expenditure is required to ensure the protection, regulation, and provision of services that the private sector is unable to provide in an efficient manner. Consequently, the expansion of public expenditure is regarded as an unavoidable outcome of economic growth rather than its primary catalyst.

In their 2019 study, Irandoust[5] employed a bootstrap panel causality approach to assess the validity of Wagner's Law for a group of twelve OECD countries over the period 1995-2015. The results of the study corroborate the existence of a causal relationship in favor of Wagner's Law in seven of the countries analyzed, thereby suggesting that long-run GDP growth drives increases in government expenditure. This suggests that, in these countries, economic growth gives rise to an increased demand for public services, which in turn leads to an increase in government expenditure.

However, the study also indicates that in other countries, there is no discernible relationship between GDP growth and increased government expenditure. This suggests that additional factors, such as fiscal transfers and the structural characteristics of each economy, also play an important role. Moreover, the study underscores that population aging and an increased demand for well-being services may compel policymakers to raise taxes or resort to excessive borrowing, which could jeopardize the sustainability of public finances. In any case, the author underscores that government expenditure as an instrument of fiscal policy to foster economic growth is not corroborated by the data.

In conclusion, the findings of Irandoust indicate that, while Wagner's Law remains a relevant concept in several advanced economies, its applicability is not universal. The capacity of governments to effectively manage the expansion of public expenditure in the context of mounting demands for services is pivotal to sustaining long-term economic stability. This underscores the necessity for enhanced governmental efficiency and the formulation of sustainable fiscal policies that can evolve to meet shifting social demands while maintaining economic growth.

Similarly, Afonso and Jalles (2014)[6] arrive at comparable conclusions. The authors specifically analyze the relationship between government budget, both in terms of expenditures and revenues, and economic growth. They employ an extensive panel data set covering 155 countries from 1970 to 2010. Their research focuses on determining whether there is bidirectional causality between per capita GDP growth and fiscal variables. Additionally, they assess the validity of Wagner's Law, which postulates a disproportionate increase in government expenditure relative to national income growth.

The methodology employed entails the implementation of Granger causality tests within a panel data context. This is achieved through the utilization of both generalized difference models (DIF-GMM) and generalized system of moments models (SYS-GMM), which serve to address potential endogeneity issues. Additionally, the authors conduct tests for unobserved heterogeneity and estimate long-run effects to evaluate the stability of the models. Estimates are produced for both the full sample and a subset comprising only OECD countries.

The results indicate that there is minimal robust evidence of causality from GDP per capita to government expenditure in the majority of econometric specifications. Nevertheless, more compelling evidence emerges in the opposite direction, namely from government expenditures to GDP per capita growth, which lends support to the notion of Wagner's Law. Furthermore, substantial effects are discerned in both the short and long run in this causal direction.

In conclusion, the research suggests that, although the evidence for economic growth driving government expenditure is weak, there is stronger support for the notion that government expenditure can drive economic growth, which reinforces Wagner's Law in a global context. The authors underscore the necessity of contemplating the direction of causality and long-run effects when assessing fiscal policies and their influence on economic growth.

5 Manuchehr Irandoust, "Wagner on government spending and national income: A new look at an old relationship," *Journal of Policy Modeling* 41:4 (August 2019): 636-646, https://doi.org/10.1016/j.jpolmod.2019.02.003.

6 António Afonso and João Tovar Jalles, "Causality for the government budget and economic growth," Applied Economics Letters 21:17 (May 2014): 1198-1201, https://doi.org/10.1080/13504851.2014.916383.

In addition to stimulating a greater demand for public expenditure, the experience of the global pandemic has also highlighted a growing expectation among the population for enhanced services, particularly in the domain of healthcare. The global health crisis has brought to light deficiencies in public health systems, which were often unable to cope with the scale and speed of the emergency. This has resulted in mounting social pressure on governments to allocate greater resources toward fortifying and broadening health services, thereby ensuring their preparedness to confront future crises.

Besides the pandemic, other factors, including the aging population and technological advances, are significant contributors to the observed increase in healthcare expenditure. As Borraz[7] has observed for autonomos communities in Spain, demographic projections indicate that in regions such as the Canary Islands, the Balearic Islands, and Madrid, where a notable increase in the population aged 65 and above is anticipated, the burden on healthcare expenditure is likely to intensify. Moreover, the integration of novel technologies within the healthcare sector, while potentially capable of reducing costs in certain instances, tends to result in an overall increase in expenditure due to the necessity for continuous updates and the introduction of expensive innovations.

This novel approach to healthcare has significantly altered citizens' expectations regarding public expenditure.

The public no longer merely demands greater expenditure; they also require improved resource management, with a particular emphasis on the efficiency and effectiveness of the services provided. The pandemic has served as a catalyst for this change in mentality, demonstrating that investment in health is essential not only for individual security but also for long-term economic and social stability.

In this context, it is of paramount importance that governments prioritize the enhancement of the efficiency of the public sector, particularly in the domain of healthcare. The solution does not merely entail an increase in the budget; rather, it necessitates the assurance that each euro invested yields enhanced outcomes for citizens. It is therefore imperative to ensure the efficient utilization of resources in order to respond to an increasing number of lawsuits without compromising fiscal sustainability.

Ultimately, the ability of the public sector to address emerging needs is contingent upon the quality of the services it provides, rather than the size of the sector itself. It is imperative to enhance efficiency, particularly in domains such as healthcare, to guarantee that the augmented resources are genuinely impactful on the quality of life of the general public. The foundation of future public expenditure policies must be efficiency and quality, ensuring that both current demands and future crises can be adequately addressed.

7 Susana Borraz, "Escenarios de evolución del gasto sanitario e impacto esperado de la pandemia en el medio plazo," *Cuadernos de Información Económica* 281 (March-April 2021).

4

HOW TO MEASURE EFFICIENCY?

In light of the crucial importance of efficiency in the public sector, it is of paramount importance to move towards a clear and precise definition of what efficiency truly signifies in this context, as well as a method of effectively measuring it. In the absence of a clear and precise understanding of these concepts, it is challenging to conduct an effective evaluation of the performance of public administrations and to design policies that optimize the use of resources. In the context of European Union countries, where international comparisons are a frequent and essential aspect of governance improvement, it is of particular importance to establish common criteria for defining and measuring efficiency in the public sector. This will facilitate not only an enhancement in the quality of the services provided, but also the assurance of fiscal sustainability in an increasingly demanding economic environment.

In the field of public finance, there has been a notable increase in the study of public sector efficiency, particularly over the past two decades. This trend has been driven by academic interest in improving the provision of goods and services by governments, given that efficiency is crucial in a context of scarce resources and budgetary constraints. Furthermore, the establishment of the Economic and Monetary Union (EMU) within the European Union has led to heightened fiscal coordination and surveillance, thereby fostering a heightened awareness of the significance of fiscal sustainability and sound fiscal conduct. In response to this environment, there has been a notable increase in the number of studies seeking to assess and improve the efficiency of public expenditure, particularly in Organization for Economic Co-operation and Development (OECD) and European Union (EU) countries. This is evidenced by a surge in publications in this area during periods of economic crisis. (Afonso et al, 2020)[8]

Since the year 2000, both the performance and efficiency of the public sector have assumed a more prominent role in Europe, particularly within the context of the EU. This is partly attributable to the concern of European fiscal institutions regarding the soundness of public finances, particularly in light of the economic crises and the necessity to fulfill established fiscal convergence criteria. The necessity to implement fiscal consolidations and the increasing demand from taxpayers for a more efficient use of public resources have resulted in a heightened focus on activities that promote economic growth and a more effective allocation of resources within the public sector. Consequently, the examination of efficiency has become a pivotal element in the assessment of governmental performance within the region.

The literature review conducted by Afonso et al (2020) yielded two key findings. Firstly, the efficiency of public expenditure can be enhanced. Secondly, there are specific factors that are associated with this efficiency. While cross-country comparative studies are useful for assessing performance, it is essential to consider the underlying factors that may influence this assessment, including institutions, culture, politics, and economics. In order to address these differences, two-stage models have been employed, which have revealed that higher levels of education, income, institutional quality, and governance are positively correlated with enhanced public sector performance. Furthermore, political variables such as the presence of a robust right-wing government, high electoral participation, and decentralized fiscal systems have also been identified as correlates of enhanced public sector efficiency. Additionally, recent research has investigated the impact of fiscal structures and tax reforms on cross-country variations in efficiency.

In the assessment of public sector efficiency in the European Union, the methodology developed by Afonso et al. (2020) will be employed. This methodology makes use of a composite indicator for the assessment of performance, which is of great importance as it allows for the integration of a multitude of dimensions of public expenditure, including efficiency in the realms of health, education, and administration, into a singular indicator that facilitates cross-country comparison. Furthermore, panel data will be employed, integrating cross-sectional and time series data, which is vital for capturing both cross-country variations and temporal trends. This approach allows for a more robust and dynamic assessment of public sector efficiency, taking into account both national particularities and changes in the economic and political context. The following section provides a comprehensive account of the methodology employed to assess efficiency.

8 António Afonso, João Tovar Jalles, and Ana Venâncio, "Government spending efficiency, measurement and applications: A cross-country efficiency dataset," *EconPol Working Ppaer* 50 (December 2020).

A composite index to measure efficiency

The allocation of public funds may be directed towards a multitude of objectives, including the advancement of economic stability, the fair distribution of income, and the provision of indispensable public goods and services. Accordingly, an assessment of the efficiency of public expenditure must take into account the multiplicity of goals that inform such expenditure, in order to provide a comprehensive and accurate evaluation. In this context, the indicator utilized by Afonso et al. (2020) and also employed in this study is based on the Public Sector Performance (PSP) indicator. This composite indicator integrates both opportunity indicators, which assess performance in key areas such as education, health, and infrastructure, and Musgravian indicators, which evaluate economic stability, income distribution, and overall economic performance.

The purpose of opportunity indicators is to evaluate the performance of the public sector in areas that are fundamental to the well-being of citizens and the economic development of a country. These indicators assess the efficacy with which the government provides services in sectors such as education, health, public administration[9], and infrastructure. For example, in the domain of education, indicators such as the enrollment rate in secondary education and the quality of the education system, as measured through standardized tests such as PISA, are considered. In the domain of health, indicators such as the child survival rate and life expectancy are included, reflecting the efficacy of the public health system. Similarly, the quality of infrastructure is assessed in terms of its capacity to facilitate economic growth and enhance the quality of life for citizens. These opportunity indicators are of paramount importance, as they reflect the direct contribution of public resources to the well-being of the population.

In contrast, the Musgravian indicators concentrate on three fundamental functions of public expenditure, as postulated by public finance theory: distribution, stabilization, and economic performance. The distribution function is evaluated through the use of indicators such as the Gini coefficient, which is utilized to measure inequality in income distribution and to assess the impact of fiscal policies on this phenomenon. The stabilization function is gauged by means of indicators such as the variability of economic growth and inflation, which reflect the government's capacity to mitigate economic fluctuations and maintain a stable macroeconomic environment. Ultimately, the economic performance function is evaluated through indicators such as GDP per capita growth and the unemployment rate. These indicators enable an assessment of the extent to which public expenditure contributes to economic growth and employment generation.

Opportunity and Musgravian indicators, when combined in a single index such as Public Sector Performance provide a comprehensive view of public sector performance. While opportunity indicators capture the government's ability to improve the direct well-being of citizens through essential public services, Musgravian indicators allow an assessment of the impact of public spending on the overall economic balance and on reducing inequality. This combination is crucial to obtain a measure of efficiency that reflects both the direct and indirect effects of public spending.

In summary, opportunity indicators focus on the efficient provision of key public services, while Musgravian indicators address the ability of public spending to perform the key economic functions of distribution, stabilization and economic performance. The integration of both into the PSP indicator used by Afonso et al. (2020) and in this study ensures that the measurement of public sector efficiency is comprehensive and reflects the multiple goals and responsibilities of government.

Conversely, a comprehensive evaluation of public sector efficiency necessitates an appropriate assessment of inputs, or the resources employed by the government to attain its objectives. The selected indicators for measuring these inputs include various forms of government expenditure, expressed as percentages of GDP, in key sectors such as administration, education, health, and infrastructure. For example, government consumption expenditure is employed as an indicator of input in the domain of public administration, while expenditure on education and health reflects resources allocated to the enhancement of human capital and the well-being of the population. Furthermore, public investment in infrastructure serves as a pivotal indicator of the input required to sustain and enhance a country's economic and social infrastructure.

These input indicators facilitate the precise quantification of the financial resources allocated by governments to different areas of activity. By relating these inputs to the outputs measured by the opportunity and Musgravian indicators, it is possible to calculate the efficiency of public expenditure. In other words, it is possible to determine how well a government is using its resources to achieve desired results in terms of citizen well-being, economic stability, and growth. This measurement is fundamental to identifying areas where improvements can be made in the allocation and use of public resources.

In order to facilitate comparison across countries, the indicators have been normalized so that the average is equal to 1. This ensures that the results per country are relative to the average. Furthermore, given the availability of data, efficiency indicators have been calculated for the years 2006 to 2021. The following two illustrations and tables present a summary of the indicators utilized, the source of the data, and the construction of the variables, in accordance with the methodology proposed by Afonso et al. (2020).

9 In their study, Afonso et al. (2020) utilized variables obtained from the Global Competitiveness Report, prepared by the World Economic Forum, for the administration sub-indicator. In the absence of data for recent years, some of the subcategories of the Fraser Institute's Index of Economic Freedom are employed. Specifically, the red tape, judicial independence and property rights variables are replaced by the regulation and legal system and property rights categories of the Economic Freedom Index.

Methodology

This study employs the technique of Data Envelopment Analysis (DEA) to assess the efficiency of public sector operations. DEA is a non-parametric technique that enables the relative efficiency of decision units (in this case, countries) to be evaluated by comparing the amount of inputs used to produce certain outputs. This methodology is particularly useful when the objective is to compare entities engaged in similar activities but operating under disparate conditions. This is exemplified by the case of European Union countries in terms of their public expenditure and the outcomes achieved.

DEA functions by identifying an "efficiency frontier," which is comprised of units (countries) that achieve the optimal results given their input levels. Those countries situated on this frontier are deemed to be operating in an efficient manner, as they are employing their resources in an optimal fashion to achieve the desired outputs. Those countries that are not on the frontier are deemed to be inefficient, insofar as they could enhance their performance by utilizing fewer resources or generating greater outputs with the same resources. DEA allows for the quantification of this level of inefficiency by calculating the extent to which inputs must be reduced or outputs increased for a country to reach the efficiency frontier.

A significant benefit of DEA is that it does not necessitate strong assumptions regarding the functional form of the relationship between inputs and outputs. This flexibility allows it to be adaptable to diverse contexts. Furthermore, it allows for the simultaneous consideration of multiple inputs and outputs, which is crucial for evaluating efficiency in the public sector, where governments pursue a multitude of objectives and utilize a diverse array of resources. In conclusion, DEA is an effective instrument for evaluating efficiency, offering a precise indication of how nations can enhance their resource utilization to attain enhanced outcomes in terms of economic and social well-being.

ILLUSTRATION 1.

Public Sector Performance indicator variables.

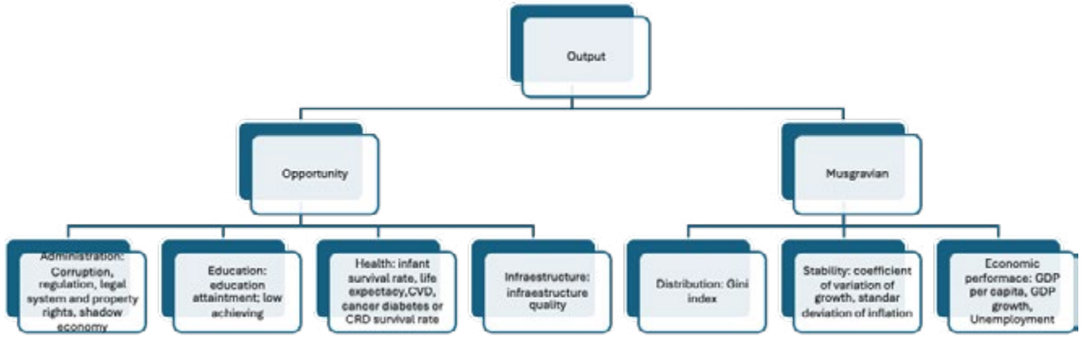


ILLUSTRATION 2.

Input measures.

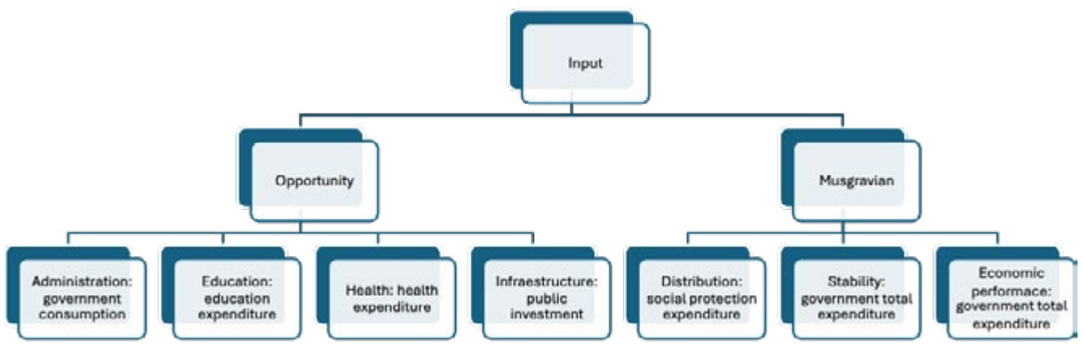


TABLE 5.

Output components.

SUB INDEX	VARIABLE	SOURCE	DEFINITION
		Opportunity indicators	
Administration	Corruption	Transparency international. Corruption Perceptions Index	The Corruption Perceptions Index (CPI) is a scale that ranges from 0 to 100 (previously 0 to 10 until 2011), where 0 indicates a highly corrupt perception and 100 indicates a very clean perception.
	Regulation	Fraser Institute	Regulation is scored on a scale from 0 to 10, where 0 indicates highly restrictive and burdensome regulations, and 10 indicates minimal and non-intrusive regulations.
	Legal system and property rights	Fraser Institute	Legal System and Property Rights is scored on a scale from 0 to 10, where 0 represents a weak legal system with poor protection of property rights, and 10 represents a strong legal system with robust protection of property rights.
	Shadow Economy	Schneider and Asllani (2022)	Reciprocal value of the share of the shadow economy in GDP
Education	Educational attainment level	Eurostat	Percentage of population (15-64 years old) with upper secondary education
	Low achieving	Eurostat based on PISA	Average number of 15-year-old students who do not reach the basic level in mathematics, reading and science according to PISA. Because of missing data, it is assumed that the results are the same as in previous years. Reciprocal value.
Health	Infant survival rate	Eurostat	Infant survival rate
	Life Expectancy		Life expectancy
	Non communicable diseases survival rate	World Health Organization	The survival rate for patients diagnosed with cardiovascular disease (CVD), chronic respiratory disease (CRD), cancer, and diabetes.
Public infrastructure	Infrastructure quality	World Economic Forum	Infrastructure quality on a scale of 7 (extensive and efficient) to 1 (extremely underdeveloped). Data is only available up to 2017. From 2018 to 2021 the average growth rate through 2017 is applied to infer missing data.
		Musgravian indicators	
Distribution	Gini index	World Bank	1-Gini index
Stabilization	Coefficient of variation of growth	Eurostat	Coefficient of variation based on 5-year mean of GDP growth. Reciprocal value
	Standard deviation of inflation	Eurostat	Standard deviation of inflation based on 5-year consumer prices (percent change) data. Reciprocal value
Economic performance	GDP per capita	Eurostat	GDP per capita in constant 2010 euros
	GDP growth	Eurostat	Percent change of GDP
	Unemployment	Eurostat	Reciprocal value of the unemployment rate

TABLE 6.

Input components.

SUB INDEX	VARIABLE	SOURCE	DEFINITION
		Opportunity indicators	
Administration	Government consumption	Eurostat	General government final consumption expenditure as a percentage of GDP
Education	Education expenditure	Eurostat	Expenditure on education as a percentage of GDP
Health	Health expenditure	Eurostat	Expenditure on health as a percentage of GDP
Public infrastructure	Public investment	Eurostat	General government gross fixed capital formation as a percentage of GDP
		Musgravian indicators	
Distribution	Social protection expenditure	Eurostat	Expenditure on social protection as a percentage of GDP
Stabilization	Government total expenditure	Eurostat	Total government expenditure as a percentage of GDP

5

PUBLIC SECTOR EFFICIENCY IN THE EU

The data presented in Tables 7 and 8 clearly show that high levels of public expenditure do not automatically lead to greater efficiency in the public sector. This conclusion is particularly evident when looking at countries in the European Union which, despite having relatively high levels of public expenditure, do not achieve equivalent levels of efficiency.

A prominent example is France, which maintains consistently high levels of public spending throughout the period 2006-2021, with above-average standardized Public Expenditure (PE) values in almost every year. However, France's Public Sector Efficiency scores do not follow the same pattern, showing an efficiency that, while relatively high in some years, does not fully justify the high level of spending. This suggests that a large volume of resources invested by the state does not always translate into more effective management or better public service outcomes.

Similarly, Sweden represents an example where elevated public expenditure, as indicated by above-average PE values, does not consistently correspond with exceptional efficiency. Although Sweden exhibits relatively high efficiency in certain periods, the variability in PSP values indicates that additional public expenditure is not always managed in an optimal manner with the aim of maximizing efficiency. This phenomenon underscores the importance of additional factors, such as the quality of institutions and the effectiveness of policy implementation, in determining the efficacy of public expenditure.

Conversely, some countries with relatively moderate levels of expenditure, such as Estonia and Luxembourg, have demonstrated the capacity to maintain relatively high levels of public sector efficiency. These countries, despite allocating fewer resources than other EU members, appear to utilize their budgets more effectively, emphasizing efficient management and optimization of available resources. This underscores the notion that the volume of expenditure is not the sole determining factor in performance outcomes; rather, it is the manner in which resources are managed that is of greater consequence.

It is evident that the relationship between the level of public expenditure and sector efficiency is intricate and non-linear. Increased expenditure does not invariably lead to enhanced efficiency, and in certain instances, elevated expenditure may disguise underlying structural inefficiencies. To gain a deeper understanding of this relationship and optimize the utilization of public resources, a more sophisticated analysis is essential, employing the Data Envelopment Analysis method to gauge efficiency with greater precision.

TABLE 7.

Public Sector Performance Standardized indicator.

COUNTRY	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Austria	1.09	1.09	1.13	1.15	1.14	1.14	1.56	1.29	1.04	1.33	1.05	1.03	1.02	1.04	0.99	**0.99**
Belgium	0.95	0.91	0.92	1.05	0.98	1.11	3.29	1.38	1.02	0.94	1.29	1.05	0.94	0.92	0.90	**0.97**
Bulgaria	0.80	0.89	1.26	0.85	0.77	0.99	1.11	0.77	1.31	0.78	0.78	0.80	0.83	0.80	0.79	**0.88**
Croatia	1.23	0.96	0.90	0.88	0.80	0.76	-0.12	0.79	0.78	0.83	0.87	0.91	0.92	1.00	0.87	0.95
Cyprus	0.99	0.95	1.19	1.09	1.07	0.91	-0.61	-0.16	0.48	0.85	0.92	0.88	0.90	1.11	0.93	0.94
Czechia	0.92	1.03	0.99	0.97	1.25	1.26	0.63	0.92	0.95	0.96	0.99	1.00	0.99	1.08	0.98	1.03
Denmark	1.08	1.05	1.13	1.07	1.01	1.00	1.06	1.35	1.06	1.12	1.11	1.21	1.14	1.09	1.17	1.07
Estonia	1.07	1.15	0.77	0.86	0.95	1.08	2.42	1.28	1.02	0.97	1.07	1.01	1.03	1.08	1.13	1.10
Finland	1.32	1.29	1.28	1.13	1.17	1.17	0.50	-2.01	1.01	0.99	1.03	1.01	0.98	0.98	1.07	1.04
France	1.14	1.08	1.02	1.10	1.03	1.05	1.15	1.41	1.03	1.66	1.10	1.00	0.94	0.95	0.91	0.98
Germany	1.03	1.03	1.04	1.07	1.12	1.14	1.33	1.57	1.69	1.17	1.07	1.07	1.01	1.02	1.04	1.01
Greece	0.94	0.91	0.82	0.90	0.64	0.47	-2.29	0.34	0.76	0.73	0.71	0.77	0.80	0.82	0.73	0.84
Hungary	0.90	0.81	0.88	0.86	0.85	0.87	0.33	1.19	0.91	0.87	1.39	0.95	0.91	0.92	0.90	0.94
Ireland	1.05	1.11	0.71	0.92	0.90	0.89	0.78	1.39	1.13	1.29	1.03	1.51	1.08	1.05	2.13	1.23
Italy	0.78	0.78	0.72	0.78	0.84	0.79	-0.44	0.23	0.81	0.81	0.83	0.81	1.74	0.81	0.77	0.87

Latvia	0.93	1.58	0.72	0.75	0.65	0.82	3.94	1.21	1.02	1.00	0.91	0.95	0.87	0.82	0.88	0.89
Lithuania	0.97	0.89	0.89	0.73	1.42	0.96	2.60	1.49	0.99	0.83	0.90	0.91	0.86	0.87	1.01	1.00
Luxembourg	1.19	1.13	1.04	1.26	1.28	1.22	1.93	1.84	1.23	1.36	1.16	1.26	1.12	1.20	1.27	1.16
Malta	1.47	0.87	1.12	1.19	1.10	0.94	2.76	1.94	1.00	0.97	0.92	1.00	1.03	1.00	0.84	1.01
Netherlands	1.13	1.12	1.28	1.20	1.38	1.17	0.72	1.08	1.08	1.06	1.09	1.09	1.47	1.25	1.15	1.14
Poland	0.80	0.82	1.06	1.47	0.98	1.37	1.75	1.26	0.96	0.93	1.08	0.98	0.99	1.18	1.06	1.09
Portugal	0.80	0.83	0.93	0.87	0.85	0.74	-0.91	0.56	0.80	0.82	0.85	0.89	0.90	1.05	0.84	0.92
Romania	0.71	0.75	1.15	0.82	0.64	0.92	1.65	0.83	0.80	0.87	0.87	0.83	0.81	0.80	0.82	1.03
Slovakia	0.87	0.90	1.12	0.96	1.10	1.04	1.50	1.29	1.10	0.91	0.95	1.11	0.90	0.88	0.92	0.95
Slovenia	0.91	0.92	1.09	0.98	0.99	1.19	-0.20	0.63	0.90	0.90	0.93	0.96	0.95	1.11	0.96	1.05
Spain	0.90	1.03	0.86	0.95	0.87	0.82	-0.36	0.34	0.87	0.87	0.87	0.90	0.90	0.90	0.85	0.89
Sweden	1.04	1.15	0.96	1.12	1.22	1.17	0.93	2.80	1.24	1.17	1.23	1.08	0.99	1.29	1.11	1.04
Mean	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Min	**0.71**	**0.75**	**0.71**	**0.73**	**0.64**	**0.47**	**-2.29**	**-2.01**	**0.48**	**0.73**	**0.71**	**0.77**	**0.80**	**0.80**	**0.73**	**0.84**
Max	**1.47**	**1.58**	**1.28**	**1.47**	**1.42**	**1.37**	**3.94**	**2.80**	**1.69**	**1.66**	**1.39**	**1.51**	**1.74**	**1.29**	**2.13**	**1.23**
Stdev	**0.18**	**0.18**	**0.17**	**0.17**	**0.21**	**0.20**	**1.37**	**0.85**	**0.22**	**0.21**	**0.16**	**0.15**	**0.20**	**0.14**	**0.26**	**0.09**

Source: authors' calculations.

TABLE 8.

Public Expenditure standardized indicator.

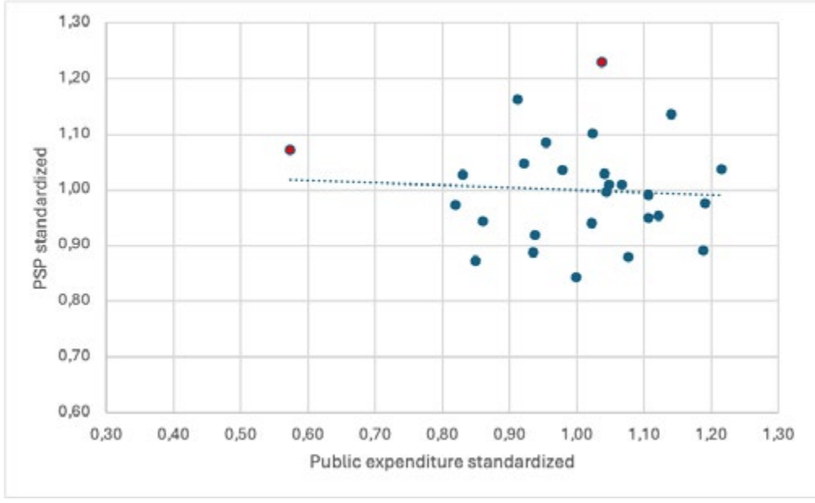
COUNTRY	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Austria	1.01	1.02	1.04	1.03	1.03	1.08	1.12	1.12	1.13	1.11	1.14	1.15	1.14	1.13	1.12	**1.11**
Belgium	0.81	0.85	0.87	0.81	0.80	0.73	0.75	0.84	0.95	0.97	0.79	0.77	0.81	0.81	0.81	**0.82**
Bulgaria	1.04	0.99	0.99	1.02	1.00	1.00	0.99	0.97	0.98	1.01	0.95	0.96	1.01	1.04	1.05	**1.08**
Croatia	1.17	1.19	1.18	1.21	1.24	1.24	1.30	1.28	1.29	1.27	1.31	1.27	1.24	1.22	1.15	1.12
Cyprus	0.94	0.93	0.91	0.92	0.93	0.92	0.92	0.94	0.93	0.94	0.99	1.00	1.00	1.01	1.00	1.02
Czechia	0.91	0.94	1.04	1.07	0.98	0.96	1.04	1.00	0.96	1.01	1.04	1.09	1.07	1.05	1.05	1.04
Denmark	0.86	0.95	1.04	0.99	1.00	0.97	0.92	0.87	0.83	0.64	0.69	0.66	0.63	0.64	0.61	0.57
Estonia	1.04	1.03	1.07	1.07	1.00	1.00	1.02	1.03	0.99	1.01	1.05	1.10	1.01	0.97	1.02	1.02
Finland	0.92	0.94	0.96	0.99	0.99	0.98	0.95	0.91	0.89	0.91	0.91	0.90	0.90	0.90	0.98	0.98
France	1.20	1.20	1.16	1.16	1.17	1.18	1.21	1.22	1.21	1.19	1.25	1.25	1.22	1.22	1.18	1.19
Germany	1.05	1.11	1.03	1.02	0.97	0.98	1.00	1.02	1.02	1.01	1.02	0.99	1.02	1.07	1.13	1.07
Greece	1.01	1.01	1.00	1.00	0.98	0.97	0.98	0.98	0.97	0.98	1.00	1.00	0.98	0.98	1.01	1.00
Hungary	0.81	0.79	0.79	0.84	0.86	0.88	0.83	0.82	0.79	0.76	0.79	0.79	0.88	0.79	0.86	0.86
Ireland	0.90	0.92	0.95	0.95	0.94	0.97	0.93	0.90	0.91	0.92	0.90	0.96	1.00	0.99	0.96	1.04
Italy	0.91	0.94	0.99	1.01	0.99	0.96	0.89	0.85	0.83	0.86	0.86	0.85	0.85	0.86	0.93	0.85
Latvia	0.89	0.87	0.85	0.89	0.92	0.92	0.93	0.91	0.91	0.91	0.94	0.98	0.97	1.00	0.99	0.94
Lithuania	1.14	1.06	0.98	0.95	0.95	0.94	0.95	0.99	1.03	1.08	0.96	1.03	1.05	1.06	1.04	1.04
Luxembourg	0.99	0.95	0.88	0.81	0.81	0.89	0.93	0.89	0.91	0.89	0.85	0.80	0.85	0.87	0.94	0.91
Malta	1.05	1.05	1.04	1.06	1.09	1.11	1.12	1.11	1.10	1.09	1.12	1.10	1.08	1.07	1.04	1.05
Netherlands	1.06	1.06	1.05	1.04	1.05	1.04	1.05	1.06	1.07	1.08	1.12	1.13	1.10	1.09	1.08	1.14
Poland	1.00	1.00	1.00	0.94	1.01	1.03	0.98	0.97	0.98	0.96	0.96	0.98	1.00	0.99	0.96	0.95
Portugal	1.07	1.05	1.05	1.07	1.13	1.04	0.97	0.97	0.95	0.94	0.91	0.92	0.90	0.89	0.91	0.94
Romania	0.83	0.88	0.90	0.83	0.83	0.82	0.76	0.77	0.76	0.80	0.81	0.74	0.75	0.83	0.85	0.83
Slovakia	1.09	1.06	1.06	1.08	1.11	1.11	1.11	1.15	1.13	1.09	1.05	1.04	1.04	1.04	1.04	1.11
Slovenia	0.93	0.87	0.87	0.93	0.92	0.92	0.90	0.93	0.96	1.08	0.99	0.93	0.93	0.94	0.88	0.92
Spain	1.11	1.10	1.09	1.13	1.13	1.17	1.22	1.25	1.26	1.23	1.29	1.26	1.24	1.24	1.19	1.19
Sweden	1.24	1.22	1.21	1.19	1.17	1.19	1.23	1.25	1.26	1.24	1.33	1.35	1.34	1.31	1.23	1.22
Average	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**	**1**
Min	**0.81**	**0.79**	**0.79**	**0.81**	**0.80**	**0.73**	**0.75**	**0.77**	**0.76**	**0.64**	**0.69**	**0.66**	**0.63**	**0.64**	**0.61**	**0.57**
Max	**1.24**	**1.22**	**1.21**	**1.21**	**1.24**	**1.24**	**1.30**	**1.28**	**1.29**	**1.27**	**1.33**	**1.35**	**1.34**	**1.31**	**1.23**	**1.22**
Stdev	**0.12**	**0.11**	**0.10**	**0.11**	**0.11**	**0.12**	**0.14**	**0.14**	**0.14**	**0.15**	**0.17**	**0.17**	**0.16**	**0.15**	**0.13**	**0.14**

Source: authors' calculations.

As illustrated in the figure below, there is no discernible correlation between elevated public expenditure and enhanced performance by EU countries by 2021. The countries highlighted in red represent the most efficient performers, namely Denmark and Ireland. All countries within the border marked by these two countries represent inefficient units, given that with the resources available to them, they could obtain a superior performance or, conversely, they could reduce expenditure to attain a comparable level of performance.

FIGURE 9.

Ratio in Public Sector Performance and public expenditure standardized for European Union countries, 2021.



Source: authors' calculations.

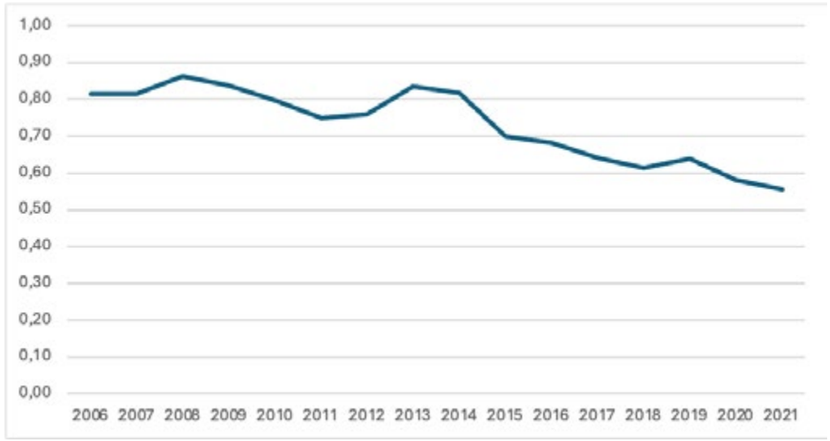
The mean evolution of the DEA model with input orientation for the European Union countries is illustrated in the figure below. This orientation allows for the observation of the potential for underspending by member states, with the goal of achieving the same result as measured by the Public Sector Performance indicator. In order to achieve this, the estimated model introduces public expenditure as an input, expressed as a percentage of GDP, and the final value of the performance indicator as the output.

As evidenced by the data, the efficiency of the European Union, with an input orientation, has exhibited a notable decline over the observed time period. Efficiency exhibited a slight initial improvement, beginning from a level close to 0.80 in 2006, which peaked in 2007. Nevertheless, from that point onwards, there is an almost constant decline, with some minor fluctuations, but without a recovery to initial levels. This behavior reflects a decline in the capacity of EU Member States to maintain or enhance the efficiency with which public resources are utilized over time.

This declining trend may be interpreted as an indicator of increasing challenges in public management within the EU, potentially influenced by factors such as the global financial crisis of 2008 and the subsequent economic and sovereign debt crises in Europe. The findings indicate that EU countries could reduce their expenditure by approximately 30 percent without compromising the quality of public services or social well-being. This underscores the necessity for structural reforms to enhance efficiency and potentially alleviate the tax burden on citizens. Furthermore, the efficiency level declined significantly during the pandemic years, reaching a point close to 50 percent. Despite the implementation of fiscal stimulus policies in recent years, performance has remained disappointingly low.

FIGURE 10.

Efficiency evolution in the European Union, input orientation.



Source: authors' calculations.

The data presented in the table illustrates a discernible consistency in the efficiency of specific European countries over an extended period of time. Denmark, Luxembourg, and Ireland have demonstrated consistent efficiency in the European Union over the past decade, with notable performance from 2014 to 2021. This consistency suggests that these countries have implemented and maintained public policies that optimize the use of their resources. Such policies may be linked to effective administrative systems, high levels of transparency, and a clear focus on government innovation and efficiency. Additionally, Belgium and Finland frequently appear on the list of the most efficient countries, particularly in previous years. This underscores the significance of stable policies and well-developed governance structures.

In contrast, countries such as France and Croatia are persistently identified as the least efficient, with France occupying this position almost continuously from 2007 to 2021. It is important to note that France is a country with a high level of public expenditure, which in theory should result in high-quality public service performance. However, its persistent inclusion on the list of the least efficient countries indicates that high expenditure does not necessarily guarantee optimal resource utilization. This may indicate the existence of significant inefficiencies in public administration or resource allocation that have not been adequately addressed, thereby impairing their capacity to maximize the benefits of public expenditure. This situation underscores the necessity for the implementation of structural reforms that enhance efficiency, particularly in countries with elevated expenditure levels, such as France.

TABLE 9.

Most and least efficient countries per year in the European Union.

YEAR	MOST EFFICIENT COUNTRY	LEAST EFFICIENT COUNTRY
2006	Czechia, Denmark, Finland and Malta	Lithuania
2007	Chechia and Latvia	France
2008	Finland and Romania	France
2009	Belgium, Luxembourg and Poland	France
2010	Belgium, Luxembourg and Lithuania	Denmark
2011	Belgium, Czechia and Poland	Croatia
2012	Belgium and Latvia	Croatia
2013	Belgium, Italy, Romania, Luxembourg, Sweden and Spain	Estonia
2014	Italy, Luxembourg, Denmark and Germany	Spain
2015	Luxembourg, Denmark and France	Spain
2016	Denmark and Hungary	France
2017	Denmark and Ireland	France
2018	Denmark and Italy	France
2019	Denmark, Luxembourg and Sweden	France
2020	Denmark and Ireland	France
2021	Denmark and Ireland	France

Source: authors' calculations.

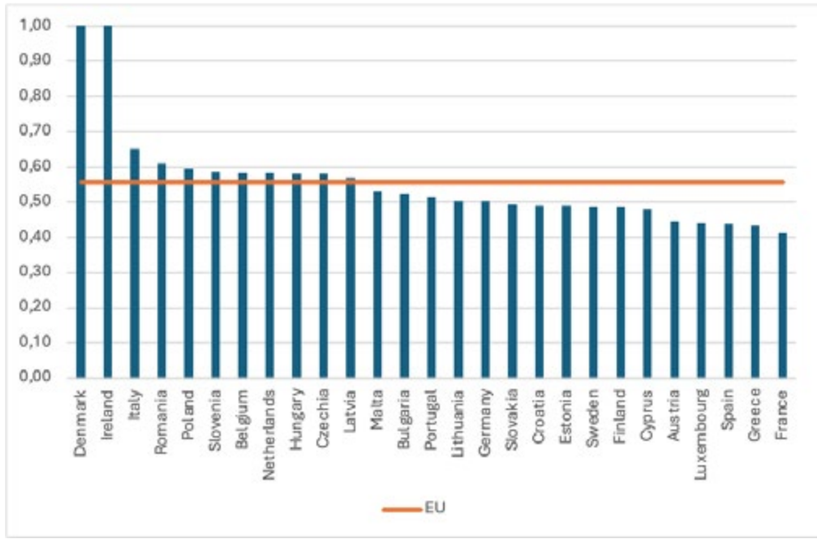
The following figure presents the efficiency level of European Union countries in 2021, with an input orientation. This approach measures the extent to which countries utilize their resources to achieve results. Denmark and Ireland are distinguished as the most efficient countries, exhibiting efficiency levels approaching 1, which signifies a near-optimal utilization of their public resources. This serves to illustrate the efficacy of their public policies and their capacity to maximize the return on their public sector investments.

Conversely, there is considerable variation in efficiency levels across EU countries. Some countries, including France, Greece, and Spain, are situated at the lower end of the ranking, exhibiting markedly inferior efficiency levels in comparison to the EU average (represented by the horizontal line in the graph). This indicates that these countries, despite potentially having higher levels of public expenditure, are not effectively utilizing their resources to the same extent as those at the top of the ranking.

The figure illustrates the significant discrepancies in the efficiency of public management among EU member states, which may be attributed to variations in the quality of institutions, policy implementation, and administrative structures. These findings underscore the necessity for reforms and enhancements in public sector efficiency in underperforming countries, with the objective of attaining the levels of efficiency exhibited by leading countries such as Denmark and Ireland. Such an approach would not only facilitate the optimal utilization of resources but would also enhance the outcomes for their citizens, without the necessity for an increase in public expenditure.

FIGURE 11.

Efficiency level input orientation of European Union countries, 2021.



Source: authors' calculations.

6

THE NEED FOR FISCAL CONSOLIDATION

It is of paramount importance to gain an understanding of the factors that influence the efficiency of the public sector, for a number of reasons. First, it enables governments to identify and comprehend the factors that influence the public sector's capacity to utilize resources in an optimal manner. Such understanding is pivotal to the implementation of policies that maximize the results of public investments, thereby ensuring the achievement of socioeconomic goals with the least possible expenditure. Furthermore, in the context of mounting budgetary constraints, as witnessed in numerous countries in the wake of the 2008 financial crisis and the ongoing pandemic, enhancing efficiency is imperative to ensure fiscal sustainability without compromising the quality of public services.

Secondly, an analysis of the determinants of public sector efficiency can assist policymakers in the design of structural reforms that address systemic inefficiencies. For instance, if institutional quality or administrative capacity are identified as pivotal determinants of efficiency, reforms can be oriented towards fortifying these domains, which could culminate in enhanced efficiency and a more optimal utilization of public resources. In this manner, nations may circumvent the necessity for austere reductions in indispensable public services by enhancing the efficacy of expenditure.

Thirdly, an understanding of the factors that influence efficiency is essential for the comparison of performance across countries or regions. This not only facilitates the acquisition of knowledge from the most effective practices on an international scale, but it also empowers citizens and civil society organizations to demand superior management of public resources. A transparent comparison of efficiency can serve as an impetus for governmental bodies to implement improvements to their policies, thereby avoiding the potential consequences of falling behind in international evaluations.

Furthermore, an understanding of the factors influencing public sector efficiency can assist in the reduction of economic and social inequalities. By optimizing the utilization of resources, governments can ensure a more equitable distribution of the benefits derived from public expenditure, thereby contributing to social cohesion and sustainable economic development. This is particularly crucial in developing countries, where resources are scarce and needs are considerable.

In conclusion, in the context of a globalized world where competition to attract investment is intense, countries with efficient public sectors enjoy a significant competitive advantage. The efficiency of public administration has the dual benefit of improving the investment climate and increasing confidence in government institutions among investors and citizens alike. This, in turn, can give rise to a virtuous circle of economic growth and development.

As indicated by Apeti et al. (2023)[10], the study presents a number of significant findings pertaining to public sector efficiency on a global scale. The study employs a parametric stochastic frontier approach to evaluate efficiency in four key sectors: education, health, infrastructure, and public administration. It considers a large panel of 158 countries over the period 1990-2017. The authors conclude that trade globalization, factor productivity, and institutional quality are significant determinants of public sector efficiency. Furthermore, the findings indicate that these factors exert a significant influence on both advanced and developing economies. However, the impact of tax revenues on efficiency appears to be negative in advanced economies and less pronounced in developing countries.

Furthermore, the study indicates that there is a discrepancy in efficiency between developed and developing countries, with the disparity being less pronounced in those developing countries that demonstrate elevated levels of globalization, productivity, and democracy. Additionally, it is observed that government durability tends to enhance efficiency in European countries, whereas in fragile states, this factor may have deleterious effects. These findings highlight the significance of policies that foster institutional quality and global economic integration for enhancing public sector efficiency.

Conversely, Afonso and Alves (2023)[11] investigate the correlation between fiscal consolidation and public sector efficiency in a sample of 35 OECD countries over the 2007-2020 period. The significance of this study lies in the necessity to comprehend the manner in which austerity policies, enacted through fiscal consolidation, can impact the capacity

10 Ablam Estel Apeti, Bao-We-Wal Bambe, and Aguima Aime Bernard Lompo, "Determinants of Public Sector Efficiency: A Panel Database from a Stochastic Frontier Analysis," *Oxford Economic Papers* (In press, 2023). El DOI del estudio es: https://doi.org/10.1093/oep/gpad036.

11 António Afonso and José Alves, "Are fiscal consolidation episodes helpful for public sector efficiency?", *Applied Economics* 55:31 (2023): 3547-3560, https://doi.org/10.1080/00036846.2022.2115455.

of governments to effectively manage their resources. In a context where fiscal constraints are increasingly prevalent, it is imperative to gain insight into this relationship in order to develop policies that not only maintain fiscal sustainability but also enhance the efficiency of public service delivery.

The study demonstrates that episodes of fiscal consolidation have a positive impact on public sector efficiency, particularly in economies with debt-to-GDP ratios between 60 percent and 90 percent. This finding suggests that, in these countries, the necessity to reduce public expenditure during periods of fiscal consolidation may prompt governments to utilize their resources in a more efficient manner. This result is particularly pertinent for economies in the periphery of the Eurozone, which have historically encountered considerable difficulties in fiscal management. According to the study, these economies demonstrate the most pronounced efficiency gains during consolidation episodes.

Furthermore, the study indicates that while fiscal consolidation enhances efficiency in the majority of countries, the impact is more pronounced in those with elevated debt levels. This indicates that economies with higher levels of indebtedness have a greater need to make fiscal adjustments, which in turn leads them to implement measures that optimize the use of public resources. In contrast, economies with lower debt levels do not demonstrate a notable enhancement in efficiency following episodes of fiscal consolidation. This could indicate that these economies were already operating at relatively high levels of efficiency prior to consolidation.

Another noteworthy aspect of the study is the differentiation between countries within the core Eurozone and those in the periphery. While economies within the core Eurozone do not experience a notable enhancement in efficiency during episodes of fiscal consolidation, economies situated in the periphery do. This outcome may be attributed to the fact that core economies have more robust fiscal management, which renders the additional impact of consolidation less discernible in terms of efficiency.

In conclusion, the findings of these authors provide compelling evidence that fiscal consolidation can be an effective instrument for enhancing public sector efficiency, particularly in countries with elevated levels of debt. These findings highlight the necessity of considering the fiscal and economic context of each country when designing fiscal consolidation policies, with the aim of maximizing the benefits in terms of efficiency and fiscal sustainability.

Moreover, the manner in which taxes are structured can have a considerable impact on the efficiency of public expenditure. As demonstrated by the study conducted by Afonso et al. (2021)[12], the impact of different types of taxes on government resource allocation varies. In general, direct taxes, such as income and capital gains taxes, have been found to be associated with a decrease in the efficiency of expenditure. Such taxes can act as a deterrent to investment and savings, which in turn reduces the tax base over time and constrains the resources available to finance government expenditure. This effect can result in a vicious circle, whereby higher direct tax rates lead to a reduction in the efficiency of expenditure, which in turn necessitates even higher rates to finance the same level of services.

In particular, this research underscores that indirect taxes, such as value added tax (VAT) and other consumption taxes, exert an even more deleterious influence on the efficiency of public expenditure than direct taxes. Such taxes are frequently less apparent to taxpayers and more straightforward to collect, yet their regressive impact can impede consumption and diminish aggregate demand. This, in conjunction with the potential inefficiency inherent in the administration of these revenues, can result in a less optimal utilization of resources by the government. The analysis revealed that indirect taxes exert a more pronounced negative influence on the efficiency of expenditure than other types of taxes.

Another crucial element of the tax structure that impacts the efficacy of government spending is social security contributions. These contributions, while indispensable for the financing of pension systems and other social benefits, are also associated with a reduction in expenditure efficiency. The study posits that high contribution rates can act as a deterrent to formal hiring practices, thereby encouraging the informal economy. This, in turn, has the effect of reducing the contribution base and subsequently decreasing the amount of resources available for public expenditure. Furthermore, the inflexibility of these systems frequently results in a significant portion of the budget being pre-allocated, thereby constraining the government's capacity to respond to emerging needs or to enhance efficiency.

Conversely, the study also indicates that non-tax revenues, such as those derived from state-owned enterprises or natural resources, have a comparable detrimental impact on the efficiency of government expenditure. These revenues are frequently not subjected to the same degree of political pressure to be utilized efficiently as traditional tax revenues, which can result in less scrutiny and, ultimately, less efficient expenditure. In countries where non-tax revenues constitute a substantial portion of the budget, there is a considerable risk of governmental dependence on these sources and a concomitant reduction in the accountability with which public resources are managed.

Another paper from the same authors[13] delves deeply into the ways that structural tax reforms can directly influence the efficiency of public spending. These reforms, which encompass alterations in tax rates and the tax base of disparate taxes, have the potential to markedly transform the manner in which governments allocate and utilize public resources. An increase in tax rates, particularly in personal income tax (PIT), has the effect of reducing the efficiency of expenditure by increasing the tax burden on individuals and companies. This can lead to a decrease in economic activity and, consequently, to a reduction in effective revenue. This dynamic can compel governments to impose further taxes or resort to debt financing in order to maintain the same level of public expenditure, thereby creating a vicious cycle that is detrimental to efficiency.

Conversely, the study indicates that reforms that expand the tax base, as opposed to raising rates, have the potential to enhance the efficiency of public expenditure. This is due to the fact that a broader base allows governments to generate revenue in a more equitable and less distortive manner, distributing the tax burden more evenly among taxpayers. By reducing exemptions and deductions, revenue can be increased without raising tax rates, thereby enabling public expenditure to be financed without negatively affecting economic activity. This strategy of broadening the tax base has been demonstrated to be particularly effective in improving efficiency when implemented in the context of corporate income tax (CIT) during periods of economic expansion.

In periods of economic growth, the combination of a broadening of the CIT base with a reduction in PIT rates can result in a significant increase in the efficiency of government expenditure. This combination allows governments to collect greater revenues from companies that are generating higher profits without placing undue burdens on households through increased taxation. This, in turn, can result in a more efficient allocation of public resources, as governments can invest in public projects and services that foster economic growth and productivity, rather than simply financing current expenditures or covering fiscal deficits.

However, during periods of economic recession, the most effective strategies appear to diverge from this approach. The study indicates that in periods of economic contraction, reforms that increase the personal income tax and value-added tax base, as well as those that increase the corporate income tax rate, tend to enhance the efficiency of public expenditure. In such circumstances, it may be more prudent for governments to concentrate their efforts on stabilizing revenues through adjustments to the tax base and certain rate increases, thereby ensuring that public expenditure is not unduly affected by declining revenues. This strategy can assist in maintaining the provision of essential public services without the incurrence of greater inefficiencies.

Ultimately, the study underscores the necessity of aligning tax reforms with prevailing economic circumstances. It is evident that there is no universal solution to enhance the efficiency of public expenditure. Instead, fiscal policies must be crafted with a keen understanding of the prevailing economic context and the specific requirements of the country in question. The implementation of well-designed structural reforms can facilitate the enhancement of public expenditure efficiency, which is of paramount importance for the assurance of fiscal sustainability and the promotion of long-term social well-being.

In other words, the structure of taxes is a crucial factor in determining the efficiency of public expenditure. Governments that rely heavily on taxes that discourage economic activity or that are not designed to maximize the efficiency of expenditure may find themselves in a vicious cycle of low efficiency and high revenue needs. It is imperative that tax systems be designed in a manner that not only generates revenue in an effective manner, but also supports the efficient utilization of public resources. This will contribute to sustainable economic growth and an enhanced quality of life for the general public.

In essence, enhancing the efficacy of the public sector necessitates structural reforms to enhance the caliber of institutions and rectify the financial accountability of public entities. These reforms should prioritize the enhancement of transparency, accountability, and administrative capacity at the governmental level, thereby facilitating a more optimal utilization of public resources. The implementation of fiscal consolidation measures can contribute significantly to the improvement of efficiency, particularly in countries with high levels of debt and significant fiscal challenges.

Furthermore, it is of the utmost importance that these structural reforms be tailored to the specific context of each country, taking into account its economic, political, and social particularities. Improving the efficiency of the public sector has implications for not only fiscal sustainability but also for ensuring inclusive economic growth and the well-being of citizens. Therefore, the consolidation of public accounts, coupled with institutional reinforcement, represents a pivotal element in the pursuit of an efficient public sector, one that is better equipped to address the needs of the population in a more effective and resource-efficient manner.

In short, an optimal configuration of public finances can have markedly beneficial consequences for the economic performance of EU countries, as it fosters an institutional environment conducive to sustained growth. The quality of public finances, which encompasses both the magnitude and composition of public expenditure and its financing, exerts a direct influence on critical variables such as investment, employment, and innovation. A robust institutional framework, bolstered by meticulously crafted fiscal policies, can mitigate economic uncertainty, stimulate private investment, and enhance the efficacy of public expenditure, which in turn fosters long-term growth.[14]

12 António Afonso, João Tovar Jalles, and Ana Venâncio, "Taxation and Public Spending Efficiency: An International Comparison," *Comparative Economic Studies* 63 (April 2021): 356-383, https://doi.org/10.1057/s41294-021-00147-2.

13 António Afonso, João Tovar Jalles, and Ana Venâncio, "Structural Tax Reforms and Public Spending Efficiency," *Open Economies Review* 32 (November 2001): 1017-1061, https://doi.org/10.1007/s11079-021-09644-4.

14 António Afonso, Werner Ebert, Ludger Schuknecht, and Michael Thöne, "Quality of public finances and growth," *ECB Working Paper* 438 (2005).

Furthermore, the effective management of public expenditure, with a particular emphasis on investment in human capital and research and development, is of paramount importance for enhancing the competitiveness of economies. Such investments not only enhance labor productivity but also engender technological innovations that are indispensable for sustaining economic dynamism in a globalized context. Conversely, excessive public expenditure in less productive areas, such as redistributive spending, can result in an increase in public debt and a tax burden that discourages labor and investment, thereby limiting the potential for economic growth.

Ultimately, macroeconomic stability, which is reinforced by well-managed public finances, is a fundamental pillar for economic development. An adequate level of public deficit and debt ensures that governments can finance their activities without creating uncertainty or instability in financial markets. This stability is not only key to keeping interest rates low, which facilitates investment, but also generates confidence in economic agents, encouraging both savings and consumption, which together drive sustainable economic growth in the countries of the European Union.

7

THE RELEVANCE OF EFFICIENCY BEYOND ECONOMICS

The efficiency of public sector management extends beyond mere economic considerations and becomes a crucial foundation for bolstering confidence in institutions and the efficacy of public policies. Efficient administration not only optimizes the use of resources but also reinforces the perception that the government is capable of responding adequately and effectively to the needs of citizens. Such trust is vital for the effective functioning of a democracy, as it provides legitimacy to government decisions and encourages compliance with regulations. The following subsections will examine the ways in which efficient public management can enhance citizens' perceptions of government effectiveness, reinforce the social contract, and guarantee that the policies enacted truly advance the objective of enhancing citizens' well-being within the European Union.

The preferred choice for taxpayers and policymakers

The enhancement of economic efficiency is not only contingent upon a more rational and productive utilization of public resources; it also has a considerable impact on taxpayers' perception and conduct, as well as on the formulation of public policies. The efficient management of resources fosters greater trust in public institutions among taxpayers, thereby reinforcing the social contract and enhancing citizens' willingness to fulfill their tax obligations. This greater trust and participation not only ensures more effective revenue collection, but can also foster greater civic engagement and better cooperation between society and government.

From the perspective of policymakers, enhancing economic efficiency is of paramount importance for the attainment of broader policy objectives, including the reduction of inequality and the promotion of sustainable economic growth. The effective management of public expenditure allows governments to provide enhanced services with the same or even fewer resources, thereby releasing funds for allocation to priority areas such as education, health, and infrastructure. Furthermore, in the context of global budgetary constraints, efficiency is crucial for maintaining fiscal sustainability without resorting to unpopular measures such as tax increases or service cuts.

Indeed, as evidenced by the findings of Alesina et al. (2024), policymakers may find electoral benefit in the implementation of measures designed to enhance the efficiency of public expenditure, particularly when such measures are aligned with campaign promises and the prevailing economic context. The results of the study indicate that austerity policies that focus on reducing public expenditure, rather than increasing taxes, are not only less costly in electoral terms, but may even increase popular support, particularly when implemented by governments that have promoted a manifesto in favor of a small and efficient government.

This finding suggests that the key for governments is the manner in which these measures are implemented. When expenditure cuts are perceived as efforts to improve efficiency and reduce waste, rather than as mere reductions in essential services, voters tend to be more receptive. In other words, the perception that the government is "doing more with less" can engender a sense of fiscal responsibility that is appreciated by the electorate, particularly in times of economic crisis or when there is considerable pressure on public finances.

Moreover, research conducted by Alesina et al. (2024)[15] underscores the significance of aligning electoral discourse with governmental actions. Parties that have promised austerity and efficiency in their campaigns and then implement measures to cut expenditure and improve public sector efficiency in a manner consistent with those promises not only avoid electoral punishment but may also receive electoral benefits. This is because voters value consistency and the perception that the government is delivering on its commitments. Therefore, policymakers seeking to implement austerity measures should not automatically fear a loss of electoral support if these measures focus on improving public sector efficiency. On the contrary, if these policies are properly communicated and executed, highlighting long-term benefits and fiscal responsibility, governments can strengthen their electoral position and gain broader support from the electorate.

15 Alberto Alesina, Gabriele Ciminelli, Davide Furceri, and Giorgio Saponaro, "Austerity and elections," *Economica* 91:363 (July 2024): 1075-1099, https://doi.org/10.1111/ecca.12534.

From the perspective of taxpayers, the efficiency of public expenditure is a highly valued aspect, as it directly translates into tangible benefits. These benefits may include improvements in the quality of public services and greater transparency in government management. When citizens perceive that their financial contributions are being utilized effectively, they are more likely to endorse fiscal policies and public expenditure programs, which facilitates the implementation of reforms and the maintenance of social cohesion. Conversely, perceptions of inefficiency or waste can engender greater resistance to fiscal policies and increased tax evasion, which in turn impairs the state's ability to finance its activities.

Furthermore, economic efficiency has significant implications for a country's competitiveness. In the context of globalization, countries that demonstrate effective management of public resources are better positioned to provide enhanced services and infrastructure without resorting to increased taxation on businesses and individuals. This not only attracts foreign investment but also encourages innovation and the development of new local companies, thereby creating a virtuous cycle of economic growth and job creation. Consequently, the efficiency of the public sector constitutes a pivotal element of a country's economic strategy, one that can enhance its standing in the global economy.

In addition, enhancing economic efficiency contributes to a country's capacity to withstand financial or fiscal crises. An efficient public expenditure system enables governments to respond more effectively to emergencies by rapidly reallocating resources to areas of greatest need without compromising long-term fiscal stability. Such responsiveness not only safeguards the well-being of the population during crises but also facilitates the country's ability to recover more expeditiously and resume a sustainable growth trajectory. In conclusion, economic efficiency is not merely an end in itself; rather, it is a means of achieving widespread well-being and greater economic stability.

A more efficient government is also a more effective government

Closely related to the previous section, it can be stated that a more efficient government is a more effective government. Efficiency in public management entails not only the optimal utilization of available resources but also the capacity to implement public policies that yield tangible and positive outcomes for society. In this sense, a government that is able to operate efficiently is more likely to be effective in the delivery of public services, the implementation of development policies, and the creation of an environment conducive to economic and social growth.

To ascertain the relationship between government efficiency and effectiveness, the estimated level of efficiency for the year 2021 has been compared with the World Bank's government effectiveness indicator. This indicator, designated the Government Effectiveness Indicator, is a tool that assesses the quality of public services, the capacity of the public administration, and its degree of independence from political pressures; the quality of policy formulation and implementation; and the credibility of the government in its commitment to those policies.

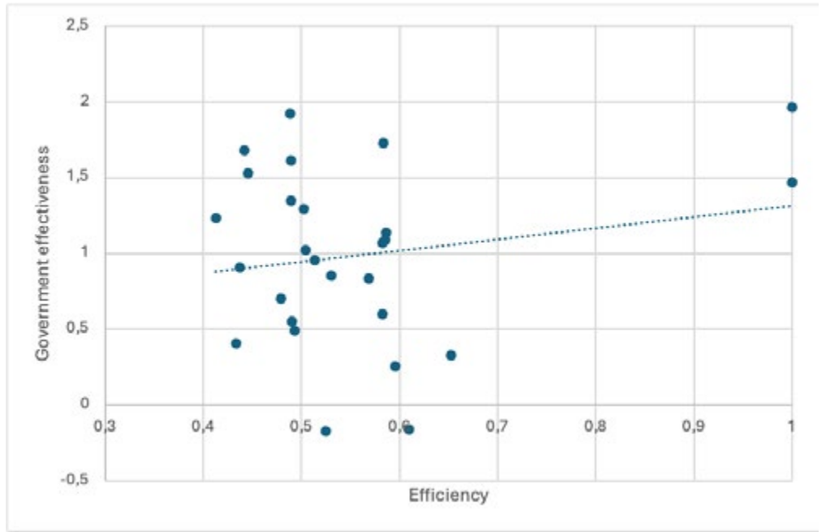
The Government Effectiveness Indicator is one of a series of governance indicators developed by the World Bank as part of the Worldwide Governance Indicators (WGI) project. This indicator is based on the perception of government effectiveness in implementing policies that promote economic and social development, as well as in providing quality public services. A high score on this indicator indicates the presence of a competent public administration capable of executing policies in an efficient manner and providing accessible and high-quality public services.

The value of this indicator lies in its capacity to offer a comprehensive perspective on the manner in which governments allocate public resources and the impact of these practices on a country's economic and social performance. In this manner, it allows for the comparison of governmental effectiveness between disparate countries and regions, thereby facilitating the identification of optimal practices and areas for improvement in public governance.

The subsequent graph serves to corroborate the positive relationship between government efficiency and effectiveness for countries within the European Union. The horizontal axis depicts the estimated level of efficiency, while the vertical axis represents the Government Effectiveness Indicator. The upward trajectory of the regression line indicates that countries with elevated efficiency levels tend to exhibit enhanced government effectiveness. This analysis, employing a basic regression model, underscores the pivotal role of efficiency in public administration as a critical determinant of effective governance. The observed positive correlation suggests that by enhancing efficiency in resource management, governments can attain higher levels of effectiveness, which translates into improved service delivery and greater satisfaction of the population's needs.

FIGURE 12.

Relationship between the efficiency and effectiveness of European Union governments, 2021.



Source: authors' calculations and World Bank.

The preferred option for the financial markets

At the same time, financial markets also bestow rewards upon those governments that demonstrate efficient public sector management, particularly when this efficiency is reflected in enhanced sovereign debt ratings. Investors in bond markets and other financial instruments seek to mitigate risks, and efficient government management is a key indicator of economic and fiscal stability. A recent study[16] indicates that financial markets tend to reward countries that demonstrate greater efficiency in government expenditure, as evidenced by improvements in their sovereign ratings from major rating agencies such as Standard & Poor's, Moody's, and Fitch.

This relationship between government efficiency and sovereign ratings is of critical importance, as ratings directly influence a country's financing costs. Higher ratings serve to mitigate the risk perceived by investors, which in turn translates into lower interest rates on the debt issued. This not only results in cost savings for the government but also allows for the reallocation of resources to other budgetary priorities, rather than being dedicated solely to debt servicing. In this sense, efficiency in public expenditure can be conceptualized as a tool for enhancing a country's solvency and long-term financial sustainability.

Moreover, financial markets attach a premium to predictability and stability, which are the hallmarks of efficient management. When a government is able to demonstrate consistent optimal use of its resources, the uncertainty associated with its fiscal policies is reduced. This reduction in uncertainty is an attractive proposition for investors, who are more willing to invest in an environment where risk is more manageable. Consequently, countries that demonstrate high levels of efficiency in public expenditure are able to attract a greater volume of foreign investment, which can subsequently contribute to economic growth.

The advantages of an enhanced sovereign rating also extend to companies and other private sectors within the country. Domestic companies may benefit from a more stable macroeconomic environment and lower financing costs, which could encourage private investment and business expansion. Furthermore, an enhanced rating can facilitate access to international financing, enabling companies to raise capital on more favorable terms. This creates a virtuous cycle in which government efficiency drives efficiency and growth in the private sector.

In addition, the implementation of efficient public expenditure policies conveys a positive signal to international financial institutions, such as the International Monetary Fund and the World Bank, which frequently condition their financial assistance on the adoption of responsible and efficient fiscal

16 António Afonso, João Tovar Jalles, and Ana Venâncio, "Do financial markets reward government spending efficiency?" *Journal of international Financial Markets, Institutions and Money* 77 (March 2022): 101505, https://doi.org/10.1016/j.intfin.2022.101505.

policies. A country that demonstrates efficient management of its public resources is more likely to receive financial support on favorable terms, which can be crucial in times of economic or fiscal crisis. In summary, government efficiency is not only rewarded by the financial markets through enhanced debt ratings, but it also fortifies the country's financial standing in the global arena, thereby generating a range of sustainable economic advantages.

The role of trust

Trust is a fundamental tenet of political systems and governments, serving as a crucial basis for their legitimacy and sustainability. This trust is of paramount importance, as it reflects citizens' perceptions of the efficacy and fairness of government actions. When citizens perceive that their government is acting in their best interest and managing public resources efficiently, they are more likely to accept and support the policies implemented. This not only reinforces the legitimacy of the government but also facilitates the implementation of complex public policies, as a high level of trust reduces resistance and opposition.

Furthermore, the level of trust in government has a considerable effect on the quality of governance. A government that enjoys the trust of its citizens is better positioned to make difficult decisions and implement necessary reforms. Citizens are more willing to tolerate short-term sacrifices if they believe these are necessary for long-term well-being. Such trust allows governments to manage public resources in a more effective manner, as the necessity to devise excessively conservative or populist policies that circumvent immediate discontent is diminished. Alternatively, governments may concentrate their efforts on implementing policies that facilitate sustainable growth and equitable development.

Ultimately, the establishment of trust in government is of paramount importance for the sustenance of long-term political and social stability. Those governments that fail to gain or maintain the trust of their citizens are at greater risk of social unrest, protests, and loss of legitimacy. The deterioration of trust can result in a vicious cycle where distrust fosters inefficiency and corruption, which in turn further erodes trust. Conversely, a high level of trust creates an environment in which citizens are more likely to respect laws and regulations, participate in the democratic process, and contribute to collective well-being. Therefore, trust is not only an outcome of effective governance, but also a crucial enabling factor for the implementation of effective and sustainable governance.

Indeed, Afonso et al. (2024)[17] have conducted a study examining the role of public sector efficiency on trust in government institutions. Their findings indicate a significant positive relationship between the two factors, thereby corroborating the ideas presented in the previous paragraphs. In their analysis, the researchers employed data from 36 OECD countries over the period 2007-2019 and utilized a data envelopment analysis model to assess the efficiency of public expenditure. The results demonstrate that countries exhibiting greater efficiency in the utilization of public resources, including Australia, Chile, Ireland, and South Korea, tend to demonstrate elevated levels of trust in their governments among their citizens. This finding indicates that the perception of an efficient government serves to reinforce legitimacy and public trust, which is of paramount importance for the effective functioning of democracies.

The efficiency of public expenditure contributes to an enhanced perception of trust, as citizens believe that their taxes and contributions are being utilized effectively to deliver quality public services. When governments demonstrate their capacity to manage resources effectively, skepticism and the perception of corruption or waste, two factors that have historically eroded trust in institutions, are reduced. In this sense, efficiency not only optimizes the use of resources but also serves as a mechanism for strengthening trust and the social contract between the government and its citizens.

Moreover, the study highlights that public sector efficiency has a beneficial impact on political and social stability. This is because the trust generated by effective governance can mitigate the risk of social unrest and reduce political polarization. Those who trust their government to be efficient are less likely to support populist or extreme movements that offer immediate but unsustainable solutions. In this manner, the efficiency of public expenditure has both economic and political benefits, as it contributes to social cohesion and democratic stability.

Another crucial point emphasized by Afonso et al. (2024) is that efficiency in public expenditure empowers governments to implement public policies with enhanced flexibility and efficacy, given the support and trust of the population. This is particularly pertinent in contexts of crisis or fiscal adjustment, where it is vital to preserve public confidence in order to implement essential reforms without provoking significant opposition. A government that enjoys public confidence is better positioned to make difficult decisions with greater legitimacy, which in turn facilitates the implementation of long-term policies.

In summary, the efficiency of the public sector not only enhances the utilization of resources but also serves as a crucial foundation for the development and preservation of trust in government. Such trust is, in turn, vital for the legitimacy and sustainability of democratic institutions, and enables more effective and flexible public management, benefiting both the economy and social cohesion.

17 António Afonso, João Tovar Jalles, and Ana Venâncio, "A tale of government spending and trust in the state," *Public Choice* (2024): https://doi.org/10.1007/s11127-024-01144-6.

8

CONCLUSIONS

The evidence presented throughout this study demonstrates that increased expenditure does not necessarily lead to improved public services or enhanced economic performance. Indeed, elevated public spending can prove counterproductive in the absence of effective and strategic management. The relationship between the size of public expenditure and economic growth is not linear; there is an optimal point beyond which an additional increase in expenditure can generate adverse effects on the economy. This phenomenon can be attributed to the fact that, beyond a certain threshold, the costs associated with increased expenditure, such as bureaucracy and inefficiency, begin to outweigh the potential benefits, thereby slowing economic growth rather than promoting it.

This optimal point, which is known as the "Mud curve," suggests that there is a level of government expenditure that maximizes economic growth. When public expenditure remains within this range, it can stimulate growth by providing essential infrastructure, quality public services, and a favorable institutional environment. However, once this level is exceeded, additional expenditure tends to generate economic distortions, such as a higher tax burden that discourages private investment and an increase in public debt, which can lead to persistent budget deficits and a debt spiral that limits future growth.

The efficiency with which public expenditure is managed is also a crucial factor in this relationship. In countries where expenditure is relatively high but management is inefficient, the economic and social return on investment is diminished. This phenomenon is exemplified by countries such as France and Sweden, where elevated levels of expenditure do not consistently yield superior economic performance or enhanced quality of public services. Conversely, countries with relatively moderate levels of expenditure, such as Estonia and Luxembourg, have demonstrated greater efficiency and, consequently, a more substantial positive impact on their economic growth.

The relationship between public expenditure and economic growth is complex and contingent upon both the quantity and quality of expenditure. An approach that merely seeks to increase expenditure without considering its efficiency and long-term impact may result in economic stagnation or even contraction. It is therefore imperative that governments identify an appropriate equilibrium between the level of expenditure and the efficiency with which public resources are managed to ensure that this expenditure contributes to economic growth and the well-being of society in a sustainable manner.

There are notable disparities in public expenditure, as well as in public deficit and debt, among the countries of the European Union. These disparities reflect the varying economic, political, and social realities of each nation. While some countries, such as France and Italy, have public expenditure levels exceeding 50% of their GDP, others, such as Ireland and Eastern European countries, maintain significantly lower ratios. These discrepancies are indicative of not only the public policy priorities of each nation but also the efficacy with which public resources are managed.

The high public expenditure in countries such as France and Italy is associated with high levels of debt and persistent deficits, which demonstrates the challenge of balancing public accounts while maintaining extensive social spending programs. In these countries, a significant proportion of public expenditure is allocated to social protection and health services, which has placed considerable pressure on public finances, particularly during periods of economic downturn. Nevertheless, this elevated level of expenditure does not invariably result in enhanced efficiency or superior economic performance, indicating the existence of inefficiencies and the necessity for structural reforms to enhance long-term fiscal sustainability.

Conversely, countries such as Ireland and some Eastern European nations, including Estonia and Lithuania, have succeeded in maintaining lower levels of public expenditure in relation to their gross domestic product (GDP), while simultaneously pursuing a more sustainable approach to financial management. These countries tend to exhibit lower debt ratios and more controlled deficits, which enables them greater fiscal flexibility and the ability to respond to economic shocks without compromising their financial stability. Moreover, the efficiency of expenditure management in these countries is typically higher, enabling them to achieve superior economic and social outcomes with fewer resources.

These discrepancies among EU countries highlight the necessity of formulating fiscal policies that align with the distinctive circumstances of each nation. While some countries must prioritize reducing expenditure and enhancing efficiency to avert an unsustainable escalation in debt, others may have the opportunity to augment their expenditure in pivotal areas without jeopardizing their financial stability. In all instances, however, enhancing the efficiency of public expenditure is vital to ensure that available resources are utilized in the most optimal manner, thereby contributing to economic growth and social well-being across the European Union.

This research presents a comprehensive assessment of the efficiency of the public sector in European Union countries over the period 2006-2021. This assessment has facilitated the identification of notable discrepancies in the administration of public resources across Member States, and has enabled an examination of the impact of these discrepancies on overall economic performance and the delivery of public services. By employing sophisticated analytical techniques, such as Data Envelopment Analysis (DEA), it has been feasible to ascertain the relative efficiency of each country in transforming public expenditure into tangible outcomes in pivotal domains, including health, education, and infrastructure.

One of the most significant findings of the analysis is that the majority of EU countries could reduce their public expenditure by approximately 30% without compromising the quality of the services they provide. This result underscores the substantial scope for enhancing the efficiency of public expenditure management, which would enable governments to provide the same levels of service with fewer resources. This potential for savings is particularly relevant in the context of mounting fiscal challenges, where the sustainability of public finances is a pivotal concern for numerous countries in the region.

The comparative analysis identifies two contrasting models that illustrate the disparities in the efficiency of public expenditure. Ireland and France represent two distinct models of public expenditure efficiency. Ireland, with one of the lowest levels of public expenditure relative to GDP in the EU, has demonstrated high efficiency in the management of its resources. This has resulted in the achievement of strong economic and social outcomes with a lower level of expenditure than might have been expected. This efficient approach has enabled Ireland to maintain greater fiscal flexibility and relatively low public debt, which contrasts with France's approach of high public expenditure but considerably lower efficiency.

France, despite its high level of expenditure, has failed to achieve a commensurate improvement in the quality or quantity of public services, which suggests the presence of significant inefficiencies. The case of France exemplifies the difficulties encountered by nations with elevated levels of public expenditure in enhancing efficiency and preventing additional resources from yielding diminishing returns. These two instances highlight the necessity of not only contemplating the extent of public expenditure but also the efficacy with which resources are utilized, as a pivotal element in enhancing citizens' well-being without compromising fiscal sustainability.

The quality of institutions has been identified as a key determinant of government efficiency and performance, particularly within the context of the European Union. The effective implementation of public policies that optimize the use of resources and ensure long-term sustainability hinges on the presence of robust, transparent, and efficient institutions. In an environment characterised by a growing distrust of institutions, driven by perceptions of corruption, inefficient bureaucracy and a lack of accountability, improving institutional quality is not only essential to restore public confidence but also to ensure that public expenditure translates into tangible benefits for society.

It is imperative that structural reforms be implemented in order to reinforce the quality of institutions and enhance the efficiency of government. Such reforms may include the streamlining of bureaucratic processes, the implementation of stricter accountability systems, and the improvement of transparency with respect to public finances. In an environment where resources are constrained and demands from the population are increasing, it is imperative that governments maximize the efficiency of expenditure in order to deliver high-quality services without resorting to tax increases or unsustainable borrowing. It is therefore evident that reforms which serve to reinforce public administration and enhance the quality of institutional governance are of paramount importance if these objectives are to be achieved.

The demographic shift towards an aging population, coupled with an increase in demand for public services such as healthcare and pensions, presents a significant challenge for EU governments. In the absence of robust institutions and comprehensive structural reforms, these challenges could exceed the fiscal capacities of numerous countries, resulting in unsustainable deficits and a deterioration in the quality of public services. The capacity of institutions to adapt expeditiously to these demographic and economic shifts will be pivotal to maintaining stability and ensuring that future generations can enjoy efficacious and superior public services.

Ultimately, in an environment of distrust in institutions, structural reforms that enhance institutional quality will not only facilitate the efficiency of public expenditure but will also be pivotal in restoring citizen confidence in governments. The perception of institutions as efficient, responsible, and fair is crucial for social cohesion and for ensuring compliance with public policies. In summary, strengthening institutions and implementing structural reforms are not only necessary to improve the efficiency of public spending but are also vital to respond to future challenges and to maintain the legitimacy of governments in the European Union.

In conclusion, this analysis has demonstrated the vital necessity of enhancing the efficacy of public expenditure within the European Union, not only to guarantee fiscal sustainability, but also to facilitate an efficacious response to mounting demands for superior quality public services within the context of demographic and economic challenges. The potential for reducing expenditure by up to 30% without compromising the quality of services highlights the significant scope for optimization in many countries in the region. Nevertheless, attaining this objective necessitates a resolute dedication to enhancing institutional caliber and implementing structural reforms that empower governments to administer their resources in a more efficacious manner. It is only through the establishment of robust institutions and the implementation of effective public administration that sustainable economic growth and enduring social well-being for all citizens of the European Union can be achieved.

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