ARTICLES

CENTRAL EUROPEAN REVIEW OF ECONOMICS & FINANCE
Vol. 45. No 4 (2023) pp.146-162
DOI https://doi.org/10.24136/ceref.2023.029

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AN EMPIRICAL ANALYSIS OF THE GRANGER CAUSALITY BETWEEN THE PUBLIC DEBT AND THE LEVEL OF INFLATION IN SELECTED EUROPEAN COUNTRIES IN THE PERIOD 1990-2022

Abstract

While growing debt is not a problem for governments in the environment of low interest rates, such a high level of inflation, which makes debt servicing easier, may have a number of unfavorable consequences. The aim of this article is to verify the existence of causal relationships between the amount of public debt and the inflation level of selected countries. The conducted empirical study is based on the concept of Granger causality, which is one of the possible methods for examining interdependencies. The results of the study proved the occurrence of statistically significant granger causality in both groups of countries, i.e. those characterized by both high and low levels of debt.

Keywords: public debt, inflation, Granger causality

JEL Classification: C1, G28, H63.

Introduction

Throughout the last fifty years, cycles of accumulating debt have consistently surfaced in the global economy, affecting both advanced economies and emerging markets. In the aftermath of the global financial

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crisis, a fresh wave of debt has emerged, culminating in a historic pinnacle where global debt has soared to around two hundred thirty eight percent of the global Gross Domestic Product by the year 2022.

When explaining the essence of the budget deficit, considerations can be based on three basic theories or paradigms: neoclassical, keynesian and ricardian (see e.g.: Barro, 1989; Bernheim, 1989; Eisner, 1989; Gramlich, 1989; Santos, 1991). It is emphasized that accumulating debt involves both advantages and disadvantages. The benefits depend on how effectively debt is used, the economic cycle, and the level of financial market development. Budget deficits play a role in energizing the economy when the output falls short of full employment levels. Conversely, the downsides include interest payments, the risk of debt distress, constraints on policy flexibility and effectiveness, the potential crowding out of private sector investment and an excessive increase in inflation beyond the level that brings benefits to the economy. The optimal levels of debt depend on specific country characteristics, financial market conditions, government and private entity behavior, and the multifaceted roles that debt plays.

Public debt and the consumer price level are intertwined through various transmission channels, forming a two-way relationship. The influence of the public debt on inflation involves several transmission mechanisms, taking into account effects on money supply, overall demand, and the central bank's role.

Debt-financed government spending stimulates immediate overall demand, potentially leading to long-term inflation. This can occur directly e.g. through the central bank's purchase of public bonds or indirectly through private sector demand for public bonds, accompanied by a concurrent expansive monetary policy aimed at stabilizing rising interest rates. Another indirect channel concerns the banking sector's demand for public bonds.

The potential risk of insolvency of the public finance sector, that come with this, may consequently lead to an increase in market interest rates and tax burdens. In the face of this risk materializing, the rising costs of obtaining funds to cover the budget deficit may lead to price increases, especially if these circumstances are accompanied by a decline in trust in the state.

It is needed to mention the crowding effect, i.e. competition for financial resources on the bank loan market between the public sector and enterprises, which may also affect the level of inflation. Restricted access to credit stimulated by a high level of debt may lead to a decline in economic activity, which, on the one hand, may reduce inflationary pressure, on the other hand, may encourage enterprises to transfer financing costs to product prices, thus leading to an increase in inflation.

Moreover, debt monetization, i.e. the conversion of assets into money by financing it on the primary or secondary market, should be indicated as a source of the impact of public debt on inflation too. Such actions lead

to an increase in the money supply, which in turn may generate inflationary pressure.

It is crucial for the stability of public finances to maintain a balance between the benefits of inflation and the possible threats resulting from it, such as increases in interest rates or exchange rate fluctuations.

This paper presents an empirical framework for examining the causality between public debt and inflation and is motivated by global inflation trends and domestic economic indicators. The study aims to explore whether changes in public debt levels precede and provide information about subsequent variations in inflation. Through empirical analysis and employing Granger causality tests, the article seeks to contribute to the understanding of the dynamic interplay between public debt and inflation, shedding light on the potential causal links between these two economic variables. The empirical analysis is subordinated to the research hypothesis according to which a high level of debt is a factor stimulating a causal relationship in the Granger sense.

The dataset encompasses a total of forty European countries, with the observation period spanning from 1990 to 2022. The choice of countries was dictated by the desire to include in the sample economies with a moderate level of public debt and inflation as well as those with high levels of those variables. Classification into developed and developing and emerging countries was extracted from the IMF.

The variables utilized in the estimations are historical series for public debt presented as a percentage of GDP, converted into real terms by multiplying with the respective real GDP and inflation which is derived from the logarithmic difference of the Consumer Price Index. Data for the study was sourced from two primary databases: the World Bank database and the IMF's International Financial Statistics database.

The paper's organization is as follows: Section 2 delves into relevant literature, providing a background context. Section 3 outlines the empirical methodology and the next one concenrs prelimary data analysis. The primary focus of the paper is Section 5, where the dynamics of public debt of a choosen countries and its relation with the inflation rate are comprehensively analyzed. Finally, Section 6 offers concluding remarks.

1. Analyzing the Nexus between Government Debt and Inflation: A Comprehensive Literature Review

The dimensions and endurance of fiscal deficits, coupled with their fluctuations across time and nations, have become a focal point in both theoretical and empirical realms. Primarily, the focus lies on the origins of these enduring deficits and their consequential effects on public debt. These deficits are identified as instigators of money supply expansion, prolonged inflation and macroeconomic instability. Analyzes presented

in the literature suggest that the impact of public debt on the level of inflation is noticeable, but it is usually associated with specific conditions. And the question of whether the budget deficit contributes to inflationary pressures or no has been discussed by many researchers.

In accordance with Sargent & Wallace (1984), heightened public debt levels are commonly associated with inflation, especially in countries with substantial existing indebtedness. They claimed that the connection between inflation and budget deficits hinges on how these deficits are funded – specifically, the degree of monetization involved. Understanding whether fiscal deficits result in elevated inflation rates depends on the interplay between the independence of monetary policy and the dependence of budget policy.

Ghura & Hadjimichael (1996), in their analysis of a substantial sample of sub-Saharan African countries spanning 1981-1992, illustrate an inverse correlation between economic growth and macroeconomic stability. This stability is gauged by the inflation rate and the fiscal deficit as a percentage of gross domestic product.

The macroeconomic consequences of government debt in the United States during the 1980s and 1990s using variance decompositions and impulse response functions were explored by Wheeler (1999). The study assesses the Ricardian Equivalence hypothesis by investigating the influence of government debt on interest rates, the price level, and output. The findings indicate that government debt exerts a statistically significant negative impact on interest rates, the price level, and output.

The main finding from Reinhart et al. (2003) revolves around the concept of debt intolerance. The authors argue that certain countries, especially those with a history of high inflation, tend to be more susceptible to negative consequences when their debt levels surpass a certain threshold. They identify a critical threshold level of government debt relative to GDP, beyond which countries with a history of high inflation are likely to face significant economic challenges. The study suggests that when a country's government debt exceeds around 90% of its GDP, the negative impact on economic growth becomes particularly pronounced. Countries with a history of high inflation are deemed "debt intolerant" because, once they breach this threshold, they experience a substantial decline in economic growth. The findings underscore the importance of considering a nation's historical context, especially regarding inflation, when evaluating the consequences of high levels of public debt.

Kannan & Singh (2009) investigate the policy conduct and stability of public debt in India by examining the dynamic interplay of deficits and debt with macroeconomic variables like inflation, interest rate, trade gap, and output. They employ a 2SLS simulation technique for the period spanning 1971 to 2006. The results of the study reveal that fiscal deficits

and debt exert a detrimental influence on all the macroeconomic variables considered, particularly in the medium to long run.

The study of Reinhart et al. (2010) suggests that countries with elevated levels of government debt may face a higher risk of experiencing inflationary pressures. While the primary emphasis of the study is on the negative impact of high debt on economic growth, Reinhart and Rogoff also highlight that inflation is one of the challenges associated with excessive government debt. The study indicates that countries with high debt levels may resort to inflationary policies as a means of managing and reducing their debt burden. It's important to note that the findings of the study have been subject to scrutiny and criticism, particularly regarding data errors and methodological issues. The debate surrounding the accuracy and robustness of the results has led to a reevaluation of the study's conclusions. Subsequent research has provided alternative perspectives on the relationship between government debt and inflation.

The influence of government debt maturity on inflation using a dynamic stochastic general equilibrium model was investigated by Faraglia et al. (2012). The variables considered in their analysis included Fiscal Insurance, Fiscal Sustainability, Government Debt, Inflation, Interest Rates, and Maturity. The findings indicated that the persistence and volatility of inflation are contingent on the sign, size, and maturity structure of government debt. Even with long bonds, inflation's role in achieving debt sustainability remains notably incomplete. The study concluded that while issuing long-term debt allows governments to utilize inflation for fiscal sustainability, the length of debt maturity directly correlates with the volatility and persistence of inflation. Despite this relationship, the impact of inflation on fiscal sustainability is relatively modest, regardless of maturity length. The study emphasizes that a more substantial contribution to debt stabilization comes from adjusting interest rates.

Essien et al. (2016) found that over the period 1970-2014, the level of domestic debt had no significant impact on the overall price level and production in Nigeria. The results of the impulse response analysis indicated that the prime lending rate and the consumer price index (CPI) responded positively to shocks from foreign debt innovations, but exhibited a negative reaction over time to shocks from innovations in domestic debt. This observation confirmed the inflationary tendencies associated with heightened public borrowing, leading to increased government expenditure and consequential changes in interest rates due to the expansion of credit to the government, which, in turn, crowds out private borrowing.

Several authors employ Granger causality tests to examine the impact of budget deficits on inflation. The study of Dwyer (1982) proved the well-established positive correlation between inflation and government deficits in the United States since World War II. The author tested three prominent

explanations for this correlation: a deficit induces price increases through a wealth effect; a deficit leads to the Federal Reserve purchasing debt, thereby elevating the money supply and prices and anticipated inflation causes an increase in the deficit defined as the change in the nominal value of bonds. The findings do not support the first two hypotheses, indicating that expected government deficits do not hold significance for future inflation.

The dynamic relationship between inflation, external debt, domestic debt and exchange rates in Malaysia from 1960 to 2014 were examined by Yien et al. (2017). Key findings include a strong positive association between inflation and both domestic and external debt, a weak positive association between exchange rates and inflation and the identification of one long-run relationship through cointegration tests. Granger causality tests reveal a unidirectional relationship, with domestic debt causing inflation, exchange rates causing inflation and domestic debt causing exchange rates, in the Granger sense. The heightened external debt, causing exchange rate changes, is identified as a factor leading to inflation. In the long run, exchange rates significantly influence inflation. The study underscores the need for policymakers to formulate prudent policies, particularly during periods of high inflation.

Despite extensive research on the connection between debt and inflation, there is a lack of consensus, both theoretically and empirically, about the general essence of the relationship between public debt or budget deficits on the inflation. The question about the precise economic implications of this phenomenon is still open so there is the constant need of new research regarding this area.

3. Theoretical Frameworks for Granger Causality

The concept of causality formulated in 1969 by Clive Granger, based on theoretical foundations previously developed by Wiener (1956), is a popular direction of considerations in the field of relationships between economic processes.

Finding a relationship between variables via the regression analysis doesn't confirm the direction of influence or causality. However, in time series regression, the sequence of events matters: if event A precedes event B, A might cause B, although B causing A is also plausible. Past events can influence present occurrences, but future events cannot.

The Granger Causality test embodies this notion, though the concept of causality is philosophically complex and contentious. Some argue that "everything causes everything," while others reject the notion of causality entirely. Edward Learner prefers the term "precedence" over causality, and Francis Diebold suggests "predictive causality" as an alternative.

The linear version of the Granger test is used for detection causality in the mean. The use of econometric models to modelling conditional mean

of the endogenous variable essentially boils down to searching for a systematic, repeatable relationship between processes that could be used, among others. in the process of forecasting. The Granger causality concept extends beyond the quest for a variable that enhances forecast accuracy in a model.

Let X_t and Y_t be a representation of stochastic processes and let $\Omega_t = \{X_{t-j}, Y_{t-j}; j > 0\}$ be the set of all information from the past available at time *t*, while $\Omega_t \backslash Y_t$ is the same set of information minus the information regarding the Y_t process. The occurrence of Granger causality in the mean, called systematic causality, will be said to occur when the following inequality will be true:

$$E\{X_t|\Omega_t \backslash Y_t\} \neq E\{X_t|\Omega_t\}. \quad (1)$$

The basis of the procedure for testing causality in the mean is the Pierce and Haugh test, which boils down to the analysis of the cross-correlation coefficient of two processes $x_t$and y_t:

$$\rho_{xy}(k) = \frac{E(x_{t-k}y_t)}{\left(E(x_t^2)E(y_t^2)\right)^{0,5}}. \quad (2)$$

The null hypothesis assumes the independence of both processes, i.e. $\rho_{xy}(k) = 0$, and the test statistic takes the following form:

$$T^{PH} = n\sum_{k=1}^{m}\widehat{r_k^2} \sim \chi_m^2, \quad (3)$$

where: $\widehat{r_k^2}$ is the estimated cross-correlation coefficient.

4. Preliminary Data Analysis

In the current era of low interest rates and sluggish global growth, there's a heated discussion surrounding the advantages and drawbacks of increasing government debt to support elevated spending. Borrowing can offer benefits, especially in economies facing significant developmental hurdles, if the funds are allocated towards growth-boosting investments like infrastructure, healthcare, and education. Additionally, accumulating government debt can serve as a temporary measure in counter-cyclical fiscal policies aimed at stimulating demand and economic activity during downturns.

However, the accumulation of high levels of debt poses considerable risks as it renders economies more susceptible to external shocks. During periods of financial strain, servicing debt obligations and refinancing can become increasingly challenging, potentially leading to crises. Moreover, elevated government debt levels may restrict the capacity and efficacy of fiscal stimulus measures during economic contractions and could impede long-

term growth by placing a burden on productivity-enhancing private investments.

In 2022, global public debt witnessed a reduction of 3.6 percentage points, settling at 92 percent of GDP, slightly surpassing USD 91 trillion according to Table 1. Despite this decrease, the overall decline of 8 percentage points over the past two years only mitigated approximately half of the surge in public debt attributed to the pandemic. Notably, the global public debt level remained 7.5 percentage points higher than its pre-pandemic level in 2019.

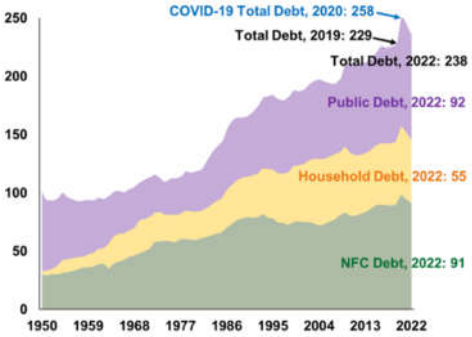
Table 1. Global Public Debt in the period 1980–2022 (percent of GDP, weighted averages)

	1980s	1986s	1990s	2000s	2004	2010s	2019	2020	2021	2022
World	47.6	54.3	62.0	66.5	69.8	81.0	84.9	100.4	96.0	92.4
Advanced Economies	50.7	57.5	66.4	75.3	76.8	104.6	105.4	124.4	118.7	113.5
Euro Area	47.0	52.1	67.0	69.9	69.7	90.9	85.9	99.2	97.3	93.2
Japan	64.3	74.0	89.0	166.6	169.5	227.5	236.4	258.7	255.4	261.3
United Kingdom	40.3	41.0	38.1	42.6	39.8	84.7	85.5	105.6	105.9	101.4
United States	51.6	57.7	66.3	64.1	66.1	104.1	108.7	133.5	126.4	121.4
Emerging Market Economies	35.6	40.2	41.5	40.9	44.1	44.3	55.7	65.8	64.8	65.2
China			21.2	26.9	26.4	44.3	60.4	70.1	71.8	77.1
Others	38.6	45.8	46.3	44.7	49.0	44.0	52.0	61.9	58.4	55.3
Low-income Developing Countries	36.2	43.2	64.8	45.8	51.2	34.8	42.9	48.5	48.5	48.4

Source: IMF Global Debt Database, 2023; World Economic Outlook, April 2023.

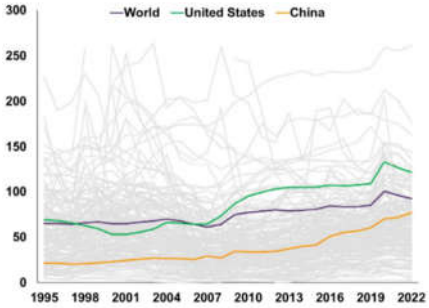
Global debt dynamics revealed distinctive trends among various country groups. In 2022, Advanced Economies saw a substantial debt reduction, down by 5 percentage points to 113,5% of GDP. This was driven by a slowdown in public debt influenced by tighter monetary policy. Despite a 3 percentage point decrease in public debt, it still stood 3.3 percentage points higher than the pre-pandemic level in 2019 at 55 percent of GDP. In contrast, China witnessed a notable 7.3 percentage point increase in debt to 272 percent of GDP, marked by significant rises in both public and private debt.

Figure 1. Global Public and Private debt, 1950-2022 (Percent of GDP)



Source: IMF Global Debt Database, 2023; World Economic Outlook, April 2023.

Figure 2. Global Public Debt, 1995-2022 (percent of GDP)*



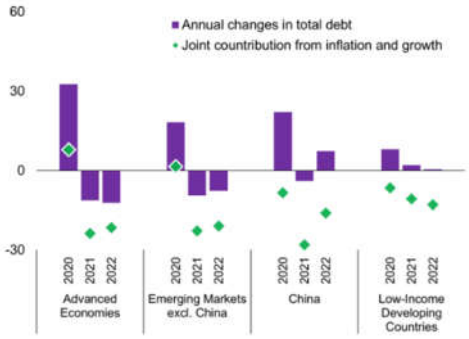
*Debt-to-GDP ratios above 300 percent are not shown.
Source: IMF Global Debt Database, 2023; World Economic Outlook, April 2023.

Global total debt experienced a decrease of 10 percentage points as a share of GDP in 2022, reaching 92 percent of GDP, as illustrated in Figure 1. This decline equated to a total of USD 235 trillion in dollar terms. However, the public debt declined by 4 percentage points as a share of GDP. Over the past two years, the reduction in global debt amounted to 20 percentage points of GDP, driven by a resurgence in economic activity following the initial pandemic-induced contraction and higher-than-anticipated inflation. Notably, this reduction accounted for approximately two-thirds of the substantial surge in global debt witnessed in 2020 during the peak of the pandemic.

Figure 3. Sovereign Spreads, 2019-2023 (basis points)

Source: IMF Global Debt Database, 2023; World Economic Outlook, April 2023.

Figure 4. Contribution of real GDP growth and inflation to annual changes in debt, 2020–2022 (percentage points of GDP)



Source: IMF Global Debt Database, 2023; World Economic Outlook, April 2023.

The global debt-to-GDP ratios had been consistently increasing for several decades, as illustrated in Figure 2. Despite fluctuations, the overarching trend reveals a continuous rise. Since the early 1980s, global public debt has tripled, escalating from approximately 30 percent of GDP to surpass 90 percent of GDP by 2022.

Public debt in low-income developing countries remained steady at 48 percent of GDP. In the case of many countries heavily reliant on foreign borrowing, the depreciation of exchange rates exacerbated their debt burdens. Confronted with heightened financing requirements in the post-pandemic aftermath and compelled to address the cost-of-living crisis, the task of debt reduction has grown more formidable for those countries. These challenges have negatively impacted risk perceptions, influencing market access and contributing to more stringent financing terms in markets (see Figure 3).

A pivotal role in shaping global debt dynamics in recent decades played China. While the impact of COVID-19 on China's debt is less conspicuous in comparison to other countries, what stands out is its prolonged and rapid accumulation of debt over several decades. The total debt-to-GDP ratio in China surged nearly fourfold, starting from approximately 21,2 percent in the mid-1990s. The unparalleled ascent of China's debt-to-GDP ratio became markedly steeper from 2009 onwards (see Figure 2). When comparing historical data it becomes evident that a substantial portion of the global debt increase from 2008 to 2022 is attributed to China's exceptional rise above the rest of the world. In fact, over half of the global debt-to-GDP ratio increase

during the period can be linked to the rapid escalation in China's debt-to-GDP ratio.

The investigation into the Granger causality between the public debt level and inflation commenced with an assessment of the integration status of the examined processes. The utilization of stationary time series was imperative given the adopted methodology. The implications of appraising causality in non-stationary time series were deliberated by notable researchers such as Granger (1981) or Phillips (1986).

5. Empirical Findings on Granger Causality Links Between Public Debt and Inflation

The examination of the causal relationship on average in Granger sense, between the levels of public debt and inflation in the analyzed countries initiated with checking stationarity of the analyzed variables and the Augmented Dickey-Fuller test was adopted into it. The findings indicate that both consumer price index and public debt were non-stationary at the initial level. However, they exhibited stationarity after undergoing the first difference, signifying integration of order one at a significance level of five percent. This suggests the potential existence of a significant cointegration relationship among the variables. Notably, all variables are expressed in logarithmic form.

Initially, the investigation sought to determine whether public debt serves as a Granger causal factor for the inflation levels in the analyzed countries. The outcomes of the tests are detailed in Table 2.

Table 2. Results of testing the null hypothesis indicating that the public debt does not serve as a Granger causality factor for the inflation*

Group	Country	Statistics		Statistics
Advanced Economies	Finland	11.057 (0.621)	Portugal	32.029 (0.032)
	Great Britain	23.043 (0.233)	Germany	25.054 (0.001)
	France	15.092 (0.621)	Spain	27.291 (0.037)
	Sweden	33.402 (0.021)	Greece	41.092 (0.002)
	Italy	27.021 (0.027)	Ireland	38.271 (0.041)
Emerging and Developing Economies	Romania	10.038 (0.754)	Poland	17.921 (0.047)
	Hungary	12.021 (0.429)	Bulgaria	11.013 (0.422)

*p-value is given in brackets.
Source: author's own elaboration.

Concerning the economies under examination, the analysis reveals a Granger causality relationship between public debt-to-GDP ratios and inflation in the case of Sweden, Italy, Portugal, Germany, Spain, Greece, Ireland, and Poland. Notably, this relationship is observed in also "fiscally conservative" nations with notably low levels of public debt, exemplified by

Sweden, where the public debt-to-GDP ratio stood at 33 percent in 2022. Conversely, among countries characterized by substantially higher debt levels, the Granger causality relationship was confirmed especially in Greece representing the highest ratio of public debt to GDP among all considered countries equals to 172,6 percent and in Italy with the level of debt equals to 141,7. These countries are under scrutiny by the European Commission.

Public deficits may contribute to higher inflation, particularly when accompanied by expansive monetary policies that increase the money supply. The relationship between national debt and inflation is influenced by various factors, including the liquidity conditions of the banking sector and the independence of the central bank. A lower level of central bank independence may heighten the risk of debt-induced inflationary pressures.

The source and nature of government borrowing, whether domestic or foreign and from private or institutional investors play a significant role in shaping inflation dynamics and could be one from possible explanations of the observed regularities. Evaluations of public bonds by investors hinge on factors such as government solvency, including its ability and willingness to repay debt. Recent examples, such as Greece, underscore the importance of sustainable public debt levels, as unsustainable levels can undermine financial credibility and access to credit markets.

Table 3. Results of testing the null hypothesis indicating that the inflation does not serve as a Granger causality factor for the public debt*

Group	Country	Statistics		Statistics
Advanced Economies	Finland	23.902 (0.044)	Portugal	9.201 (0.301)
	Great Britain	18.021 (0.710)	Germany	12.091 (0.239)
	France	28.329 (0.003)	Spain	16.032 (0.117)
	Sweden	24.007 (0.121)	Greece	25.921 (0.011)
	Italy	27.831 (0.238)	Ireland	22.019 (0.172)
Emerging and Developing Economies	Romania	13.092 (0.745)	Poland	10.038 (0.826)
	Hungary	17.023 (0.439)	Bulgaria	12.023 (0.428)

*p-value is given in brackets.
Source: author's own elaboration.

The empirical validation of whether inflation serves as a Granger cause of public debt indicates a statistically significant causality only in few cases as France, Greece and Finland. This observation aligns with the notion that elevated inflation which tend to exert a substantial influence on the growth of the money supply. In periods of high inflation, the government seeks to acquire resources from the private sector by accelerating the printing of money and spending it at a rate surpassing the inflation rate, thereby compensating for the rapid decline in real revenues. This establishes a robust bidirectional correlation between the growth of money supply and

inflation. This, in turn, can impact the level of nominal public debt. Conversely, when inflation is low, its impact on fiscal deficits is less pronounced, potentially resulting in a weaker causal relationship from inflation to money supply growth that may not be discernible through statistical testing.

In summary, the examination of time series data for the countries included in the analysis indicates that, in general, the public debt-to-GDP ratio serves as an indicator for the price level only in select cases. The group of countries exhibiting statistical significance in this relationship encompasses nations characterized by both low and high public debt-to-GDP ratios.

6. Conclusions

The study delved into the causal relationship between public debt and inflation. The literature review underscored that the impact of public debt on the level of inflation is noticeable, but it is usually associated with specific conditions. The main findings of the empirical analysis pointed to a causal relationship between public debt and GDP. This insight allows us to conclude that, based on the amount of public debt, conclusions can be made about the level of inflation in countries such as Greece, Italy and Portugal, for example, countries with different levels of debt. Thus, no confirmation was found for the research hypothesis adopted in the paper.

Achieving sustained long-term economic growth through the use of budget deficit as a fiscal policy instrument necessitates strengthening monetary, industrial, and commercial policies to keep the economies in balance. Enhanced policy coordination across government branches is crucial, emphasizing the complementary nature of monetary and fiscal measures. Maintaining stringent fiscal discipline at all government levels is imperative. Recognizing inflation as a monetary phenomenon in some of the analyzed countries the effective utilization of budget deficits requires fundamental changes in the productive base of the economy.

The effective use of debt to yield positive outcomes hinges on its judicious allocation towards initiatives that genuinely enhance output, coupled with resilience to factors like maturity, currency, and creditor composition, especially in the face of economic and financial market disruptions. Achieving this requires not only prudent government debt management but also the implementation of robust regulations and supervision in the financial system, alongside a commitment to sound corporate governance principles. A prompt and effective response to external shocks, particularly in the presence of domestic vulnerabilities, is crucial, as private debt can rapidly evolve into public debt during periods of financial stress. Timely resolution of debt distress is imperative to prevent prolonged periods of economic weakness.

Regarding the relationship between debt and inflation, addressing this aspect involves considering four overarching strategies. Firstly, governments

should establish mechanisms and institutions enabling them to strike an appropriate balance between the benefits and costs of additional debt, incorporating sound debt management practices and maintaining high debt transparency. International creditors can contribute by implementing prudent lending standards, ensuring risk is appropriately distributed, and verifying the productive use of debt.

Secondly, the importance of stability-oriented and resilient fiscal and monetary policy frameworks cannot be overstated, particularly in the context of managing inflationary pressures associated with debt. Thirdly, policies related to the financial sector should be tailored to encourage responsible private sector borrowing, necessitating robust supervisory and regulatory frameworks, along with corporate and bank bankruptcy frameworks that facilitate prompt debt resolution to minimize the impact of debt distress. Lastly, the implementation of strong corporate governance practices and effective bankruptcy and insolvency regimes is essential, considering their role in influencing the relationship between debt and inflation.

As a direction for further research, it would be worth considering verification of the impact of the public debt structure on inflation processes, taking into account the state of the country's economic situation, as it is one of the determinants of the impact of public debt on inflation.

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