Key Drivers of Economic Growth in Portugal and the Eurozone

Natália Teixeira*

ISG -Business & Economics School, Lisbon, Portugal, CEFAGE and CIGEST
Address: Rua Prof. Reinaldo dos Santos, N.º46 A, 1500-552 Lisboa - Portugal

Abstract
This paper examines the influence of gross household disposable income, tax burden, and savings rates on economic growth in Portugal, providing a comparative analysis with the Euro Zone. Drawing on empirical data from 2000 to 2022, the study employs Pearson correlations, regression models, and ARIMA forecasts to analyse the relationships among these variables. The findings indicate a significant positive correlation between disposable income and economic growth, while Portugal's higher tax burden has a more pronounced negative impact on growth than the Euro Zone. Additionally, the research highlights the critical role of savings rates in driving economic growth, particularly in Portugal, where lower savings rates are partly attributable to the financial system's development. The results suggest that policies aimed at increasing disposable income, reducing the tax burden, and fostering savings could substantially boost economic growth in Portugal, offering insights into the broader determinants of growth in developed economies.

1. Introduction
1.1 Introduce the Problem
Economic growth remains a central priority in policymaking, particularly in developed economies. The factors influencing growth are multifaceted, often encompassing variables such as disposable income, taxation or savings rates. Portugal, a member of the Eurozone, presents a unique case study for examining these relationships due to its distinct economic characteristics and fiscal policies. This study aims to analyse the impact of gross household disposable income, the tax burden and savings rates on economic growth, comparing the Portuguese experience with more general trends in the Eurozone. The research uses empirical data from 2000 to 2022 to assess the underlying dynamics of these economic variables and their contribution to growth, providing indications of potential policy measures that could promote sustainable development.

1.2 Describe Relevant Scholarship
The evolution of economic theory has led to the development of various models aimed at explaining the mechanisms of economic growth, particularly in developed economies such as those in the Eurozone, including Portugal. Among these models, the Solow (1956) model of

exogenous economic growth is a classic framework that highlights the roles of capital accumulation, technological progress, and population growth as primary drivers of economic growth. According to Solow (1956), long-term growth is essentially driven by technological progress, while capital accumulation contributes only to temporary growth. However, this model posits that factors such as disposable income per capita and the savings rate influence the level of output per worker in the long-term equilibrium but do not directly affect the growth rate itself.

More recent studies have underscored the limitations of exogenous models, particularly their neglect of institutions and fiscal policies, which can influence disposable income and savings and thereby exert an indirect but significant impact on economic growth (Balasoiu *et al.*, 2023; Balcilar *et al.*, 2021; Acemoglu & Robinson, 2015; Berisha and Meszaros, 2018; Quah, 1996). To address these limitations, Post-Keynesian and New Keynesian approaches emphasise the role of government intervention in addressing market failures and promoting economic growth (Minsky, 1999; Arestis, 2009). These models argue that fiscal policies, particularly those affecting disposable income and savings, can have a direct and sustained impact on economic growth, contrary to the assumptions of exogenous models (Palley, 2012). Additionally, institutional economics, as discussed by North (1990) and Acemoglu (2005), highlights the significance of governance, legal frameworks, and political stability in influencing the effectiveness of fiscal policies and their impact on long-term economic growth.

These critiques have led to the development of endogenous growth models, which address the shortcomings of exogenous models by incorporating elements such as innovation, human capital, and externalities into the growth process. Notable among these are the models proposed by Romer (1986) and Lucas (1988), which emphasise the importance of innovation, human capital, and externalities in fostering economic growth. These models suggest that policies to increase disposable income, such as reducing the tax burden or providing savings incentives, can directly affect economic growth by promoting greater investment in human capital and innovation. Additionally, Jones and Romer (2010) and Dorofeev (2022) argue that tax policies influencing savings and investment can have significant implications for long-term economic growth, as they affect the accumulation of knowledge and human capital.

It is also critical to incorporate insights from the New Growth Theory, which extends endogenous growth models by considering the role of knowledge spillovers, learning by doing, and the cumulative nature of technological advancements (Romer, 1994; Aghion *et al.*, 1998). This perspective underscores the importance of policies that enhance human capital formation and innovation, thereby supporting long-term economic growth. Recent empirical studies confirm the significant impact of variables such as tax policies, savings, and investments in human capital on the economic trajectories of developed economies (Dorofeev, 2022). These theoretical insights are particularly pertinent to the case of Portugal, where disposable income per capita, the tax burden, and the savings rate have been central concerns for economic policymakers. Applying the assumptions of these models to the Portuguese context enhances our understanding of the dynamics of economic growth within the framework of European integration and fiscal constraints.

Recent contributions from the financialization literature have provided new insights into how savings are allocated within the economy and their subsequent impact on growth (Epstein, 2005; Stockhammer, 2013). These studies argue that in highly financialized economies, a sizeable portion of savings may be directed towards speculative investments rather than productive capital formation, potentially leading to financial instability and subdued economic growth (Lapavitsas, 2013; Sawyer, 2014; Darrat, 1999; Pintea & Thompson, 2007). This perspective is particularly relevant for understanding the Portuguese economy, where the allocation of savings may be influenced by the structure and development of financial markets.

Disposable income per capita is frequently cited as a key indicator of economic well-being, influencing consumption and investment (Spiteri & von Brockdorff, 2023). Recent studies indicate that higher disposable income tends to increase consumption, stimulate production, and foster economic growth (Kaplan *et al.*, 2014). The impact of disposable income on growth is particularly salient in economies where household consumption constitutes a significant share of GDP (Mankiw, 2018). Aschauer (1985) further argues that augmenting disposable income can stimulate consumption and aggregate demand, thus boosting economic growth.

Conversely, Campbell and Mankiw (1991) emphasize that the impact of disposable income on growth depends on the marginal propensity to save versus consume. In economies with high savings rates, increasing disposable income may lead to greater investment, thereby promoting long-term growth (Tzamourani, 2021). This direct relationship between disposable income and economic growth underpins Hypothesis H1, which posits a positive correlation between the evolution of disposable income per capita and economic growth in Portugal and the Eurozone. This hypothesis is particularly relevant in the Portuguese context, where domestic consumption plays a significant role in the national economy.

The relationship between tax rates and economic growth is widely debated, with the tax burden on income and consumption identified as critical factors. A high tax burden can discourage investment and savings, thereby reducing the potential for economic growth (Balasoiu *et al.*, 2023; Barro & Redlick, 2011). Recent empirical studies confirm that high tax rates are associated with lower growth rates, particularly in economies with small private sectors or those recovering from economic crises (Arvin *et al.*, 2021; Alesina *et al.*, 2019). Laffer (2004) suggests that there is an optimal tax rate that maximizes tax revenue without impeding economic growth and that excessively high taxes can discourage work, savings, and investment, leading to a slowdown in growth (Gechert & Heimberger, 2022). Barro and Redlick (2011) explored the relationship between tax rates and economic growth, finding that reductions in income taxes can significantly increase GDP growth, although such reductions may impact the sustainability of the budget deficit, with potential long-term adverse effects. Arnold (2008) distinguishes between distinct types of taxes, noting that income taxes are associated with lower economic growth than consumption taxes. Within income taxes, personal income taxes tend to have a positive impact on the economy, whereas corporate income taxes hurt GDP per capita, demonstrating the existence of a negative relationship between the progressivity of personal income taxes and economic growth (Hope & Limberg, 2022; Arnold, 2008).

Recent debates in fiscal policy research have highlighted the complex relationship between taxation and economic growth. For instance, New Keynesian models argue that while high taxes may discourage private investment, they can also finance public goods and infrastructure, which are crucial for sustainable growth (Barro, 1990; DeLong & Summers, 2012). On the other hand, empirical studies in countries with varying tax regimes reveal that the impact of taxes on growth is not uniform, with context-specific factors such as the efficiency of tax administration and public expenditure playing a decisive role (Barkbu *et al.*, 2020; Stantcheva, 2021). These insights suggest that the effect of taxation on economic growth in Portugal may be influenced by broader structural factors within the economy. The evidence supports Hypotheses H2 and H4, which investigate the relationship between a high tax burden and economic growth in Portugal, implying a significant negative correlation. This hypothesis is particularly pertinent in the Portuguese context, where the tax burden has historically been high, potentially constraining economic growth by reducing disposable income and savings.

Finally, it is widely accepted that the savings rate is crucial for capital accumulation and, consequently, for economic growth. The endogenous growth theory argues that savings are vital for economic development since they finance investment, particularly in recent technologies, innovation, and infrastructures, which are essential for increasing productivity (Romer, 1990). Several studies demonstrate a positive relationship between savings and economic growth, especially in emerging economies and those with credit constraints (Ribaj & Mexhuani, 2021; Carroll *et al.*, 2000).

However, Stiglitz (2015) argues that the relationship between savings and growth is not linear, as excessively high savings rates in developed economies may indicate a lack of productive investment opportunities, leading to stagnating economic growth. Concurrently, Madsen and Ang (2016) suggest that the impact of savings on economic growth is also contingent on the development of financial markets.

More developed financial systems are better able to channel savings into productive investments, thereby promoting economic growth (Madsen *et al.*, 2018; Vanlaer *et al.*, 2020). These studies support Hypothesis H3, which posits a positive relationship between the savings rate and economic growth in Portugal. Factors such as the development of the financial system and the capacity to generate disposable income after taxes are critical to understanding this dynamic within the Portuguese context.

1.3 Research Hypotheses

The theoretical framework thus underscores the complexity of the relationships between disposable income per capita, the tax rate, the savings rate, and economic growth. By integrating diverse theoretical perspectives and recent empirical evidence, it is possible to explore these relationships in the context of Portugal, thereby contributing to the existing literature and providing valuable insights for economic policy. These theoretical observations directly inform the proposed study hypotheses:

H1: There is a positive relationship between the evolution of disposable income per capita and economic growth in Portugal and the Eurozone, consistent with endogenous growth theories that emphasize the role of consumption and investment in promoting economic development.

H2: The high tax burden in Portugal is significantly negatively correlated with economic growth, due to its detrimental impact on disposable income and savings capacity.

H3: The savings rate positively influences economic growth in Portugal, according to theories that suggest savings promote capital accumulation, particularly in countries with a greater capacity to generate disposable income after taxes.

H4: The impact of the tax burden on economic growth is more pronounced in Portugal than in the Eurozone on average, due to Portugal's lower capacity to generate income and its high tax burden.

2. Method

The statistical analysis uses SPSS software and examines the relationships between real economic growth, disposable income, tax burden, and savings rates in Portugal and the Eurozone. Initially, Pearson correlation analyses evaluate the relationships between the economic indicators, followed by regression models to determine the significance of the predictors. Non-standardized coefficients were employed to quantify the predicted impacts. Additionally, ARIMA (Autoregressive Integrated Moving Average) models were used to forecast real GDP per capita based on the proposed predictors, with the models being adjusted according to R^2 values, root mean square error (RMSE) and the root mean square error percentage (RMSEP), Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC), ensuring the robustness and accuracy of the forecasts. Finally, autocorrelation (ACF) and partial autocorrelation (PACF) analyses were conducted to assess the stationarity of the data used, along with the Granger causality test to examine causal relationships. To analyse the hypotheses, data on the evolution of Real GDP per capita and Gross household disposable income per capita, measured in Euros (PORDATA, 2024), as well as Tax revenue and Gross domestic savings as a percentage of GDP (World Bank, 2024), were utilised for the period between 2000 and 2022. The data set is limited to the period up to 2022, due to the unavailability of more recent data from the organisations utilised in the research.

3. Results

Pearson's correlation analysis revealed a significant positive relationship between gross household disposable income per capita and real GDP per capita, in Portugal and the Eurozone (Table 1). Specifically, in Portugal, there is a strong correlation between gross household disposable income per capita and real GDP per capita (.830) and the Eurozone (.940). The analysis additionally reveals a strong correlation between gross disposable household income in Portugal and the Eurozone (.988). In addition, real GDP per capita in Portugal is significantly correlated with real GDP per capita in the Eurozone (.882). These results imply that there is a significant and strongly positive relationship between disposable income per capita and economic growth in both Portugal and the Eurozone.

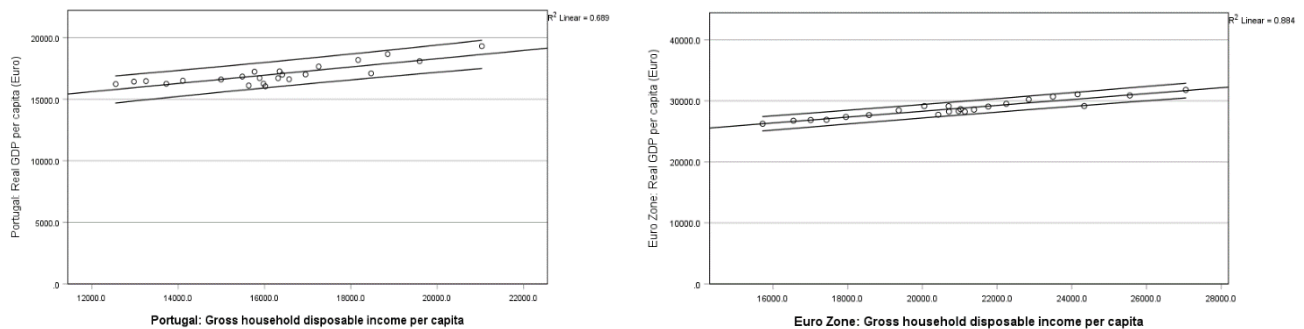Table 1. Disposable Income per Capita and Economic Growth Correlation Matrix

Variable	1	2	3
1. Portugal: Gross household disposable income per capita[1]			
2. Portugal: Real GDP per capita[1]	.830**		
3. Eurozone: Gross household disposable income per capita[1]	.988**	.772**	
4. Eurozone: Real GDP per capita[1]	.945**	.882**	.940**

Note. [1]Euros**Correlation is significant at the 0.01 level (2-tailed).
Source: Author owns work

The regression model is statistically significant in both cases and accounts for approximately 68.9% of the variation in real GDP per capita in Portugal ($R^2 = .689$), while in the Eurozone the figure rises to 88.4% of the variation in real GDP per capita ($R^2 = .88$). This indicates that gross household disposable income per capita is a significant predictor of real GDP per capita in both Portugal and the Eurozone, which is predicted by household consumption capacity. The Durbin-Watson statistic is 0.912 for Portugal, which implies a positive autocorrelation in the residuals. For the Eurozone, the Durbin-Watson statistic is 1.452, indicating that there is no substantial autocorrelation in the residuals. Multicollinearity is assessed through the Variance Inflation Factor and the tolerance values, in both situations, indicating that there is no significant multicollinearity. In general, the results indicate a strong positive relationship between gross household disposable income per capita and real GDP per capita in Portugal and the Eurozone (Figure 1).

Figure 1: Real GDP per Capita by Gross Household Disposable Income per Capita in Portugal and the Eurozone
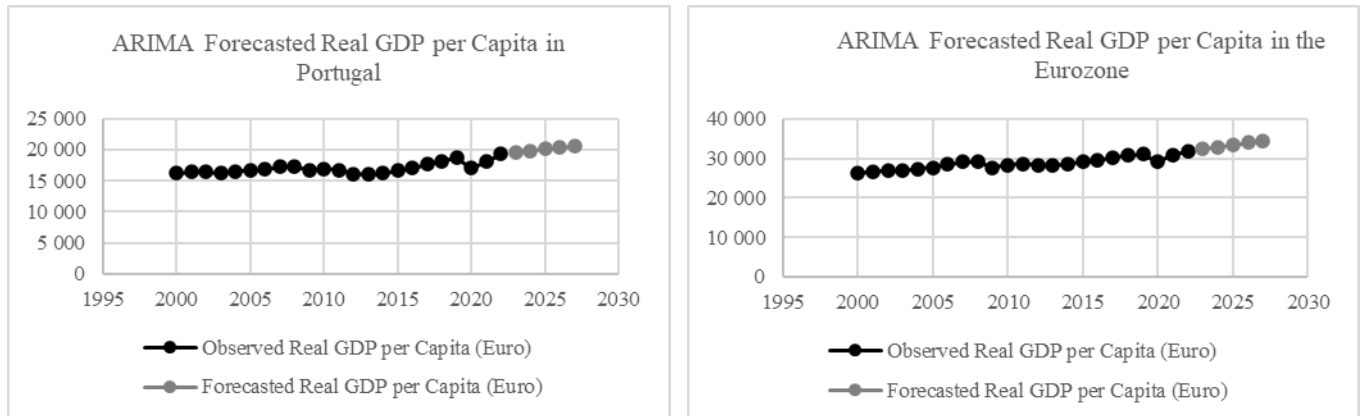

Source: Author owns work

The ARIMA model is applied to forecast real GDP per capita in Portugal and the Eurozone using gross household disposable income per capita as the main forecasting factor. The model showed a good fit, with an R^2 value of 0.83 for Portugal (indicating that the forecasting factors explain 83% of the variance in real GDP per capita) and 0.87 for the Eurozone. The RMSE of 565.08 (Portugal) and 691.46 (Eurozone), and RMSPE of 0.02 (Portugal) and 0.01 (Eurozone) reflect the model's high accuracy in predicting the observed data and indicate low forecast errors. In addition, the quality of the model is supported by low AIC and BIC values of 233.13 and 242.92 respectively for Portugal, and 240.40 (AIC) and 250.19 (BIC) for the Eurozone, implying an

optimum balance between the adequacy and complexity of the model and a good fit. In general, the ARIMA model provides a reliable forecast of economic growth, effectively capturing both short-term dynamics and long-term trends (Figure 2).

Figure 2: ARIMA Forecasted Real GDP per Capita in Portugal and the Eurozone (Household Income)

Source: Author owns work

ACF and PACF analyses are additionally conducted. Analysis reveals that real GDP per capita and Gross Disposable Household Income per capita, in Portugal and the Eurozone, show significant autocorrelations, implying non-stationarity in both series. The results of the Granger causality test indicate that the inclusion of lagged values significantly improved the accuracy of the forecast and led to a potential causal relationship (in the Granger sense) between gross household disposable income per capita and real GDP per capita in Portugal and the Eurozone. ARIMA modelling results and Granger causality test support that past gross household disposable income per capita values possess predictive power over future real GDP per capita. Identical results are obtained for the Eurozone, which emphasises a higher value of real GDP per capita compared to Portugal.

Pearson's correlation analysis reveals a significant positive relationship between tax revenue and real GDP per capita for Portugal and the Eurozone. In Portugal, a moderate positive correlation between these variables (.474, $p = .022$) exists. Similarly, in the Eurozone, a significant positive correlation was found between tax revenues and real GDP per capita (.506, $p = .014$). The analysis additionally revealed a strong correlation between real GDP per capita in Portugal and the Eurozone (.882). In addition, tax revenues in Portugal were significantly correlated with real GDP per capita in the Eurozone (.702). These results imply a significant positive relationship between tax revenue and economic growth in Portugal and the Eurozone, with notable interconnections between the regions (Table 2).

Table 2: Impact of Tax Burden on Economic Growth Correlation Matrix

Variable	1	2	3
1. Portugal: Real GDP per capita[1]			
2. Portugal: Tax revenue[2]	.474*		
3. Eurozone: Real GDP per capita[1]	.882**	.702**	
4. Eurozone: Tax revenue[2] (% of GDP)	.439*	.506*	0.285

Note. [1]Euros [2]% of GDP *. Correlation is significant at the 0.05 level (2-tailed) **Correlation is significant at the 0.01 level (2-tailed)

Source: Author owns work

The simple linear regression to confirm the correlation results for Portugal proves to be statistically significant (6.079, p = .022), and accounted for approximately 22.5% of the variation in real GDP per capita (R^2 = .225). This indicates that tax revenue (% of GDP) is a significant predictor of real GDP per capita in Portugal. The Durbin-Watson statistics were 0.577, which implies that there is therefore positive autocorrelation in the residuals and therefore variation around the predicted values. In general, the results indicate a positive relationship between tax revenue and real GDP per capita in Portugal. When the simple linear regression is conducted with data for the Eurozone, the regression model was not statistically significant (1.853, p = 0.188), implying that tax revenues are not a strong predictor of real GDP per capita in the Eurozone (Figure 3).

Figure 3: Real GDP by Tax Revenue in Portugal and the Eurozone
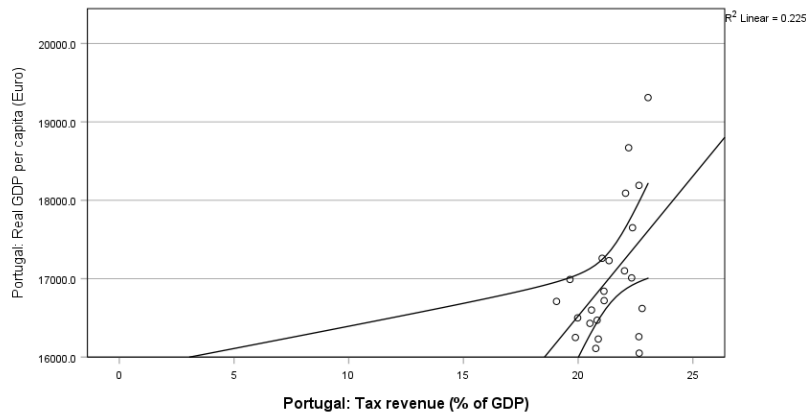
Source: Author owns work

The forecast of Portugal's real GDP per capita, using tax revenues as the forecast variable, with the ARIMA model configured to forecast 5 future periods, starting in 2023, obtains an R^2 value of 0.81, indicating that 81 %of the variance in real GDP per capita was explained by the forecasting factor. The RMSE was 600.78 and the RMSPE was 0.02, indicating low forecast errors. The quality of the model was further confirmed by the AIC of 235.34 and the BIC of 245.13, both implying a well-fitting model. In general, the ARIMA model provided reliable forecasts for Portugal's economic growth, effectively capturing both short-term fluctuations and

long-term trends (Figure IV). Although the ARIMA model was designed primarily for forecasting, the inclusion of variable lags in the model additionally facilitated an assessment of Granger causality. Due to the limited number of observations relative to the specified number of lags, the maximum number of predictors per objective was reduced from 5 to 2, ensuring the robustness of the model while allowing for the exploration of causal relationships. The analysis revealed that the inclusion of tax revenue lags significantly improved the model's forecasting accuracy. This implies a potential Granger-causal relationship between tax revenue and real GDP per capita in Portugal. Overall, the results of the ARIMA modelling and Granger causality analysis support the hypothesis that past tax revenue values possess predictive power over future real GDP per capita, confirming a Granger-causal relationship in this economic context.

For the Eurozone, the forecast given by the ARIMA model indicates that 71% of the variance in real GDP per capita was explained by the forecasting factors. The RMSE was 1,016.20 and the RMSPE was 0.02, reflecting reasonable forecast accuracy. The quality of the model was supported by an AIC of 254.26 and a BIC of 264.05, implying a good model fit. Overall, the ARIMA model provided reliable forecasts for Eurozone economic growth, capturing both short-term fluctuations and long-term trends (Figure 4). By employing the ARIMA model to explore the potential for Granger causality between tax revenues and real GDP per capita in the Eurozone, and after adjustment, the model remained robust while allowing for an exploration of the causal relationship. The analysis indicated that the inclusion of lagged tax revenue figures significantly increased the model's forecasting accuracy. This implies a potential Granger-causal relationship between tax revenues and real GDP per capita in the Eurozone. The results of the ARIMA modelling and Granger causality analysis support the hypothesis that past values of tax revenues possess predictive power over future real GDP per capita, confirming a Granger causal relationship in this economic context.
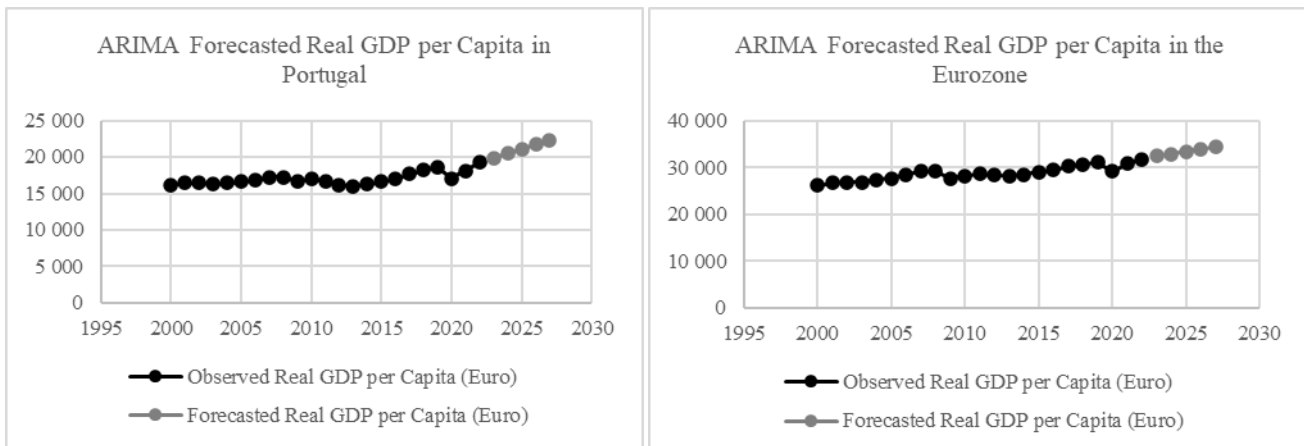

Figure 4: ARIMA Forecasted Real GDP per Capita in Portugal and the Eurozone (Tax Revenues)
Source: Author owns work

Regarding the savings rate as a predictor, Pearson's correlation analysis revealed significant positive relationships between gross domestic savings (% of GDP) and real GDP per capita for both Portugal and the Eurozone. In Portugal, gross domestic savings were moderately correlated with real GDP per capita, while in the Eurozone, the positive correlation is more significant between the variables analysed. In addition, a strong correlation was observed between Portugal's real GDP per capita and the Eurozone's real GDP per capita, indicating closely aligned economic growth patterns between the regions, which is justified by the common economic space and the existence of a single currency that facilitates transactions. There was additionally a significant positive correlation between Portugal's gross domestic savings and the Eurozone's gross domestic savings, reflecting similar savings behaviour between the regions. These results imply that there is a significant and positive relationship between domestic savings and economic growth in Portugal and the Eurozone, with a strong interconnection (Table 3).

Table 3: Influence of Savings Rate on Economic Growth Correlation Matrix

Variable	1	2	3
1. Portugal: Real GDP per capita[1]			
2. Portugal: Gross domestic savings[2]	.490*		
3. Eurozone: Real GDP per capita[1]	.882**	.369	
4. Eurozone: Gross domestic savings[2]	.722*	.729**	0.667**

Note. [1]Euros [2]% of GDP *. Correlation is significant at the 0.05 level (2-tailed) **Correlation is significant at the 0.01 level (2-tailed)
Source: Author owns work

Concerning the linear regression conducted, the regression model is statistically significant for Portugal, explaining 24% of the variance in real GDP per capita, which indicates that gross domestic savings are a significant predictor of real GDP per capita in Portugal. The regression model for the Eurozone is additionally statistically significant, accounting for 44.5% of the real GDP per capita variance. The unstandardised coefficient for gross domestic savings in Portugal demonstrates values that imply an increase in real GDP per capita in Portugal of 252.33 euros for each positive percentage change in savings, while in the Eurozone, the variation is between 376.899 and 1151.797, implying a higher increase in real GDP per capita (around 764.35 euros). In both situations, the Durbin-Watson statistics indicate positive autocorrelation in the residuals (0.466 for Portugal and 0.305 for the Eurozone). Multicollinearity does not appear to be significant in either case (Figure 5).

Figure 5: Gross Domestic Savings by Real GDP per Capita in Portugal
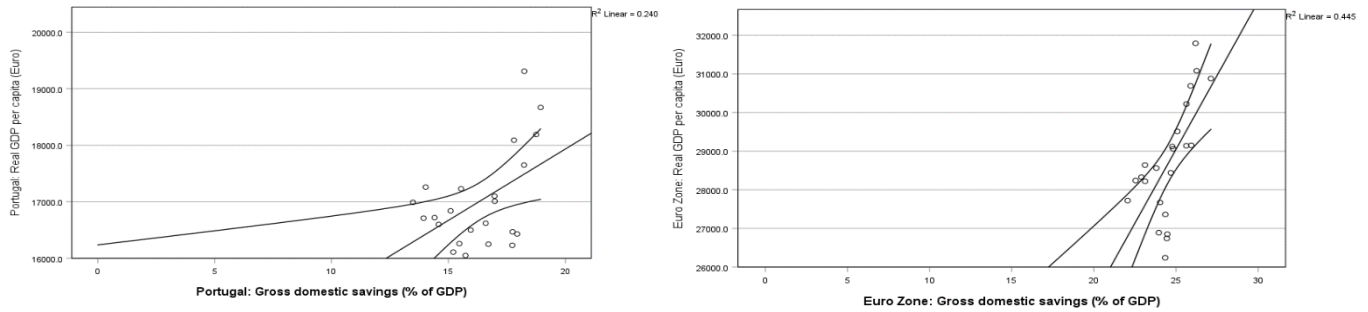
Source: Author owns work

In terms of forecasting for Portugal, the ARIMA model indicates that 73% of the variance in real GDP per capita was explained by this forecaster. The RMSE was 711.87 and the RMSPE was 0.03, reflecting reasonable forecast accuracy. The quality of the model was further supported by an AIC of 241.44 and a BIC of 251.24. In the Eurozone, the ARIMA model states that 86% of the variance in real GDP per capita in the Eurozone may be explained by the savings rate. The model's RMSE was 699.57, with an AIC value of 240.82 and a BIC of 250.61, implying a good fit for the model. The forecast values for the next five years (2023-2027) showed a steady increase in real GDP per capita, with the final forecast value reaching 34,400 euros in 2027 (Figure 6).
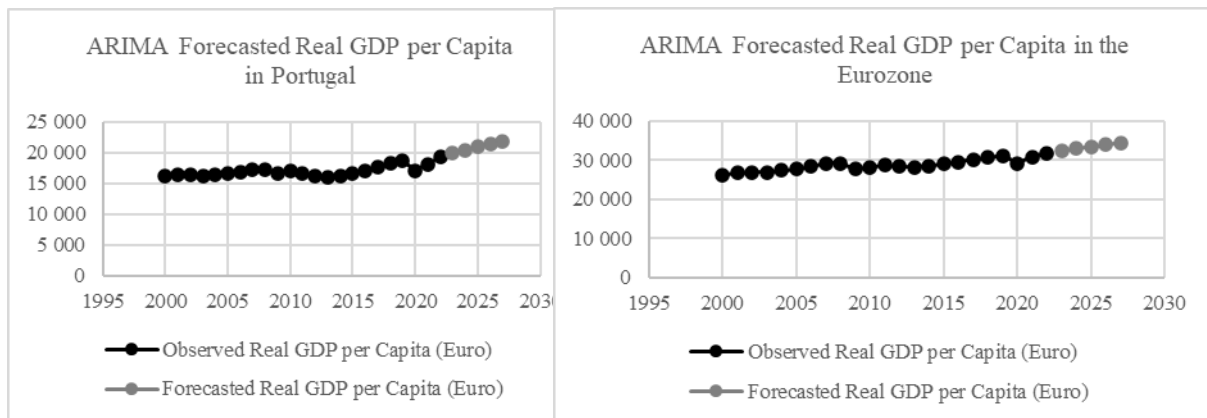

Figure 6: ARIMA Forecasted Real GDP per Capita in Portugal and the Eurozone (Domestic Savings)
Source: Author owns work

The Granger causality test in both cases in Portugal demonstrates that incorporating lagged Gross Domestic Savings values significantly increased the model's forecasting accuracy, implying a possible Granger-causal relationship between Gross Domestic Savings and real GDP per capita in Portugal. The results of the ARIMA modelling and Granger causality analysis support the hypothesis that past values of Gross Domestic Savings possess predictive power over future real GDP per capita, confirming a Granger-causal relationship in this economic context.

In conclusion, paired sample t-tests revealed significant differences between Portugal and the Eurozone in various economic indicators, implying that the impact of the tax burden on economic growth is more pronounced in Portugal (Table 4). Portugal's real GDP per capita has an average value of 17,012.61 euros, significantly lower than the average GDP per capita of the Eurozone of 28,719.13 euros (Cohen's d = -13.98), indicating a generous size of the effect. In terms of Gross Household Disposable Income per capita, the situation is the same in Portugal, with the average Portuguese gross income of 16,188.78 euros, significantly lower than in the Eurozone, which stands at 20,890.22 euros (Cohen's d = -5.34), again indicating a substantial difference. Regarding Portugal's Tax Revenue (% of GDP) as a percentage of GDP, the figure is 21.37%, a significantly higher tax burden than in the Eurozone where the average is 18.98% (Cohen's d = 2.37), implying that the tax burden is heavier in Portugal. Finally, Gross Domestic Savings (% of GDP) in Portugal averaged 16.35%, which was significantly lower than the rate of 24,57% in the Eurozone (Cohen's d = -7.22), revealing a lower savings capacity in Portugal. These results support the hypothesis that economic conditions in Portugal, particularly the tax burden, possess a more significant impact on its economic growth than in the Eurozone, due to Portugal's lower income generation capacity and higher tax burden.

Table 4: Comparison of the Impact of Tax Burden in Portugal vs. the Eurozone

Comparison of Portugal vs. the Eurozone		M	SD	p-value
Pair 1	Portugal: Real GDP per capita[1]	17012.61	853.46	< .001
	Eurozone: Real GDP per capita[1]	28719.13	1487.27	
Pair 2	Portugal: Gross household disposable income per capita[1]	16188.78	2114.07	< .001
		20890.22	2905.09	
	Eurozone: Gross household disposable income per capita[1]			
Pair 3	Portugal: Tax revenue[2]	21.37	1.13	< .001
	Eurozone: Tax revenue[2]	18.98	0.33	
Pair 4	Portugal: Gross domestic savings[2]	16.35	1.66	< .001
	Eurozone: Gross domestic savings[2]	24.57	1.30	

Note. [1]Euros [2]% of GDP; M = Mean; SD = Standard-Deviation

Source: Author owns work

4. Discussion

The findings of this study suggest that policymakers in Portugal should adopt a comprehensive approach that extends beyond merely adjusting the tax burden or encouraging savings. Policy measures should include the promotion of financial literacy to enhance household savings behaviour, as well as structural reforms aimed at improving the efficiency of public spending. Additionally, it recommends that Portugal explore policies to diversify its economic base, thereby reducing reliance on traditional sectors and fostering innovation-driven industries that can sustain higher economic growth rates in the long term. Given the strong correlation between disposable income and economic growth, future research could focus on the impact of income inequality on these dynamics and the role of digitalisation and green investments in shaping the trajectory of Portugal and the Eurozone economies.

Regarding Hypothesis H1, which posits a positive relationship between the evolution of disposable income per capita and economic growth, the data confirmed this hypothesis. Pearson correlation analysis demonstrated a strong positive correlation between disposable income per capita and real GDP per capita in Portugal and the Eurozone. This finding aligns with endogenous growth theories, which emphasise the role of consumption and investment in promoting economic growth, especially in economies where household consumption constitutes a significant share of GDP.

Hypothesis H2, which suggests that a high tax burden negatively impacts economic growth, was partially contradicted by the empirical results. While economic theory, as discussed by authors such as Barro and Redlick (2011), suggests that high taxes reduce disposable income and, economic growth, the empirical data revealed a positive correlation between tax revenue and real GDP per capita in Portugal and the Eurozone. This contradictory result may be attributed to the effective use of tax revenue in public investments that enhance economic growth, such as infrastructure, education, and innovation, which can offset the negative effects of a high tax burden and promote economic growth in the medium to long term.

Hypothesis H3, which predicts a positive relationship between the savings rate and economic growth, was validated by the results. The correlation and regression analyses indicated a significant positive relationship between domestic savings and economic development in Portugal and the Eurozone, consistent with endogenous growth theories, highlighting the importance of savings for capital accumulation and economic growth. However, the magnitude of this impact is restricted by the development of financial markets, which influences the effectiveness with which savings are allocated to productive investments.

Finally, Hypothesis H4 states that the impact of the tax burden on economic growth is more pronounced in Portugal than in the Eurozone, due to Portugal's lower income generation capacity and higher tax burden. This hypothesis is partially confirmed by the data showing a positive relationship between tax revenue and real GDP per capita in Portugal and the Eurozone. However, the impact of this relationship is more significant in Portugal than in the Eurozone. Hypothesis H4 is therefore validated, as the data suggests that the tax burden has a more significant impact on economic growth in Portugal than in the Eurozone. However, the empirical results also indicate that, in Portugal, the relationship between the tax burden and growth is not necessarily negative, contrary to the theoretical expectation that a high tax burden would limit growth. This finding emphasises the complexity of the impact of fiscal policy and the importance of considering specific contexts when evaluating economic hypotheses.

In conclusion, this study emphasises the critical role of disposable income in promoting economic growth, particularly in economies where household consumption makes up a substantial part of GDP, as is the case in Portugal. Although the study partially contradicts the hypothesis that a high tax burden harms growth, it shows that the efficient allocation of tax revenues to public investment can mitigate the potential negative effects. The positive relationship between savings rates and economic growth is consistent with endogenous growth

theories, suggesting that encouraging savings is essential to sustaining long-term growth, and policymakers should consider adopting comprehensive strategies that include promoting financial literacy, implementing structural reforms and diversifying the economic base to increase the country's growth potential.

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