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THE IMPACT OF EXTERNAL DEBT ON POLAND'S ECONOMIC GROWTH

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Purpose: The primary purpose of this paper is to examine the relationship between external debt and economic growth in Poland for the period 2004-2021.
Design/Methodology/Approach: The study uses quarterly, secondary data spanning from 2004 to 2021. The data gathered in the research were analysed using the ordinary least squares (OLS) regression and backward stepwise regression model.
Findings: The empirical results of research show that relationship between changes in ratio of external debt stock to GDP and economic growth is positive but not significant in period 2004-2021. This suggest that foreign borrowing minimally contributes to economic expansion of Poland. Furthermore, the results for the control variables indicate that trade openness and investment have a positive and significant effect on economic growth, whereas financial development and inflation negative.
Practical Implications: Understanding variables that influence countries' economic growth is essential for designing appropriate economic policies, including debt management strategy. The research results can be used to formulate debt management strategy, which helps to minimalize risk connected with foreign borrowing. Poland should decrease dependence on external debt and increase reliance on domestic savings and other non-debt creating inflows. In addition, the results of study provide a reasonable basis for further research on the influence of the foreign debt' composition on economic expansion of the country.
Originality/Value: The nexus external debt-economic growth is widely debated by researchers, however until now, little research has been done about this relationship in Poland.

Keywords: external debt, economic growth, Poland.

JEL classification: F34, F4.

Paper type: Research study.

1. Introduction

The prime objective of economic policy of most countries is to attain sustained economic growth. Dynamic and growing economy can help to reduce poverty, lead to new and better employment opportunities, improve living standards of people and provide a foundation for achieving environmental and social goals. Hence, understanding variables that influence countries' economic growth is essential for designing appropriate economic policies, including debt management strategy.

Economic growth is influenced by many determinants. The neoclassical theory emphasized the importance of capital accumulation for economic growth. Economies have both internal and external sources of capital to fund investment needs, and a combination of them can be used to foster economic expansion. External debt financing is one of external resources that affects economic growth. Despite numerous studies on this nexus, the impact of external debt on economic growth is still inconclusive. According to economic theory external debt contributes positively to economic growth, both through capital accumulation and productivity growth. However, large accumulated external debt may be a threat to the economic stability and an obstacle to growth (Pattillo, Poirson, Ricci, 2002).

Until now, little research has been done about relationship between external debt and economic growth in Poland. Previous literature on external debt have focused mainly on low income economies, individually or sets of countries. Moreover, studies that have analysed the impact of external debt on economic growth are ambiguous, with mixed results. The relevance of such a study is becoming increasingly important, as over the past few decades, the Poland's external debt has increased significantly, making the debate on its role in financing the development process, crucial.

The paper aims to examine whether there is a link between economic growth and external debt in Poland. For this purpose, quarterly time series data for the period from 2004 to 2021 have been used.

2. An overview of the literature

The issue of external debt and its relationship with economic growth has brought about an increasing literature. However previous studies indicated different results regarding the impact of external debt on economic growth in various countries or group of countries. Economic theories suggest that a reasonable level of debt should help both, developing and developed countries enhance their economic growth (Al Kharusi, Ada, 2018). External debt is one of the sources of financing capital formation in any economy. The main benefit associated

with the inflow of foreign debt is a possibility of increasing capital supply that permits a country to invest more than it can save domestically. Import of capital is especially important in developing countries, where limited stocks of capital – preventing many investments, is a barrier to economic growth. Increasing investment outlays, in turn, should bring positive macroeconomic effects in the form of an increase in production and employment, which will enable the improvement of the living conditions in the country, that imports capital. Import of capital is especially important in developing countries, where limited stock of capital – preventing many investments, is a barrier to economic growth.

According to (Dey, Tareque, 2019) external borrowing is not a negative issue for a country until it can generate higher returns than the cost of borrowing.The benefits resulting from gathering external debt depend mainly on optimal allocation of the externally sourced fund. Theoretically, a country will benefit from the positive effect of external debt, if it has been efficiently allocated to productive investment, resulting in a higher rate of growth. Increases in domestic income and export earnings are expected to cover the servicing of outstanding debt obligations.

However the strategy of accelerating economic growth, through accruing external debt may turn out to be risky (Ciftcioglu, Sokhanvar, 2018; Dey, Tareque, 2019; Soydan, Bedir, 2015). In the literature relating to the potential negative effect of a foreign debt on growth, the principal channel by which large debt is thought to hinder growth is the so-called "debt overhang". Debt overhang for a country exists when the country's debt service burden is so heavy, that a large portion of the current output accrues to foreign lenders and consequently creates disincentive to invest (Sen, Kasibhatla, Stewart, 2007).

Debt burden can affect country's growth through other channels. It is argued that external debt service payments can potentially influence economic growth by creating a "crowding out" effect. According to this view, high debt service payments can directly crowd out investment by preventing a country from devoting resources to productive investment areas (Soydan, Bedir, 2015). High debt service, in the absence of sufficient export earnings or other forms of capital inflows, can also lead to reduced import, resulting in lower investment and growth (Serieux, Yiagadeesen, 2001). In addition, increases in the debt burden imply that a higher default risk might become a concern for creditors. Due to the fear of losses, creditors might require a higher borrowing cost premium and discourage capital flows, leading to future growth slowdowns (Wang, Xue, Zheng, 2021). The effect of debt can vary from developed to developing countries. (Presbitero, 2012) found that industrialized countries are better than developing countries at using debt in a productive way by utilizing it in added value projects and thus avoiding the risks attributed to debt .

High external debt can be a source of vulnerability to external shocks. With the globalization of financial markets, capital has become more mobile, which means that countries with foreign debt became particularly vulnerable to risks associated with "sudden stop" in capital flows. Rapid changes in the directions of capital's movement bring about very serious consequences for the economy, especially the stability of the financial sector. They may cause changes in the level of foreign exchange reserves of the country, cause disruption in the process of money creation and large fluctuations in exchange rates. One of the most serious consequences of a "sudden stop" may be the financial crisis, with large adverse effects on economic activity.

Moreover, the globalization of financial markets means that the outflow of capital from one country can cause disturbances in another country, even if it has maintained stable macroeconomic policies. This situation can not be predicted, as investors hold portfolios composed of securities purchased in different countries. They may want to offset losses incurred in one market by reducing investments in other countries.

In the empirical literature, a positive impact of external debt on economic growth was found by (Khursheed, Siddiqui, 2016) who examined this relationship for the eight countries in the South Asia during twenty years, from 1994 to 2014. Their findings confirm the importance of external debt for increasing the economic growth of the South Asian countries. Similar results were found by (Mohd, Halim, Azman-Saini, 2013) who analysed the contribution of external debt to Malaysia's economic growth. The results showed that that the accumulation of external debt is associated with an increase in Malaysia's economic growth up to an optimal level, however an additional increase of external indebtedness beyond the level has inversely contributed to the Malaysian economy.

The positive relationship between external debt and economic growth was also revealed by (Joshua, Adedoyin, Sarkodie, 2020) who analysed the impact of external debt among other external factors, like trade openness, exchange rate on GDP growth and found that all the variables exerted a positive influence on economic expansion in South Africa. This suggests that external capital used to balance the gap between savings and investment would bring positive yields. (Patillo, Poirson, Ricci, 2004), empirically studied the relationship between total external debt and the growth rate of GDP for developing countries and found that it depends on the level of debt. At low levels of debt, the effect of debt is generally positive but often insignificant for growth, whereas negative at high levels of debt. Moreover the growth of already high debt reduces significantly physical capital accumulation and total factor productivity, while low debt seems to positively influence total factor productivity and negatively – capital.

Some studies have found no causal relationship between debt and economic growth. (Ogunmuyiwa, 2011) sought to determine whether external debt can promote economic growth in Nigeria. Empirical results have failed to establish causality between external debt and growth. Hence, it can be stated that external debt is not a specific factor determining the rate of economic growth or economic slowdown in Nigeria.

The existence of a negative relationship between external debt and growth was revealed by numerous studies. Most of them examined this nexus in low-income economies to make rational suggestions to policies aimed at sustainable development and economic growth for developing countries. (Sen, Kasibhatla, Stewart, 2007) results support the ''debt overhang'' hypothesis for Latin American and Asian borrowers. Their study provides strong evidence, that a high level of external debt causes a significant slowdown of economic growth in the Latin American countries. On average, economic growth in these countries has been approximately 2% below what it would have been without the heavy external debt burden. The debt overhang reduces Asian growth as well, but to a much lesser extent. Growth in capital formation contributes positively to economic growth in both regions. Findings by (Prasad, Shanker, 2017) also concluded that external debt has had a negative impact on India's economic growth from 1990 to 2016, what may be regarded as a loose verification of the debt overhang problem in India.

(Safwat, Salah, El Sherif, 2021) investigated how total foreign debt impacts the economic growth of Egypt for a time period of 39 years (1980-2018). The study found that total foreign debt as a percentage of GDP exerts a significant negative impact on the Egyptian economic growth in the long run and an insignificant impact in the short run. Furthermore, the results for the control variables show that the Egyptian economic growth is positively impacted by trade openness, while negatively by financial development, real interest rate, inflation rate and exchange rate.

Stungwa (2022) examined the relationship between external debt and economic growth in South Africa for a period from 1994 to 2020. Long run relationship was not found. The short run findings of the study state that there is a 0.198 drop in GDP growth for every 1% increase in the external debt stock, and there is a 0.288 boost for every 1% decrease in the external debt stock. When the foreign debt stock value is positive, GDP increases faster than when it is negative, whereas falling foreign debt leads to faster GDP growth than rising external debt.

Dey and Tareque (2019) analysed the external debt-growth relationship in a macroeconomic context and found the negative impact of external debt on GDP growth in Bangladesh, but the larger positive impact of newly constructed macroeconomic policy (MEP) index. This variable was used to analyse the effectiveness of economic policies in using external debts. Their results indicate that adverse effect of debt can be mitigated or even nullified by sound MEP and appropriate human resource policy, what allows the formulation of interesting policy conclusions.

One of the few studies that have focused on analysing the nature of the relationship between external debt and economic growth specifically for a sample of Central and Eastern Europe countries, including Poland, is (Ciftcioglu, Sokhanvar, 2018). The paper provides evidence of a statistically significant negative correlation between external debt and economic growth for an average country in a sample of CEE countries over the sample period of 1995-2014. This finding suggests that an increase in the stock of external debt is associated with lower growth rates of real GDP and per capita real GDP. However significant causal effect of foreign

borrowing on economic growth for a specific country was found in eight of the twelve investigated countries and for remaining four (Poland among them) the existence was not revealed.

Until now the empirical evidence on the nexus between debt and growth in developed countries is scarce. Developed countries usually have not only large foreign liabilities but also foreign assets, which reduce the risk attributed to external finance. However recent global financial crisis and following European sovereign debt crisis has brought attention from researchers to external debt problems in developed countries. According to (Gros, 2011) public debt is not a sufficient explanation of financial problems in EU periphery countries. Belgium, despite of debt-to-GDP ratio much higher than that of Portugal, has not experienced a crisis. He focuses on the importance of external debt in explaining the causes of the crisis, pointing out that Belgium, in contrast to Portugal, is a net creditor towards the rest of the world. The same conclusions can be found in (Silva, 2020) who examined the impact of external debt on the Portuguese economic growth for the 1999-2019 period. He stated that the increasing variation in the Portuguese external debt seems to have been unsustainable up to the European sovereign debt crisis. The rise of external debt was greater than the increase in productivity, investment and private gross value added.

3. Research methods

In line with the objective of this study, to empirically examine the relationship between external debt and economic growth in Poland, secondary, quarterly data, spanning from 2004 to 2021, collected from the Central Statistical Office were used. The selection of period is based on the availability of data. The ordinary least squares (OLS) regression and backward stepwise regression model were used to test the relationship among the selected variables. The estimated model in this work is based on (Ciftcioglu, Sokhanvar, 2018). The empirical analysis is based on the following equitation:

$GR_t = \alpha_0 + \alpha_1 ED_t + \alpha_2 TO_t + \alpha_3 INV_t + \alpha_4 IN_t + \alpha_5 FD_t + u_t,$

where (at time t):

GR_t is economic growth proxied by nominal Gross Domestic Product growth rate.

ED_t is total external debt[1] as GDP ratio.

TO_t is trade openness calculated by adding import to exports in relation to GDP.

[1] While most of previous empirical studies focused on the public external debt we focus on total external debt because this is a proxy for the funding of the economy as a whole (Gros, 2011). The definition of external debt is based on a residency concept and it includes both public and private sector debt. Gross external debt (including both government and private debt owed to nonresidents) is defined as the outstanding amount of actual current, not contingent, liabilities of residents of an economy to creditors outside the country, that require payments of principal with or without interest (IMF External Debt Statistics: Guide for Compilers and Users, 2003).

INV_t is investment rate calculated as a gross fixed capital formation in relation to GDP.
IN_t is inflation rate measured by the consumer price index.
FD_t is financial development proxied by domestic banks credit to private sector taken as GDP ratio.
u_t is stochastic error term.

4. Results of the research

Ordinary least squares (OLS) regression results presented in Table 1 reflect positive impact of total external debt as a percentage of GDP on the Polish economic growth. The estimated regression coefficient of 0,06849 indicates that a 1% increase in external debt will result in a 0,06849 % increase in GDP. This finding is in line with literature which claims that there is a positive relationship between total external debt and growth (Khursheed, Siddiqui, 2016).

Table 1.
The OLS estimation results of modeling Poland's GDP rate in the period 2004-2021

N = 72	R-squared 0,78341612 Adjusted R-squared 0,76700825 F(5,66) = 47,746 p < 0,0000 Standard error 0,04654			
Variables	**Coefficient**	**Std. Error**	**t-Statistic**	**P -value**
Constant	-0.270845	0.070662	-3.83298	0.000285
ED	0.068490	0.097578	0.70190	0.485209
TO	0.202836	0.049652	4.08518	0.000122
INV	1.542469	0.118489	13.01780	0.000000
IN	-0.092292	0.339275	-0.27203	0.786449
FD	-0.355681	0.130026	-2.73547	0.007993

Note. For variables definitions and sources see section 3. The p-values are in fact very small and not equal to 0, which is due to rounding to four decimal places. N – number of observations. Significance was tested for $\alpha = 0.05$.

Source: Author's computation using STATISTICA version 13Software.

However this impact is statistically insignificant. Our results can be supported by (Ciftcioglu, Sokhanvar, 2018) whose overall findings suggest negative effect of external debt for the panel of countries, however with exceptions in the country-specific results, which do not confirm evidence of a statistically significant causal effect of external debt on economic growth in Poland. Similar findings have been obtained by (Ogunmuyiwa, 2011), who concluded that causation between debt and growth was weak and insignificant in Nigeria.

The above results show that trade openness positively and significantly affects the economic growth of Poland. The regression coefficient is 0,20283 which suggests that a 1% increase in trade openness results in a 0,20283% increase in GDP growth. This indicates that greater openness to international trade leads to an increase in the growth rate. The positive impact of an increase of trade openness on economic growth has been demonstrated in many empirical

studies (Safwat, Salah, El Sherif, 2021). (Joshua, Adedoyin, Sarkodie, 2020) reached the same conclusion for South Africa confirming the trade-induced growth hypothesis.

The research revealed that the coefficient of investment is also positive and statistically significant. Specifically, the coefficient of 1,542469 suggests that a 1% increase in investment to GDP is associated with a 1,542469 % increase in GDP growth. This finding is consistent with several economic growth theories, which point to the prominent role of domestic investment as an engine of growth (Keller, Yeaple, 2009; Sen, Kasibhatla, Stewart, 2007).

Inflation rate results shows negative but statistically insignificant impact on Polish economic growth. Many authors have established that at higher levels, inflation has an essential negative impact on economic growth. However, recent studies specifically test for non-linearity in the relationship between inflation and economic growth. That is, lower rates of inflation impact economic growth statistically insignificant or positively, but at higher levels, inflation has a strong negative effect on economic growth (Švigir, Miloš, 2017).

The last control variable, which is financial development, exerts a significant negative impact on the economic growth of Poland. The result contradicts traditional theory which describes financial development as the key of economic growth (Khan, Senhadji, 2000). However this finding is aligned with some recent studies that have shown negative impact of financial development on economic growth (Wen et al., 2021). One possible explanation of this negative effect of financial development could be that our study approximates financial development with one measure of financial depth – the ratio of domestic banks credit to private sector to GDP which is widely accepted variable, however does not take into account the complex multidimensional nature of financial development (Svirydzenka, 2016).

The results show the coefficient of determination (R-squared) is 76.7% which means that the explanatory variables explain 76.7% of the variations in the dependent variable (economic growth). The remaining 23,3% of variations in GDP may be attributed to other factors, which are not included in the model.

The results of modeling GDP based on the backward stepwise regression model confirm the findings of ordinary least squares (OLS) regression (Table 2). In the estimation process external debt as GDP ratio and inflation rate were eliminated due to insignificant impact on Polish GDP growth rate. As with the previous method, there is a significant positive relationship between trade openness, investment rate and economic growth and negative in case of financial development.

Table 2.
The results of backward stepwise regression modeling Poland's GDP rate in the period 2004-2021

N = 72	R-squared 0,78108193 Adjusted R-squared 0,77142378 F(3,68) = 80,873 p < 0,0000 Standard error 0, 04609			
Variables	**Coefficient**	**Std. Error**	**t-Statistic**	**P -value**
Constant	-0.291103	0.064637	-4.50364	0.000027
TO	0.208970	0.047374	4.41110	0.000038
INV	1.552706	0.116738	13.30073	0.000000
FD	-0.274192	0.081813	-3.35147	0.001316

Note. For variables definitions and sources see section 3. The p-values are in fact very small and not equal to 0, which is due to rounding to four decimal places. N – number of observations. Significance was tested for $\alpha = 0.05$.

Source: Author's computation using STATISTICA version 13 Software.

Conclusions

The need to attain strong growth on the one hand and insufficient domestic savings on the other hand, triggered Poland to resort to external debt over the past few decades. Consequently the country's external debt stock has increased significantly and Poland became dependent on foreign capital. The main concern is whether or not external borrowing leads to economic growth. The paper attempts to answer this question.

The results of empirical research show a positive, contribution of external debt to Polish GDP rate. However the coefficient is too low to consider external debt as a significant determinant of expansion of economy. This result could raise the question of whether external borrowing has been effective in raising the economic growth in Poland. The research on the subject should be continued, in order to make the obtained results more detailed. In addition, the results for the control variables indicate that trade openness and investment have a positive and significant effect on economic growth, whereas financial development negative.

The paper allows for interesting policy recommendations. Since external debt contributes minimally to gross domestic product growth in Poland, it is suggested that economic policy should be properly formulated in order to control and maintain the level of external indebtedness at a manageable level before a debt overhang reduces economic expansion. Efforts should be made towards substituting external debt with domestically issued debt. For this strategy to be implemented, it would require competitive and deep domestic financial market. More developed local financial markets would provide government and private corporations with new opportunities to raise funds for investments. However participation of foreign investors on domestic market could create a source of external vulnerability. Another policy suggestion is that, in order to reduce the risks arising from dependence on foreign financing, government should strengthen policies aimed at mobilizing the accumulation of domestic savings to provide financial base for investment and accelerate economic growth.

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