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TESTING THE VALIDITY OF THE FISCAL THEORY OF THE PRICE LEVEL (FTPL): A REVIEW OF INTERNATIONAL LITERATURE

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Abstract *The main objective of this paper is to review literature on the Fiscal Theory of the Price Level (FTPL) and its validity in price level determination for both developed and developing economies. FTPL may be understood on the categorisation of the fiscal regime into two types, namely, the Ricardian and non-Ricardian regimes. Empirical evidence for the validity of FTPL on price level determination depends on dominant characteristics of the policy regime. The Ricardian regime does not hold for FTPL, while the non-Ricardian regime holds for FTPL. Based on surveyed empirical studies, time series and panel analysis were used through various estimation methods in the validation of FTPL. Most of the findings from the studies reviewed in this paper validated the FTPL. This means that inflationary episodes tend to be influenced by fiscal dominant regimes. The study concludes that the conduct of fiscal policy influences price dynamics. Hence, fiscal variables should be considered by the central bank in its monetary policy rule.*

Keywords: *FTPL, Fiscal deficits, Fiscal and Monetary policy, Inflation*

JEL Classification : *E31, E51, E52, E62, H62*

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1.0 Introduction

Fiscal policy affects monetary authority's ability to control inflation, especially under a fiscal dominant regime where the central bank may not be able to control inflationary pressures effectively. The macroeconomic consequences of fiscal policy have continued to be a major concern because of its undesirable consequences of pointing macroeconomic variables toward an unsustainable path. Fiscal policy is an important determinant of macroeconomic stability and long-term growth, and, as such, various economies have run-up high budget deficits. For instance, countries like the United State, Sweden, Turkey, Nigeria, Ghana, and the Gambia have from one time to another experienced deficit financing. Deficit financing is a phenomenon prevalent in both developed and developing economies mainly because of decreased government revenue accompanied by increasing expenditure. Public debt arises mainly from government's annual budget deficits, and the rising public debt levels in many countries suggest an increase in government expenditure financed by debt instead of tax, or in an attempt to finance fiscal deficit without raising taxes, the government has either borrowed from domestic or foreign sources to meet its expenditure needs. According to Aimola and Odhiambo (2021) in most developing countries, fiscal deficit is largely blamed for debt crisis, high inflation, and poor economic growth, and as such, fiscal deficit reduction is crucial for macroeconomic stabilisation and adjustment in these economies. Solomon and De Wet (2004) argue that Tanzania achieved macroeconomic stability (relatively low inflation and interest rates) through tight fiscal discipline. As a result, the low inflation rate achieved at the end of 1990s and early twenty-first century was explained by the introduction of improved fiscal discipline in Tanzania's economy.

Deficit inflationary pressures are a major concern because of their undesirable consequences of pointing macroeconomic variables and ratios towards an unsustainable path. As a result, the macroeconomic consequences of fiscal policy have remained the centre of attention for policymakers. According to Sargent and Wallace (1981), fiscal deficits are always inflationary whether they are monetised or not. This suggests that controlling inflationary pressures have both monetary and fiscal policy implications. Thus, the validity of FTPL has remained a source of empirical concern for both developed and developing economies.

Afonso (2002) defines FTPL as the categorisation of fiscal regimes into two types, namely, the Ricardian and non-Ricardian regimes. The Ricardian regime

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does not hold for FTPL, and price level is determined by inter-temporal budget constraints because of fiscal policy dominance (Bildirici and Ersin, 2006). FTPL focuses more on the non-Ricardian regime, with fiscal policy providing the nominal anchor for the economy, while in the Ricardian regime, monetary policy performs this role (Canzoneri, Cumby and Diba, 2001). Based on the non-Ricardian regime, additional measures are taken to restrict the freedom of fiscal authorities to ensure good monetary policy conditions sufficient to ensure low inflation. For the Ricardian regime, a good monetary policy is a necessary and sufficient condition to guarantee low inflation (Moreira, Souza and Almeida, 2007).

Recent studies have shown that controlling monetary and fiscal policy have inflationary pressure implications. Therefore, the knowledge of FTPL theory and its validity in price level determination would influence policy makers in the short- and long-term either to implement contractionary or expansionary fiscal policies for macroeconomic stability and non-inflationary growth. It is against this backdrop that this paper reviews literature on FTPL theory and its validity in price level determination for both developed and developing economies. Section 2 briefly reviews FTPL theory, and Section 3 discusses the empirical evidence of fiscal theory on price level determination. Finally, Section 4 concludes the paper.

2.0 Literature review

2.1 Fiscal theory of price level determination theory

The fiscal theory of price level determination shows the potential impact of fiscal policy on price level through the monetisation and wealth effect of public debt as the channel of fiscal influence on inflation (Kwon, McFarlane, and Robinson 2006; Walsh, 2010). There are two versions of FTPL, namely, the weak-form and strong-form. The weak-form of FTPL, according to Carlstrom and Fuerst (1999), is based on the Unpleasant Monetarist Arithmetic by Sargent and Wallace (1981). This form of FTPL acknowledges that inflation is indeed a monetary phenomenon, but the growth rate of money is dictated by the monetary authorities, as a function of fiscal policy variables. Hence, budget deficit in this form of FTPL is set independently by fiscal authority, with revenue generation determined through government bond auctions, taxes and seignories. Under the weak-form of FTPL, government budget constraint is satisfied by an exogenous fiscal policy and an endogenous money supply. The strong-form of FTPL was further developed building on the non-Ricardian view of inflation and presented in the studies by

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Leeper (1991), Sims (1994, 1997), Woodford (1994, 1995, 1998), Cochrane (1999, 1998b) and Walsh (2010). The strong-form of FTPL suggests that fiscal policy is independent of monetary policy changes and affects price level as well as the path of inflation in an economy. The strong-form eliminates multiplicity of different initial price levels, which is consistent with different paths of future inflation through government budget constraints pinning down the initial price level. Thus, price level is determined independently by fiscal policy, even though monetary growth remains unchanged. In contrast to the weak-form of FTPL, fiscal policy can affect price levels without the effect of money growth in an economy.

The main idea behind the fiscal theory of price level is the idea that price level is determined through the inter-temporal government budget constraint. This means that the price level adjusts to assure that the value of nominal government debt, divided by the price level, equals the real present value of future budget surpluses. Government could determine primary budget balances, regardless of the level of public debt, with money and prices adjusting to the level of public debt to ensure the fulfilment of government budget constraint (Afonso, 2002). According to Christiano and Fitzgerald (2000), the fiscal theory of price level is different from the conventional view of inflation based on how it views the government inter-temporal budget equation in relation to the conventional view. This equation is expressed as:

$$\frac{B}{P} = present\ value\ of\ future\ surpluses \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ (1)$$

In Equation (1), *B* represents the outstanding nominal public debt and *P* is the price level. The conventional view holds that this equation is a constraint on government's budget policy irrespective of the value of *P*. Thus, for disturbance in Equation (1), equality is restored by the government altering its expenditures or taxes (Christiano and Fitzgerald, 2000). On the other hand, FTPL argues that the inter-temporal budget equation is an equilibrium condition, such that any disturbance to Equation (1), market clearing mechanism would move the price level, *P*, to restore equality. Hence, an increase in real value of government debt would require no adjustment to fiscal and monetary policy to satisfy Equation (1), indicating a non-Ricardian fiscal policy (Christiano and Fitzgerald, 2000).

Sargent and Wallace (1981), while adopting the framework by Phelps (1973) on public finance approaches to inflation revealed that even for the Ricardian policy, it was possible for fiscal authorities to affect the level of prices. Sargent and Wallace (1981) argued that with active fiscal and passive monetary policy, monetary policy

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would respond by setting the growth rate of money to generate the money seigniorage necessary to satisfy government budget constraints. Hence, contrary to monetarist views that only monetary aggregates drive inflation, if fiscal authority acts in a dominant fashion through expansionary fiscal policy, it is inflationary.

According to Leeper (1991), the interaction of fiscal and monetary policy would determine the level at which government budget constraints allow for monetary authorities' control of inflation. In an active monetary policy environment, monetary policy is set independently by the monetary authority, making public the growth rate of base money. Under this scenario, monetary authority is unconstrained and can actively pursue price stability by reacting strongly to inflation. Monetary authority would determine the amount of the government's seigniorage revenues. Fiscal authority constraints by private and monetary policy behaviour, would passively adjust bond sales to balance the budget. Hence, inflation is controlled by the monetary authority, in this case. On the other hand, in an active fiscal policy environment, the fiscal authority determines tax and government expenditures independent of inter-temporal budget constraints, preventing deficit shocks from being financed entirely with government debt. Under this scenario, monetary authority is constrained by private and fiscal policy behaviour and allows money stock to respond to deficit shock. Active policy, according to Moreira *et al.* (2007), considers past, current, or future values of economic variables, while passive policy is limited to past and current values of economic variables. Hence, active fiscal policy is not limited by current economic situations. This suggests a forward-looking non-Ricardian regime.

Nevertheless, FTPL has been criticised notably by Buiter (1998, 1999, 2002) and Niepelt (2004). Since the main point of FTPL is a focus on price level determination through inter-temporal government budget constraint, Buiter (2002) argues that the fiscal theory of price level confuses the roles of budget constraints and equilibrium conditions in the models of a market economy. Thus, the resulting 'equilibria' are either inconsistent because they were over-determined or implied a negative price level. Buiter (2002) also argued that FTPL could only hold when the government set nominal interest rates, unlike the Ricardian approach that was valid regardless of whether the government controlled the nominal interest rate or nominal money stock. Buiter (2002) further stresses that without taking into account a given price level, it does not seem reasonable for governments to use budget constraints to determine primary balance and the issuance of public debt in an economy. Niepelt (2004), on the other hand, argued that FTPL was inconsistent

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with a rational expectations equilibrium where all asset holdings reflected optimal household choices. Under such rational equilibrium expectations, Niepelt (2004) showed that policy must be Ricardian even if in some states of nature, the government defaults or runs an exogenous real primary surplus sequence. In response to these criticisms, Sims (1999) and Cochrane (2000) have argued on the consistency of FTPL unconstrained valuation equation in the determination of price level and established the validity of the main idea of FTPL as well as stressed that FTPL did not misinterpret inter-temporal government budget constraints. Against this theoretical background, this study further reviewed studies on empirical plausibility of FTPL that have used different country datasets.

2.2 Empirical evidence on fiscal theory of price level determination

The interaction between monetary and fiscal policy and their effects on price stability have been assessed from an empirical perspective using the FTPL. In the empirical evidence for FTPL, results for fiscal or monetary policy depend on which policy had dominant characteristics. The consequences of policies differ depending on the active and passive characteristics of the policy regime. Based on the non-Ricardian regime, additional measures are taken to restrict the freedom of fiscal authorities to ensure a good monetary policy that is sufficient to ensure low inflation (Moreira *et al.*, 2007). Several studies followed a times series approach in examining models in which fiscal factors replaced money supply as the key determinant of price level.

Empirical studies on the validity of FTPL found mixed results for advanced economies, especially in the United State and some European Union member countries. Canzoneri *et al.* (2001) used the VAR estimation approach to examine Ricardian equivalence in accordance with the FTPL for the United States for the post-World War II era. The approach, which focuses on a set of impulse response functions involving primary surplus and total government liabilities [(both as ratios to gross domestic product (GDP)], offers a very straightforward interpretation for the Ricardian regimes, more so than do the non-Ricardian regimes. The paper thus argued that Ricardian regimes provided a more plausible interpretation for the post-World War II data for the United States than did the non-Ricardian regimes. This suggested the active characteristics of monetary policy. Canzoneri *et al.* (2001) concluded that annual data for this period was not consistent with FTPL, although price level determination was in accordance with the Ricardian regimes. Creel and Sterdyniak (2002) and Erdogdu (2002) in another United States study also used the

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VAR estimation method to analyse the responses of primary surpluses to domestic debt and concluded that for the United States, dominant monetary policy was consistent with the Ricardian regimes.

In contrast to these studies, other studies have found empirical evidence for the United States consistent with FTPL. Cochrane (1998a) and Cochrane (1998b) found empirical evidence consistent with FTPL for the United States from 1960. The study used a structural VAR estimation model of prices, debt and surplus to argue and conclude that price level determination in the United States economy was consistent with the FTPL. Favero and Monacelli (2005), on the other hand, employed the Markov-switching regression methods to estimate fiscal policy feedback rules in the United States in the period 1960 to 2002. This approach captured policy regime changes endogenously and revealed evidence consistent with FTPL in the United States for the period from 1960s throughout the 1980s and early 2001.

Afonso (2002) used panel data models through VAR estimation method to examine the feasibility of the fiscal theory of price levels, by assessing primary budget surplus as a percentage of GDP and debt-to-GDP ratio. The study focused on 15 European Union (EU) member countries, namely, Austria, Belgium, Finland, France, Germany, Ireland, Italy, Luxembourg, Netherlands, Portugal, Spain, United Kingdom, Denmark, Greece, and Sweden over the period 1970 to 2001 to assess the possibility of FTPL. The paper found for the tested hypothesis on the reaction between budget surplus and the level of public debt used to validate FTPL in the 15 EU countries that FTPL did not fit these countries. The study concluded that the hypothesis for increased budget surplus in accordance with the existing stock of public debt and compliance with budget constraints could not be rejected. This suggested consistency with a regime of monetary policy dominance, namely, a Ricardian regime. Hence, there appeared to be no evidence for empirical validation of FTPL in the 15 EU countries. In another study by Canzoneri *et al.* (2002), they argued that because of government budget discipline in the United State and the European Union, and since FTPL gives a logically consistent argument for deficit limits, it was probably not relevant for governments in the Euro area. Although for a non-Ricardian regime, according to Moreira *et al.* (2007), additional measures are needed to be taken into consideration to restrict the freedom of fiscal authority because a good monetary policy condition is not a sufficient condition for ensuring low inflation.

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Studies have also emerged for developing economies testing the validity of FTPL. Loyo's (1999) influential study was the first attempt to show that FTPL provided an explanation for price dynamics in Brazil in the late 1970s and early 1980s. After this paper, several studies have tried to evaluate from an empirical perspective the evidence for fiscal dominance or monetary dominance in the Brazilian economy. Loyo (1999) explored the fiscal effects of monetary policy in Brazil and argued that the high levels of inflation in the late 1970s and early 1980s could be explained by FTPL for the country. As a result, the study provided an explanation for the fiscal effect of monetary policy in Brazil. Tanner and Ramos (2002) used monthly fiscal data for the period 1991to 2000 to examine if the fiscal regime in Brazil was better characterised as fiscal dominant or monetary dominant. The study also tested, to limit debt accumulation, whether primary deficit adjusted to changes in liabilities or real interest payments. The findings for their paper using the VAR estimation method showed that before the Real Plan Period (1994), changes in real government debt did not influence primary surplus. This suggested a dominant fiscal regime consistent with the non-Ricardian regimes and FTPL. After the period 1994, Tanner and Ramos' (2002) findings suggested a dominant monetary regime consistent with the Ricardian regime. However, Tanner and Ramos (2002) recommended that evidence for the Ricardian regime be viewed cautiously because most of the results for monetary dominance regime after several short period analyses was concentrated on the period 1995 to 1997.

Zoli (2005) analysed how fiscal policy affected monetary policy in emerging market economies for the period 1990 to 2004. A sample of eight countries, namely, Argentina, Brazil, Chile, Colombia, Mexico, Poland, South Africa, and Thailand were used. The paper motivated by the effects of increasing public sector liabilities on the conduct of monetary policy, tested for fiscal dominance in these economies. The study used VAR, Granger causality, and impulse response function analytical methods to examine public sector liabilities and primary balances reactions for the identification of fiscal dominance regimes. Findings for the study revealed that no country had a clear dominant monetary regime for the whole sample period. Argentina and Brazil were largely characterised by a fiscal dominant regime both for the whole sample period and most sub-periods. These findings for Brazil corroborated Tanner and Ramos (2002) evidence of fiscal dominant regimes for the 1990s. Zoli (2005) concluded that only in the case of Argentina and Brazil did evidence clearly point to fiscal dominant regimes during

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the 1990s and early 2000s, whereas for Colombia, Mexico, Thailand and Poland, the results were more ambiguous.

Moreira *et al.* (2007) tested empirically for Brazil whether the economy presented an active or passive fiscal and monetary policies over the period 1995 to 2006. The study analysed through the transmission channels of fiscal and monetary policies by estimating the Philips curve and fiscal IS curve. The Leeper model was also used to test whether or not monetary and fiscal policies were passive. The main result from the paper using quarterly data showed that empirical evidence from the IS equation and Leeper model showed a significant fiscal dominance regime. This means that a non-Ricardian regime with the consistency of the FTPL was evidenced. Moreira *et al.* (2007) concluded that the central bank of Brazil should take into account fiscal variables in its monetary policy rule. In contrast to the studies for Brazil, other studies found empirical evidence consistent with the Ricardian regime in this economy. Rocha and Silva (2004) for the period 1996 to 2000, and Fialho and Portugal (2005) for the period 1995 to 2003 followed the approach proposed in Canzoneri *et al.* (2001) for testing the validity of the Ricardian regime in the Brazilian economy and concluded that data for the study periods were consistent with the Ricardian regime (Moreira *et al.*, 2007).

Bildirici and Erisin (2006) analysed FTPL theory for Turkey in accordance with the Ricardian Equivalence Theorem over the period 1933 to 2004. The study used Engle-Granger (1987) co-integration and vector error correction (VEC) models' analytical methods to investigate short- and long- term dynamics of domestic debt on price levels. The main findings for this study showed that the policies followed for the study period suggested strong evidence that the Ricardian equivalence theorem did not hold for the Turkish economy. This suggested that inflationary episodes in Turkey were highly influenced by fiscal dominance regimes, especially after the 1980s where increasing government bonds lead to wealth effects and caused price levels to rise. The consistency of FTPL for the Turkish economy was concluded for this paper.

Attiya, Umaima and Abdul (2008) examined the validity of FTPL in Pakistan over the period 1971 to 2007. Like many developing countries, Pakistan's monetary policy was under the pressure of budget deficit and fiscal policy shocks that might have played a role in the determination of prices. The study followed the approach suggested by Canzoneri, *et al.* (2001) as well as Tanner and Ramos (2002) to analyse the validity of FTPL theory in accordance with the Ricardian Equivalence Theorem using the Pakistani data. An unrestricted VAR model was

used for the identification of monetary or fiscal dominant regimes by estimating the impulse response function and variance decomposition. The study found, as predicted by FTPL, that the occurrence of wealth effects on changes in nominal public debt might pass through to prices by increasing inflation variability in Pakistan. As a result, the authors concluded for Pakistan the validity of FTPL. In another study by Akram, Rais and Padda (2011), the interaction of domestic debt, fiscal deficit, money supply and exchange rate with the price level in Pakistan was analysed. The study tried to establish whether fiscal or monetary policy regimes were dominant in the country by using VAR models along variance decomposition, Granger causality and impulse response function estimation approach in the period 1973 to 2010. The main findings for the paper showed that both monetary and fiscal policies played significant roles in the determination of prices, but the role of fiscal policy was comparatively stronger than monetary policy. Hence, the validity of FTPL for Pakistan.

Baldini and Ribineiro (2008) investigated empirical validity of both Ricardian and non-Ricardian regimes using non-structural VAR and Johansen co-integration analytical method on a sample of 22 Sub-Saharan African countries for the period 1980 to 2005. The 22 countries were Botswana, Burundi, Cameroon, Ethiopia, Ghana, Kenya, Lesotho, Malawi, Mali, Mauritius, Nigeria, Rwanda, Senegal, Seychelles, Sierra Leone, South Africa, Swaziland, Tanzania, Togo, Uganda, Zambia, and Zimbabwe. The sample was divided into three subgroups, namely, (i) CFA (four countries: Cameroon, Mali, Senegal, and Togo); (ii) non-CFA fixed (four countries: Botswana, Lesotho, Seychelles, and Swaziland); and (iii) others (14 countries) were tested for the wealth effects of domestic public debt and money growth on inflation. The deviations from Ricardian equivalence were also tested for the identification of fiscal dominant regimes. The main findings for the paper showed that Cameroon, Kenya, Nigeria, Rwanda, and South Africa were characterised by dominant monetary regimes, while Botswana, Burundi, Tanzania, and Zimbabwe by dominant fiscal regimes throughout the study period. For the remaining countries, results were not clear of the dominant regimes throughout the sample period. The study further showed that for countries under monetary dominant or Ricardian regime, inflation variability could also be associated with changes in nominal public debt, implying that nominal debt variability could be detrimental to price volatility.

Chuku (2010), in another study for Nigeria, examined the nature of fiscal policies in Nigeria between 1970 and 2008 using a vector autoregression model.

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The results from the simulated generalised impulse response graphs generated from VAR estimation contradicted the earlier paper as he found evidence of a non-Ricardian fiscal policy regime in Nigeria. The study tested whether fiscal regime in Nigeria followed the Ricardian or non-Ricardian approach, to ascertain whether the assumptions for fiscal theory of price level determination were valid or invalid for the country. This approach also examined the interaction between fiscal balance (overall surplus or deficit of government finances) and government liabilities (Federal Government's domestic debt outstanding), both as a percentage of nominal GDP ratio. The results showed a significant negative correlation between fiscal balances and government liability in Nigeria. This suggested that net borrowing did not decrease when fiscal balance decreased, rather it increased when fiscal balances decreased. This observed relationship suggested the existence of a non-Ricardian fiscal policy in Nigeria. The study concluded that for Nigeria, the validity of FTPL, which postulates that changes in prices are driven by fiscal policies. This meant that inflation for the study period, largely resulted from fiscal problems and not from lack of monetary control. Table no. 1 summarises the results of the selected studies on fiscal theory of price level determination.

Table no.1: Selected studies on empirical evidence of fiscal theory of price level determination

Author (s)	Title	Region/ Country	Period	Variables	Methodology	Findings
Cochrane (1998a)	A frictionless view of U.S. inflation	United States	1960-1996	• ross Domestic Product (GDP) • Primary Surplus • Primary deficit • nterest rate • nflation rate • oney supply • utput/consum	• Structural vector autoregressive (SVAR) model	Evidence consistent with fiscal theory of price level was found

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Author (s)	Title	Region/ Country	Period	Variables	Methodology	Findings
				ption ratio • otal outstanding federal debt		
Canzoneri *et al.* (2001)	Is the price level determined by the needs of fiscal solvency?	United States	Post-World War II era (1951-1995)	• ross Domestic Product • Primary Surplus/GDP • Total Liabilities/GDP. • nterest rate • ominal income • Price level	• Vector autoregressive (VAR) model	Evidence of dominant monetary policy in accordance with the Ricardian regimes was found
Erdogdu (2002)	Price level determination: Ricardian vs. non-Ricardian Policies	United States	1959-1998	• DP • rice level • nterest rate • oney supply • overnment revenue • Outstanding Federal government debt	• ointegration analysis • VAR model • tructural vector error correction model (SVECM) • mpulse Response Function • ariance Decomposition	Neither SVAR nor SVECM results provided evidence for the validity FTPL

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Author (s)	Title	Region/ Country	Period	Variables	Methodology	Findings
Afonso (2002)	Disturbing the fiscal theory of the price level: Can it fit the EU-15?	15 European Union (EU) member countries	1970-2001	• Primary budget surplus • GDP at market prices • Public debt • Total public receipts • Price deflator of private final consumption expenditure	• Panel data models • VAR model	FTPL was not consistent with the 15 EU member countries
Tanner and Ramos (2002)	Fiscal sustainability and monetary versus fiscal dominance: Evidence from Brazil (1991-2000)	Brazil	1991-2000	• Primary deficits • Price level • Public debt • GDP • Interest rate • Interest payments • Government expenditure • Government revenue	• Vector auto regression model	Evidence of dominant monetary policy regime (1995-1997) was found, consistent with FTPL for the remaining period
Favero and Monacelli (2005)	Fiscal policy rules and regime (In) Stability: Evidence from the United States	United States	1961-2002	• GDP • Primary deficit • Cost of financing debt • Federal debt • Output gap • Inflation rate	• Markov-switching regression methods	Evidence consistent with FTPL for the period 1960s throughout the 1980s was found before switching to passive in the early

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Author (s)	Title	Region/ Country	Period	Variables	Methodology	Findings
						1990s and back to active in the early 2001s
Bildirici and Erisin (2006)	Fiscal theory of price level and economic crises: The case of Turkey	Turkey	1933-2004	• Inflation rate • Domestic debt • Primary surplus • GDP	• Co-integration analysis • Vector error correction mechanism	Findings supported dominant fiscal policy and the validity of FTPL
Moreira *et al.* (2007)	The fiscal theory of the price level and the interaction of monetary and fiscal policies: The Brazilian case	Brazil	1995-2006	• Output gap • Inflation rate • Nominal interest rate • Nominal fiscal deficit • Real exchange rate • Nominal exchange rate • Nominal GDP	• Estimation of Philips curve and fiscal IS curve • Leeper model • Two-stage least squares with GMM standard errors	Active fiscal policy was found, which suggested the validity of FTPL for Brazil
Baldini and Ribineiro (2008)	Fiscal and monetary anchors for price stability: Evidence from Sub-Saharan Africa	Sub-Saharan African (SSA) Countries	1980-2005	• Domestic debt • Reserve money growth • Discount rate • Real output gap • Inflation rate • External debt • Total public debt • Exchange rate regime • Grants	• Co-integration analysis • VAR analysis • Panel VAR analysis	Mixed evidence of dominant fiscal and monetary policy regimes was found. However, a number of countries were characteris

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Author (s)	Title	Region/ Country	Period	Variables	Methodology	Findings
				• Primary and total public surplus		ed by lack of clear monetary or fiscal policy regimes.
Attiya *et al.* (2008)	Testing the fiscal theory of price level in case of Pakistan	Pakistan	1970-2007	• Government expenditure • Government revenue • Consumer price index • Reserve money • Discount rate • GDP	• Unrestricted VAR	Evidence Supporting FTPL in Pakistan was found
Chuku (2010)	Monetary and fiscal policy interactions in Nigeria: An application of a state-space model with Markov-switching	Nigeria	1970-2008	• Fiscal balance • Government liabilities • GDP • Price level	• VAR model • Impulse response function • State-space Markov-switching VAR model	Evidence supporting FTPL in Nigeria was found
Akram *et al.* (2011)	Synthesis of the fiscal and monetary policies in price level determination: Evidence from Pakistan	Pakistan	1973-2010	• Price level • Money supply • Domestic debt • Fiscal deficit • Exchange rate	• VAR model • Granger causality • Impulse response function	Results showed that the impact of fiscal policy was stronger than monetary policy in the determinat

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Author (s)	Title	Region/ Country	Period	Variables	Methodology	Findings
						ion of price level in Pakistan

Source: Authors' compilation

3.0 Research methodology

The purpose of this study is to analyse literature on FTPL theory and its validity in price level determination by performing a literature review. The research methodology used for this paper is qualitative and consists of a review of scholarly studies on FTPL theory and its validity in price level determination in both developed and developing economies. The research methodology which is based on the purpose of the paper provides a detail surveyed of previous studies on both the theoretical and empirical fronts.

4.0 Findings

The study provides an insight into the validity of FTPL theory in price level determination based on a detailed review of literature. The surveyed literature shows that the validity of FTPL theory in price level determination varies from country to country, with either evidence supporting it or not. However, in most of the literature, the validity of fiscal theory of price level determination tilts towards evidence supporting it. This finding is more prominent in developing economies. Although there is no consensus on the validity of FTPL theory in price level determination, the study found that evidence supporting the validity of FTPL theory in price level determination tends to predominate among the studies reviewed.

5.0 Conclusion

The aim of this study was to review literature on FTPL theory and its validity in price level determination in both developed and developing economies. The role of fiscal policy in recent times has become more active in inflationary episodes. Understanding the validity of FTPL on price level determination provides a basis for deliberation among policymakers in order to design and implement effective fiscal and monetary policies. Based on surveyed empirical studies, time series and panel analysis were used through various estimation methods in the validation of FTPL theory. Most of the findings from the studies reviewed in this paper

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validated FTPL in price level determination. This means that inflationary episodes are influenced by dominant fiscal regimes. The study, therefore, concludes that price dynamics are influenced by the conduct of fiscal policy. The main policy implication of this paper is that fiscal variables should be taken into account by the central bank in its monetary policy rule. Going forward and considering macroeconomic fallout from Coronavirus disease (COVID-19) worldwide, research related to the inflationary impact of fiscal policy/fiscal deficit will continue to be an important area of research.

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