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Fiscal Policy Cyclicality, Governance, and Quality of Institutions Nexus in Ireland

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ARTICLE INFO

ABSTRACT

Purpose: The relationship between income and government consumption expenditure would reflect the nature of any country's fiscal cyclicality. This study aims to pragmatically evaluate the cyclicality of the fiscal dogma in Ireland and test the role of political institutions, economic institutions, and governance on the cyclicality of the fiscal policy in Ireland. Methodology and Approach: The 3-Stage Least Square technique is applied due to possible endogeneity in the model. Findings: Ireland's fiscal dogma is found as countercyclical in the presence of effective political and economic institutions with highly-structured and well-functioning governance. A negative relationship is observed between income per capita and government consumption expenditure. Hence, countercyclical fiscal policy is corroborated. Moreover, the lag of government consumption and the real interest rate reduces the present government consumption. Local and foreign investments, economic growth differences, government revenues, imports, and population growth have positive effects on government consumption expenditures. Based on findings, we recommend that the Irish government strengthen the quality of institution and governance to support the phenomena of its fiscal policy's counter cyclicality for a smooth fiscal policy in the country.

INTRODUCTION

Setting up vigorous targets in fiscal doctrines can be potentially countercyclical, and it is challenging to maintain an optimal output level at all times. The cyclicality of fiscal strategies is affected by institutional activities under strict governance mechanisms. The advanced countries adopt a countercyclical

fiscal policy mechanism in the presence of well-functioning institutions with *good* governance. The consequences of fiscal policy are usually closely related to institutional backgrounds. The impact that economic variables have on the fiscal strategy's performance and the role institutions play in an economy have widespread importance and consideration in evaluating growth policy. Political institutions' role is essential to European countries like many other economies as these economies are facing a fiscal deficit (Venes, 2010). It is argued that instability and lesser economic growth are caused by weak institutions (Acemoglu et al., 2003; Easterly, 2004).

Cyclicality is significant due to economic growth and fiscal policy's motives as it could have a vital role in business cycles (Akiboty et al., 2004). A procyclical fiscal policy is when the government tends to increase spending and cuts down on taxes during an economic boom. In contrast, when there is a recession, the government goes in the opposite direction, reduces spending, and increases taxes. Conversely, a countercyclical fiscal policy works the other way around. In times of an economic boom, the government cuts down on spending and increases taxes and the other way around in a recession. An acyclical fiscal policy is when the government adopts neither of the two approaches and keeps the spending and taxes constant no matter how the business environment changes.

The developed economies mostly adopt the countercyclical and acyclical fiscal policies (Gali, 1994; Lane, 2003). Some international institutions try to implant the countercyclical fiscal policy in Europe (Melitz, 2000). Similarly, the intensity of the countercyclical nature of fiscal dogma is accelerating during the Maastricht Treaty and the Stability and Growth Pact of European Union followers (Gali and Perotti, 2003). On the other hand, the procyclical type of fiscal dogma is adopted for two main reasons that are poor access to International Financial Institutions (IFI) and substandard performance of institutions, and poor governance (Slimane et al., 2010). Procyclical kind of fiscal dogma is found among Latin American economies, primarily due to the non-availability of funds in the time of financial constraints (Gavin and Perotti, 1997). Procyclicality is considered in the developing world like Latin American economies due to the fragile performance of political institutions and corrupt political leaders that failed to use the finances in the most optimal ways (Tornell and Lane, 1999). Pragmatic studies elaborate that procyclical fiscal policy becomes an essential part of developing economies (Braun, 2001; Kaminski et al., 2004; Frankel et al., 2013). These fiscal policies indicate how the government controls major macroeconomic factors, including the Gross Domestic Product (GDP), spending, taxes, and other variables.

The present study evaluates the cyclicality proposal by using indices of economic and political institutions and governance. Cronin and McQuinn (2018) have been investigated the Irish Ex Ante and Ex Post fiscal strategy cyclicality. Still, the role of institutions and governance has not been covered to the necessary extent in the investigation. Therefore, we emphasize the cyclicality of Ireland's fiscal policy from the perspective of institutions and governance. There is no significant study that elaborates on fiscal policy's cyclical nature purely with economic and political institutions besides governance indicators, especially in Ireland's case. This study focuses on filling that gap and understanding what role these institutions and governance indicators may play in the fiscal policy formation and how that association leads the Irish economy.

1. LITERATURE REVIEW

Macroeconomic policies are considered to help smooth out any business cycle glitches and anomalies. Generally speaking, fiscal strategies in developed countries have been expansionary compared to the emerging world (Calderon and Schmidt-Hebbel, 2008). These policies stabilize the developed economies (Debrun et al., 2008) and a destabilizing role in the developing economies (Suescun, 2007). The cyclical performance of fiscal dogma has been a severe issue for researchers and economists, and several theories circulate in these economies. According to Classical Economists, price mechanisms are self-correcting as they take care of external and behavioral shocks to economic equilibrium. In their view, the government's role is confined to maintaining the law and order in the country. On the other hand, the Neoclassical concept regarding fiscal dogma proposes a minimum of four motives for government expenditure to perform counter-cyclicality:

i) To flatten the levels of government expenditure, inferring that these expenditures should decay throughout booms and rise throughout recessions

ii) To plane out the pathway of output to counterbalance an adverse shudder to demand.

iii) For practical reasons, comprehend the complications in permanent and momentary changes in economic activity.

iv) Lastly, there is a countercyclical community protection constituent of government spending as joblessness assistance (Thornton, 2008).

Neo-Classical Economists elaborated government consumption as exogenous (Blanchard and Fisher, 1989) and not to significantly recommend an acyclical pattern of expenditure (Lane, 2003). However, Baxter and King (1993) favored the countercyclical fiscal policy, and Barro (1979) focused on acyclical fiscal dogma. After the Great Depression, Keynes advocated that countercyclical fiscal dogma needed the hour to stabilize the economy (Morgan, 1978). Tax Smooth Out Theory presented by Barro (1979) is in proportion to the Keynes approach. The unanimity outcome states that fiscal dogma inclines towards acyclical or countercyclical in advanced economies, and procyclical is advocated in developing economies (Fatas and Mihov, 2009).

Literature found that advanced economies adopt the countercyclical fiscal policy (Gali, 1994; Aghion and Marinescu, 2007; Lee and Sung, 2007; Auerbach, 2009; Golinellir and Momiglianos, 2009; Eskesen, 2009; Mesea, 2013; Calderon et al., 2016; Frankel et al., 2013). When their economic condition is good, they can halt their spending and collect revenue from the people in the form of taxes. Nevertheless, all that revenue makes it to the national income no matter if it comes from public spending or taxes collected from the people and eventually contributes to the nations' wellbeing. Gavin and Perotti (1997) highlighted that developing economies adopt a procyclical fiscal policy. Afterward, Schlarek (2007), Kaminski et al. (2004), and Carmignani (2008) also corroborate this ideology. Thus, it pleads why the developing economies adopt a procyclical fiscal policy and consider adjusting their significant macroeconomic variables according to the current business cycles. It is argued that developing economies adopt such policy due to meager access to International Financial Institutions (IFS), especially in recession (Gavin and Perotti, 1997; Calderon et al., 2003; Kaminski et al., 2004).

Political economy has a vital role in fiscal policy. Political antagonism between groups destabilize an economy and causes fluctuations (Buchanan and Wagner, 1977; Akitoby et al., 2004). Another primary reason for adopting a procyclical fiscal policy is corruption in these economies. Public sector size also matters for the procyclicality of fiscal policy (Braun, 2001). Thornton (2008) and Mpatswe et al. (2012) established a positive and robust significant association between foreign aid and procyclicality of fiscal policy. However, Lledo et al. (2009) elaborated that foreign aid minimizes fiscal policy procyclicality. In decentralized economies, the subnational government adopts procyclical policies. Resource-dependent countries adopt a procyclical fiscal policy (Arezki and Bruckner, 2012). For resource-dependent economies, this process practically works well. When there is an economic boom, they can increase their spending to cash out every possible opportunity and relieve its public from paying taxes.

Institutions have an active part in the counter or procyclicality of fiscal policy. A state's institutional structure plays a central role in macroeconomic strategies. Political disintegration inclines to mark the fiscal consultant's policymaking procedure (Velasco, 1998; Perotti and Kontopoulos, 2002). Thus, the incapability to restrain fiscal expenditure in economies is perceived to be due to weak institutions, refutation of agreements, and the occurrence of political organizations that do not confine their political figure (Acemoglu et al., 2003; Braun, 2001). Calderon and Schmidt-Hebbel (2008) have empirically exposed that institutional aspects play a leading part in the procyclical type of fiscal dogma equated to financial marketplace deficiencies. Institutional qualities are applied to appraise the cyclicality of fiscal and monetary dogma.

2. METHODS

The study aims to recognize the nature of the cyclicality of fiscal policy in Ireland by keeping the institutions and governance in an equal span of context. The significant effects of institutions are predomi-

nantly observed in past studies, and robust institutions support the government in executing fiscal growth policy. Though, the variables of institutions and growth may be the foundation of endogeneity. The 2SLS technique is proposed by Theil (1953a,b) and Basmann (1957) and Sargan (1958) have made many additions to the estimation methodology of 2SLS. Ordinary Least Square (OLS) might produce biased results in the presence of endogeneity, and 2SLS should be applied in this case. This method needs to identify the sum of exogenous variables. It substitutes the random endogenous variables with non-random and subsequently autonomous residual (Asteriou, 2006; Creel, 2006).

Zellner and Theil (1962) proposed 3SLS, and this technique is more reliable than the estimations through OLS or 2SLS. Consider 2SLS estimator form:

$$\overline{W} = \hat{Y} \operatorname{diag} \left[X \left(XX' \right)^{-1} X'Y_{1,\ldots\ldots} X \left(X'X \right)^{-1} X'Y_M \right] = \begin{bmatrix} \hat{Y}_1 & 0 \ldots\ldots\ldots & 0 \\ 0 & \hat{Y}_2 \ldots\ldots\ldots & 0 \\ 0 & 0 \ldots\ldots\ldots & \hat{Y}_3 \end{bmatrix} \tag{1}$$

IV estimator:

$$\hat{\delta}_{IV} = \left[\hat{Y}'Y \right]^{-1} \hat{Y}'s \tag{2}$$

2SLS previously established the consistency and while the estimators are less efficient than Generalized Least Square (GLS).
Lets,

$$\hat{\delta}_{3sLs} = \left[\hat{Y} \left(\sum{}^{-1} \otimes I \right) Y \right]^{-1} \hat{Y}' \left(\sum{}^{-1} \otimes I \right) s \tag{3}$$

For estimator, we establish:

$$\rho \lim \frac{1}{T} \hat{Y} \left(\sum{}^{-1} \otimes I \right) \mu = 0 \tag{4}$$

M sets of the equation:

$$\rho \lim \frac{1}{T} \sum_{j=1}^{M} \sigma^{ij} \hat{Y}_j' \mu_j = 0 \tag{5}$$

Each is the addition of vectors altogether converge to zero as found in the expansion of the 2SLS estimator. The second inevitability is:

$$\rho \lim \frac{1}{T} \hat{Y}' \left(\sum{}^{-1} \otimes I \right) Y \neq 0 \tag{6}$$

A non-singular matrix can be established as the counterpart for 2SLS. The rank condition is sufficient for identification.

Now using idem-potency of (1-M):

$$\hat{\delta}_{3sLs} = \left[\hat{Y}' \left(\sum{}^{-1} \otimes I \right) \hat{Y} \right]^{-1} \hat{Y}' \left(\sum{}^{-1} \otimes I \right) s \tag{7}$$

The appropriate asymptotic covariance matrix for the estimator:

$$Var \left[\hat{\delta}_{3sls} \right] = \left[\overline{Y}' \left(\sum{}^{-1} \otimes I \right) \overline{Y} \right]^{-1} \tag{8}$$

$\overline{Y} = \operatorname{diag} \left[X \hat{\lambda}_j, X_j \right]$ and Zellner and Theil (1962) establish 3SLS by estimating π by OLS and calculate $\hat{Y}_j$. Then, $\hat{\delta}_j$ $\hat{\delta}_j$ can be computed for every equation of 2SLS:

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$$\hat{\sigma}_{ij} = \frac{\left(s_i - s_i\hat{\delta}_j\right)\left(s_i - Y_j\hat{\delta}_j\right)}{T}$$

Finally, estimation is done through GLS estimators consistent with the asymptotic covariance matrix. 3SLS estimator satisfies the requirements for the 2SLS estimator, and 3SLS is also asymptotically efficient. To estimate fiscal policy's cyclicality, the government consumption expenditure as a percentage of GDP is a proxy for fiscal policy. The relationship between government consumption expenditure and GDP per capita would suggest the cyclicality of fiscal policy. Further, the effects of institution and governance quality are also aimed to be tested on fiscal policy's cyclicality. Some other control variables are regressed in the hypothesized model. The following model is used to test the relationship between the cyclicality of fiscal policy and political institutions:

$$D.LogGCP_t = \alpha_0 + \alpha_1 L.LogGCP_t + \alpha_2 LogGDPP_t + \alpha_3 LogPTYT_t + \alpha_4 LogGFCP_t + \alpha_5 FDI_t$$
$$+ \alpha_6 LogTR_t + \alpha_7 D.GDPG_{tt} + \alpha_8 RINT_t + \alpha_9 LogIMP_t + \alpha_{10} LogPOPG_t + \psi_{1t} \tag{9}$$

Then, we test the relationship between the cyclicality of fiscal policy and economic institutions in the following way:

$$D.LogGCP_t = \beta_0 + \beta_1 L.LogGCP_t + \beta_2 LogGDPP_t + \beta_3 LogPRT_t + \beta_4 LogGFCP_t + \beta_5 FDI_t$$
$$+ \beta_6 LogTR_t + \beta_7 D.GDPG_t + \beta_8 RINT_t + \beta_9 LogIMP_t + \beta_{10} LogPOPG_t + \psi_{2t} \tag{10}$$

Lastly, we test the relationship between the cyclicality of fiscal policy and governance in the following way:

$$D.LogGCP_t = \gamma_0 + \gamma_1 L.LogGCP_t + \gamma_2 LogGDPP_t + \gamma_3 LogGOV_t + \gamma_4 LogGFCP_t + \gamma_5 FDI_t$$
$$+ \gamma_6 LogTR_t + \gamma_7 D.GDPG_{tt} + \gamma_8 RINT_t + \gamma_9 LogIMP_t + \gamma_{10} LogPOPG_t + \psi_{3t} \tag{11}$$

Where,

$LogGCP_t$ = Logarithm of government consumption expenditure percentage of GDP
$D.LogGCP_t$ = First difference of $LogGCP_t$
$L.LogGCP_t$ = One-year lag of $LogGCP_t$
$LogGDPP_t$ = Logarithm of GDP per capita
$LogPTYT_t$ = Logarithm of Polity2 proxy for political institutions
$LogGFCP_t$ = Logarithm of gross fixed capital formation percentage of GDP
FDI_t = Foreign direct investment percentage of GDP
$LogTR_t$ = Logarithm of total revenue percentage of GDP
$D.GDPG_t$ = First difference of growth rate of GDP
$RINT_t$ = Real interest rate
$LogIMP_t$ = Logarithm of total imports
$POPG_t$ = Population growth
$LogPRT_t$ = Logarithm of protection of property rights proxy for economic institutions
$LogGOV_t$ = Logarithm of governance

Data used in the present study is an annual time series ranged from 1981-2016. Most of the series is taken from the World Bank (2019) database. Following Pritchett and Kaufmann (1998), Governance Index is developed through Principal Component Analysis (PCA) using variable Political Rights (PR) and Civil Liberties (CL), sourced from Freedom House (2019). PR and CL values are from one to seven, where one specifies extreme political rights with civil liberty, and seven displays the lowermost values. Polity is a grouping of democracy and dictatorship, sourced from the Freedom House (2019). The data ranges from -10 to +10, where -10 displays intensely autocratic government and +10 indicating a profoundly democratic nation. For Economic institutions, data on the Protection of Property Rights is taken from the Fraser Institute (2019) and is a proxy of economic institutions.

3. RESEARCH RESULTS

Thirteen variables are used in this study collected for the period 1981-2016. The mean and median values of variables are rightly connecting, demonstrating symmetry and balance. These variables are narrowly spread from the mean values, as indicated by the small standard deviations.

Table 1. Descriptive Statistics

Variables	Mean	Std. Dev.	Min	Max
FDI_t	1.58	1.61	-1.53	4.27
$LogTR_t$	10.06	0.77	8.53	11.06
$LogGDPP_t$	10.43	0.44	9.75	11.11
$RINT_t$	1.61	0.55	0.48	2.49
$POPG_t$	-0.43	1.21	-4.56	1.06
$LogIMP_t$	25.1	0.92	23.73	26.50
$LogPRT_t$	2.11	0.10	1.82	2.30
$LogPTYT_t$	2.27	0.01	2.25	2.30
$D.LogGCP_t$	-0.02	0.06	-0.27	0.11
$L.LogGCP_t$	2.86	0.13	2.53	3.10
$D.GDPG_t$	0.03	0.74	-1.62	2.04
$LogGOV_t$	0.37	0.09	0.33	0.76
$LogGFCP_t$	3.06	0.19	2.76	3.43

The 3SLS approach is used for estimations due to its superiority over OLS and 2SLS. Political institutions are used to evaluate their role in fiscal policy. Findings are specified in Table 2. To analyze the cyclicality of Fiscal policy in Ireland, $D.LogGCP_t$ is used as a dependent variable. The model's core variables are $L.LogGCP_t$ and $LogGDPP_t$ to capture the cyclicality of fiscal policy in Ireland. The variables $L.LogGCP_t$ and $LogGDPP_t$ have adverse and significant effects on $D.LogGCP_t$. The variable $LogGDPP_t$ has a negative impact on $D.LogGCP_t$. Hence, decreasing government consumption policy is adopted in times of increasing income per capita, and increasing government consumption policy is adopted in times of decreasing income per capita. Therefore, countercyclical fiscal policy is corroborated in Ireland as contractionary fiscal policy. It is adopted to increase income per capita, and expansionary fiscal policy is adopted to decrease income per capita. This result is in line with the findings of Kaminsky et al. (2004).

Further, the effect of $L.LogGCP_t$ is negative, and increasing government consumption in one period is reducing the growth of government consumption in the next period. The significant variable LogPTYTt further supports it. This variable is significant and carries a negative coefficient. So, improving the quality of political institutions is found helpful in reducing government consumption. Therefore, the quality of political institutions matters for the countercyclical fiscal policy in Ireland. This finding corroborates the inferences derived by Slimane *et al*. (2010). $LogGFCP_t$, FDI_t, $LogTR_t$, $LogIMP_t$, $D.GDPG_t$, and $POPG_t$ have positive effects on $D.LogGCP_t$. Hence, increasing domestic and foreign investments, government revenues, differences in growth, imports, and population growth increase government consumption expenditures. However, $RINT_t$ has adverse effects on the $D.LogGCP_t$. Hence, increasing the real interest rate reduces government consumption growth. Therefore, monetary policy in terms of the real interest rate is found countercyclical to fiscal policy.

Table 2. Results of 3SLS

Variables	Model 1		Model 2		Model 3	
	Coefficient	p-value	Coefficient	p-value	Coefficient	p-value
L.LogGCP$_t$	-1.0390	0.0000	-1.0532	0.0000	-1.0563	0.0000
LogGDPP$_t$	-0.0230	0.0000	-2.0138	0.0000	-2.3373	0.0000
LogGFCP$_t$	0.2316	0.0000	0.2524	0.0000	0.3678	0.0000
FDI$_t$	0.0345	0.0000	0.0430	0.0000	0 .0517	0.0000
LogTR$_t$	0.5701	0.0000	0.5824	0.0000	0.6108	0.0000
D.GDPG$_t$	0.0068	0.0100	0.0102	0.0000	0.0037	0.0050
RINT$_t$	-0.2410	0.0000	-0.0226	0.0000	-0.0395	0.0000
LogIMPC$_t$	0.2567	0.0000	0.2256	0.0000	0.3069	0.0000
POPG$_t$	0.0271	0.0000	0.0243	0.0000	0.0153	0.0000
LogPTYT$_t$	-0.3809	0.0390				
LogPRT$_t$			-0.0872	0.0000		
LogGOV$_t$					-0.0328	0.0000
Intercept	12.0225	0.0000	11.8652	0.0000	16.6238	0.0000

Table 2 also displays the relationship between fiscal policy and economic institutions. The difference between models 1 and 2 is the political institution variable (LogPTYT$_t$) replaced by the economic institution variable (LogPRT$_t$). All effects are found the same, as shown in model 1. The LogPRT$_t$ variable has a significant and negative effect, which shows that increasing economic institutions' quality has a vital role in reducing government consumption. With improved performance of economic institutions, the growth of government consumption decreases, and vice versa. Hence, the quality of economic institutions supports a countercyclical fiscal policy. The result of this variable is supported by empirical findings of Kaminsky *et al.* (2004), Calderon et al. (2006), and Manasse (2006). In the end, estimates of the relationship between fiscal policy and governance are shown in model 3. The effect of LogGOV$_t$ is negative and significant. Good governance also helps reduce government consumption, indicating that good governance promotes a countercyclical fiscal policy.

CONCLUSIONS

Fiscal policy cyclicality depends on several factors, including governance, economic, and political institutions. This present study investigates the effects of these factors and some classical determinates of fiscal policy cyclicality in Ireland from 1981-2016. The cyclicality of fiscal dogma in the country is assessed. The 3SLS estimation technique is utilized to analyze and care for the possible endogeneity in the hypothesized models. Government consumption expenditure as a percentage of GDP is utilized to assess the cyclicality of fiscal policy. The negative relationship is corroborated between the income per capita and government consumption expenditure. Hence, the Irish fiscal policy is corroborated as countercyclical. The robust political and economic institutions and good governance are significant determinants of fiscal policy's cyclicality. The increasing quality of a political institution, economic institution, and good governance reduces government consumption expenditures. Hence, the quality of institutions and good governance are supporting the countercyclical fiscal policy in Ireland. Moreover, the increasing investments, growth rate, government revenues, imports, and population growth may increase government consumption. However, increasing real interest rates is helping to reduce government expenditures. The lag of government consumption reduces the present government consumption. Based on the results, the Irish government should enhance economic and political institutions' capability and improve governance quality to support its countercyclical fiscal policy.

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