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Original Article

Fiscal Policy, Uncertainty and Output Growth in Uganda: 1980-2020

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ABSTRACT

Does uncertainty inevitably alter how Uganda's fiscal policy influences the country's economic growth? Using the most recent datasets and rigorous econometric practice, we offer an empirical response to this fundamental topic. Indeed, several nations frequently tweak their fiscal policies as a way to give countercyclical stimulus during periods of uncertainty. In fact, the operations of fiscal policy fluctuate regularly with the sequence of uncertainty and thus create a two-way interaction between fiscal policy, uncertainty, and output growth. We demonstrate using the Autoregressive Distributed Lag Model that in the presence of uncertainty, tax revenue and expenditure are most affected, whereas borrowing is least affected both in the short and long term. Consequently, the fragility of rising global and domestic uncertainty is destined to generate huge and considerable divergences between the predicted and the actual growth outturn unless government's macroeconomic frameworks adequately include economic uncertainties into the estimates. As a result, we urge that government borrowing be used as effectively as possible to promote and maintain growth. While tax revenues have been shown to promote growth in both the short- and long-term, the effect will inevitably diminish in the face of uncertainty.

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INTRODUCTION

The current deterioration of the fiscal balances in several Sub-Saharan African nations-Uganda has made the future course of fiscal policy more unpredictable. Throughout time, this has gotten more and more attention from academic scholars and policymakers. According to Ahir et al. (2020), the amount of economic policy uncertainty at the moment is far higher than it has ever been. Since 2008, the average level of economic policy uncertainty has been roughly double that of the prior 23 years. The uncertainty surrounding economic policy, particularly in light of the coronavirus disease outbreak in 2019 (COVID-19), has increased this (see *Figure 1*). The IMF Managing Director "Kristalina Georgie" of the Peterson Institute for International Economics remarked that the current decade's trend is undoubtedly mounting uncertainty. That is understandable why the discussion about the suitability of the Stability and Growth Pact has recently grown especially heated (Beckmann & Czudaj, 2020).

The Bank of Uganda (BoU) emphasises in its monetary policy report (2020) that fiscal policy has a substantial impact on the economy's short- and long-term growth prospects in addition to serving as a stabilising mechanism (BOU, 2020). Countercyclical fiscal expansion can support aggregate demand and growth in the short run of downturns. Fiscal restraint, on the other hand, can aid in cooling down an economy that is expanding at an unsustainable rate and runs the risk of overheating. In order to effectively manage the macroeconomic environment and accomplish the long-term growth aim, the nation's fiscal and monetary policies must work together rather than be subordinated to one another (BoU, 2020). Many factors have contributed to global uncertainty. Uncertainty in the world has been brought on by a number of events, including economic contraction, the coronavirus epidemic, trade disputes, national elections, recessions, and political wars and conflicts (see *Figure 1*). Among nations, these have had varying effects on output growth.

Evidence already in existence demonstrates that exogenous shocks and economic crises are the main sources of uncertainty. External negative shocks like war, terrorism, and financial crises amplify uncertainty in policy. From 1962 through 2008, 17 external shocks, including the Gulf War, the Cuban Missile Crisis, the Asian Financial Crisis, and the 9/11 terrorist attacks, were studied by Bloom (2009) in the United States. The majority of these shocks were negative, and empirical data shows that negative information shocks and shocks related to policy uncertainty frequently follow one another. While it takes more work to sustain the current rate of economic growth, policymakers actively work to promote recovery during economic downturns (Dave et al., 2020). In a similar vein, Fed Chairman Jerome Powell summed up the current state of uncertainty in his speech on May 21. He noted that the globe is now facing a whole new level of uncertainty and that the COVID-19 outbreak complicated the completely new outlook. Indeed, there is a great deal of uncertainty surrounding almost every aspect of economic activity, including how fiscal policy will respond and how quickly the economy will recover, whether it is permanent or only temporary. This means that government interventions, whether fiscal or monetary, will become crucial.

A close examination of Uganda's trajectory indicates that uncertainty spikes have been above

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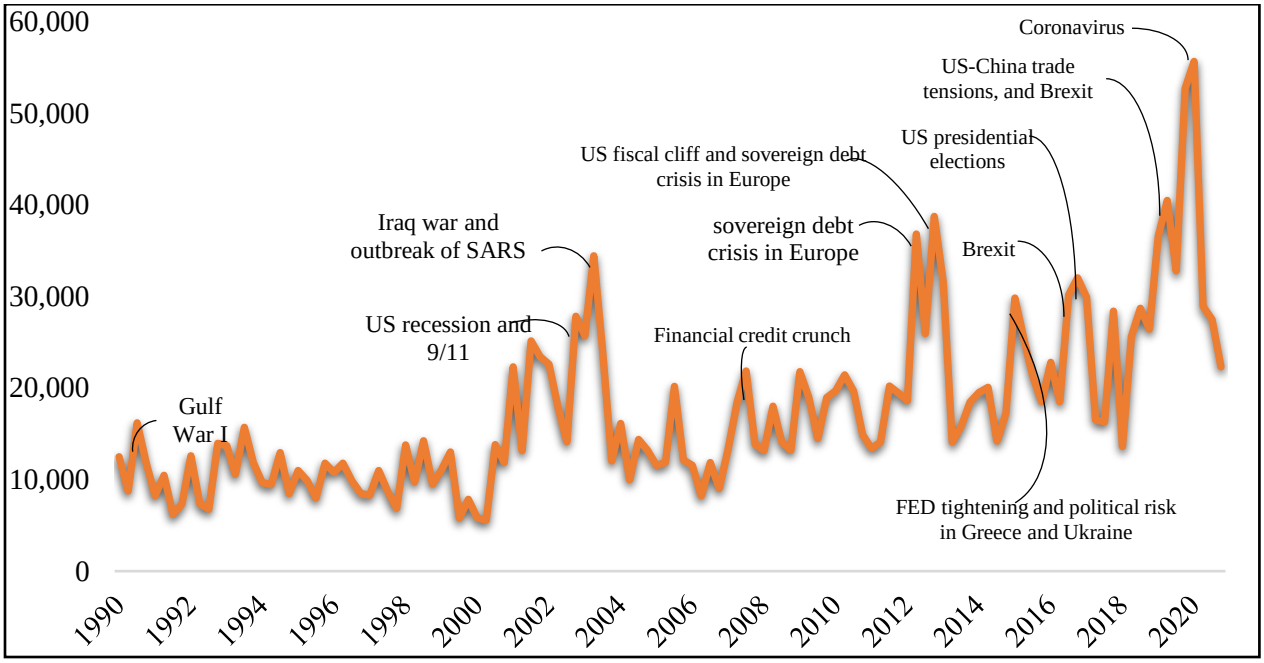
average during periods of negative external shocks. As seen in *Figure 2*, these negative shocks include war, financial crises, and presidential elections to name a few. Similar to the worldwide experience, several historical occurrences led to economic uncertainty in Uganda. More than usual, uncertainty in Uganda increased in response to the spill over effects of the Great Recession, the Idi Ami Dada's overthrowing Milton Obote Britain's act of breaking off diplomatic relations with Uganda, Milton Obote overthrowing Godfrey Binaisa, Lt. Gen Bazilio overthrowing Milton Obote II, NRM power capture after 4 years of civil war Uganda's 2016 presidential elections, among other events (NPA, 2015). The anxiety around the 2021 presidential elections and the rapid global spread of the COVID-19 sickness caused the most recent wave of uncertainty (see *Figure 2*).

Figure 1: World Uncertainty Index-1990Q1 to 2020Q4



Source: Ahir et al. (2020)

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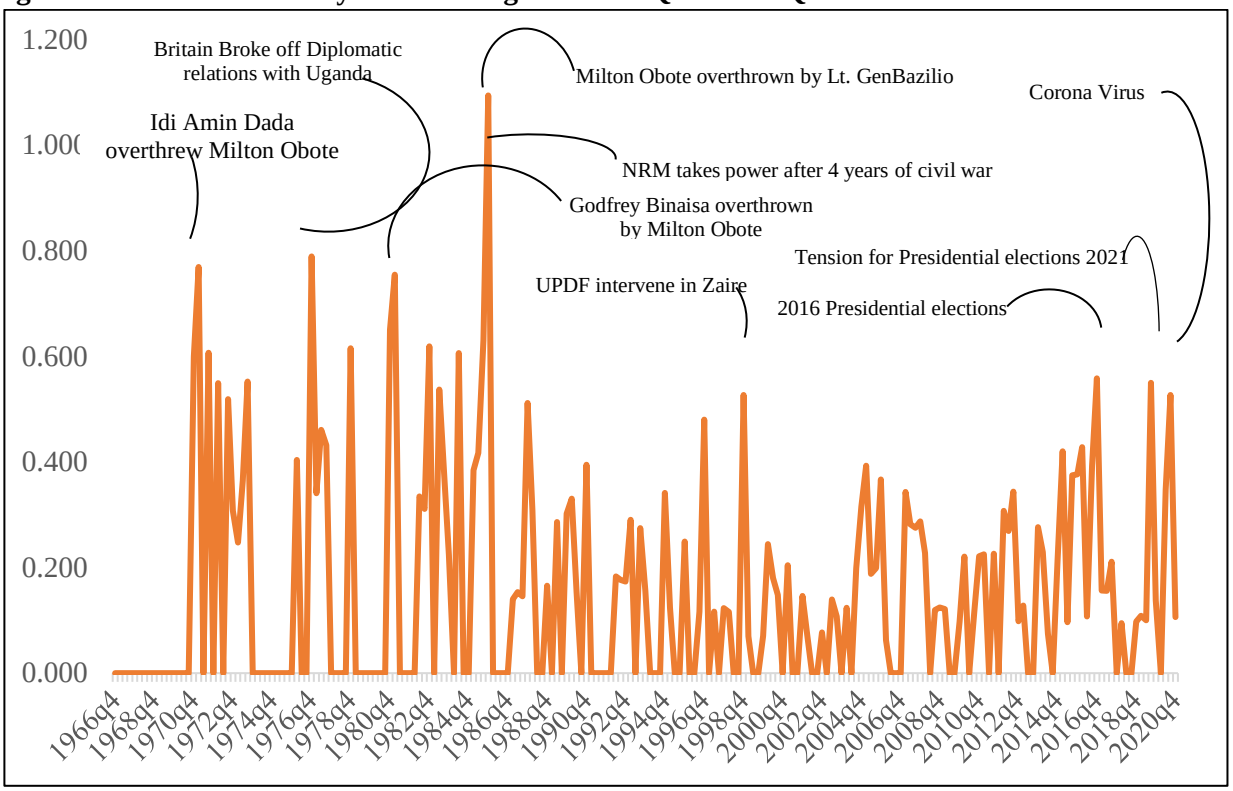
Figure 2: World Uncertainty Index for Uganda-1966Q4 & 2020Q4



Source: IMF World Uncertainty Data

On the other hand, a review of Uganda's fiscal policy framework reveals that the nation is dedicated to pursuing a fiscal policy that upholds macroeconomic stability and encourages inclusive, job-rich growth. Although this strategy is said to be ideal for maintaining debt sustainability, as shown in the nation's third National Development Plan (NDP III), the country is currently experiencing severe fiscal constraints, largely as a result of two major factors: rising expenditure pressures caused by the current and Post COVID-19 high priority spending requirements amounting to approximately 5.37 trillion; and declining revenues as a result of COVID-19 impacts on the economy (NPA, 2020).

In particular, domestic revenue collection from taxes and Tariffs has not increased fast enough to keep up with pressure from rising spending. As a result, it is quite difficult to raise money via conventional financial methods. The clear effects on private sector lending make further domestic finance expansion bad. Due to the current debt's borderline sustainability implications, much alone the crowding-out effect of the rising interest rate payments, an increase in external debt is not viable. Budget cuts have been made as a result, and any additional cuts would probably result in even more severe budgetary limitations (NPA, 2020). The revenue-to-GDP ratio has been below 15% for the previous ten years, yet public spending and lending currently account for more than 20% of GDP (see *Table 1*).

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Table 1: Central government fiscal framework (as % of GDP) for Uganda-2010-2020

	2010 /11	2011 /12	2012 /13	2013 /14	2014 /15	2015 /16	2016 /17	2017 /18	2018 /19	2019 /20
Revenues & Grants	12.7	15.5	13.1	12.8	12.6	14.4	15.2	15.4	16.2	15.2
Revenues	10.5	13.6	11.2	11.3	11.6	13.2	13.8	14.3	14.4	13.7
URA	10.3	10.9	10.3	11	11.4	12.4	13	13.5	13.6	13.2
Non-URA	0.2	2.7	0.9	0.3	0.2	0.8	0.8	0.8	0.8	0.5
Oil Revenue	0	2.5	0.7	0	0	0.2	0.1	0.1	1.8	1.5
Grants	2.1	1.9	1.9	1.4	1	1.2	1.4	1	0	0.1
Budget Support	1.1	1.1	1	0.3	0.3	0.3	0.4	0.3	0.3	0.3
Project Support	1	0.8	0.9	1.1	0.7	0.9	1	0.8	1.5	1.2
Expenditure and lending	16.7	19.1	15.6	16.2	16.6	18.7	20.1	19.3	22.5	19.3
Current Expenditures	10.5	12.7	9.1	9	9.5	10	11	11	10.4	10.9
Development Expenditures	6.1	6.1	6.1	6.5	7	6.8	7.1	7.4	9.8	8.5
Overall Fiscal Bal. (excl. Grants)	-6.1	-5.5	-4.4	-4.9	-5	-5.6	-6.7	-4.5	-8	-5.4
Overall Fiscal Bal. (incl. Grants)	-4	-3.6	-2.5	-3.5	-4	-4.4	-5.3	-3.5	-6.2	-3.9

Source: MoFPED

Yet, the Ugandan government is still devoted to making sure that the fiscal deficit stays within manageable ranges throughout the medium to long term. The third National Development Plan (NDPIII) macroeconomics framework for the years 2020–2025 chose a budget deficit path. In NDPIII, it is anticipated that the debt-to-GDP ratio will stay below 50%, the ratio of interest payments to domestic revenue will stay below 15%, and the EAC convergence criterion will be met in FY2024/25. The fiscal deficit was predicted to gradually decrease to below 3% of GDP by FY2024/25 in this country's macroeconomic framework while spending as a percentage of GDP was predicted to average 19.6% by 2025. However, as seen in *Table 1*, the expenditure to GDP ratio has a tendency that varies over time; by 2019–20, it had already reached 19.3%. The ratio of domestic revenue to GDP was predicted to be 12.9% in FY2020–2021 and 15.3% in FY2024–2025. Total revenues and grants were forecast to rise from 13.7% to 15.4% of GDP between FY 2020/21 and FY 2024/25, increasing domestic revenue to GDP by 0.52 percentage points annually. This was expected to reduce the nation's deficit and reliance on debt, keeping it at manageable levels (MoFPED, 2022).

An examination of the Uganda government's budget structure reveals a commitment on the part of the administration to frontload spending during the NDP III period. The deficit is anticipated to be 5.3% on average throughout this time, reaching a peak of 7.8% in 2020–2021 before declining to a low of 2.9% in 2024–2025. The primary deficit was predicted to decrease from a peak of 5.2% in 2020–21 and settle at 0.6 per cent in 2024–25, averaging 2.7% throughout the forecast period. However, the research demonstrates that, for the period of 2020–2025, external financing was to remain the primary source of financing for the deficit. Over the same time span, it was predicted that both domestic and overseas financing would decline. While domestic finance was expected to average no more than 1.0% of GDP, external financing was predicted to average 3.8% of GDP on average. On the other hand, it was anticipated that non-concessional borrowing would rise from 1.6% of GDP in 2020–21 to a peak of 3.1% in 2024–25 (MoFPED, 2022).

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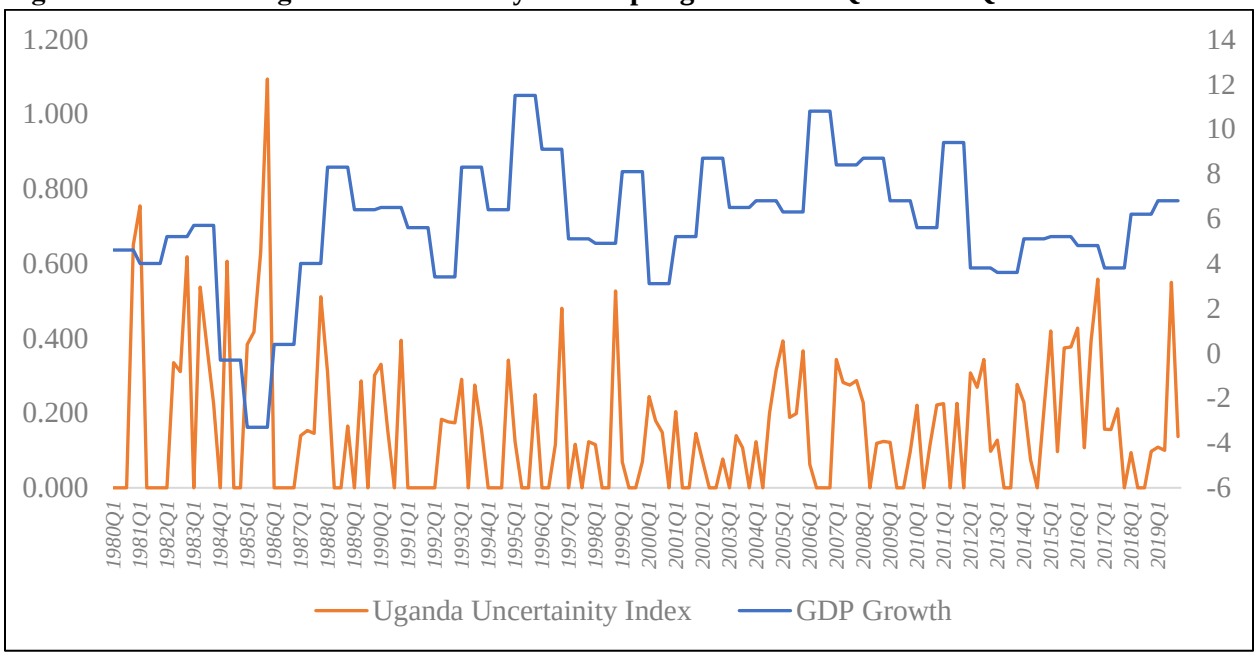
Figure 3: Trends in Uganda's uncertainty and output growth-1980Q1 & 2019Q4



Source: Author using IMF uncertainty data and WD Indicators

Given the above-described circumstances, two important concerns remain unaddressed in the instance of Uganda: (1) how does fiscal policy respond to uncertainty, and (2) how is output growth impacted by fiscal policy as a result of uncertainty? The level of uncertainty has increased significantly as a result of the recent Covid-19 epidemic, as shown in *Figures 1* and *2*, and it is still unknown how this may affect output growth. According to published research, the current Covid-19 epidemic is expected to rank among the most expensive pandemics in recent memory economically (Dave et al., 2020). Yet, the pandemic's macroeconomic repercussions are mostly felt in the form of escalating national and international economic policy uncertainty. For instance, the country saw considerable pessimism in investor mood between February and June 2020, as seen by the decline iUganda's Business Tendency Index, which went from 52.68 to 48.8 per cent during the COVID-19 period between February and June 2020. This shows that investors in the Ugandan economy were expecting less promising business opportunities and that they scaled back their participation to mitigate the perceived risks in the economy. In actuality, by June 2020, the Business TendencIndex's sub-components had all decreased.

To date, a number of reports have attempted to quantify the impact of the pandemic on the key macroeconomic indicators including inflation, fiscal health, public health, external sector indicators, and monetary and financial sector indicators but with less empirical reasoning. Indeed, literature shows that the past two decades have seen a surge of empirical research uncovering the relationship between various measures of fiscal policy and economic growth but with less effort to link the association with uncertainty. Fiscal policy is, without a doubt, important in ensuring efficiency in resource allocation, regulation of markets, stabilisation of the economy, and harmonisation of social conflicts to facilitate output growth (Karimi. *et al.*, 2018). But how output growth behaves in the face of uncertainty, and the uncertain fiscal response is not very clear, especially in the case of Uganda. The existing empirical findings are mixed, with some researchers finding the relationship between fiscal policy and growth positive (Karimi. *et al.*, 2018), negative, or indeterminate (Mansorouri,

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2011). This paper, therefore, seeks to answer the question of whether uncertainty alters hoUganda's fiscal policy and influences the country's economic growth using the latest data sets and rich econometric methodology.

The rest of the paper is organised as follows: In section 2, we present the literature review, while the theoretical framework, methodology and data sources are presented in section 3. In section 4, we present the results and findings, while in section 5, we provide the conclusion and recommendations.

LITERATURE REVIEW

Many empirical studies have been conducted on the connection between fiscal policy and economic growth, utilising cross-sectional, panel, and time-series regression techniques to examine various fiscal policies, various groups of nations, and various fiscal measures. Nijkamp and Poot (2002) found that 17% of studies showed positive relationships between various measures of fiscal policy and economic growth, 29% of studies showed negative relationships, and 54% of studies were inconclusive in their meta-analysis of 41 studies examining the impact of fiscal policies on long-run growth. While they discovered evidence of significant benefits of spending on infrastructure and education on growth, there was no comparable impact of fiscal variables generally. This is hardly unexpected given the complex interactions between several fiscal aggregates and the structure of spending and financing methods used.

In their study of 43 developing nations over the years 1970–1990, Devarajan et al. (1996) found no evidence of a substantial link between the composition of public expenditures and economic growth. Contrary to popular belief, Bhagat et al. (2013) discovered that while public investment had a substantial negative impact on economic development, public consumption had a considerable beneficial impact. Every element of government investment, including transportation and communication, was negatively impacted. Alloza (2017) also calculates levels of uncertainty as proxied by stock market volatility and the effects of fiscal policy as assessed by government spending over various economic cycle phases. He discovers that times of economic growth and minimal uncertainty are when government expenditure has the greatest impact on the economy. Owyang et al. (2013), in contrast, find that the data does not indicate greater multipliers during the US's economic downturn. Johannsen (2014) demonstrates via a theoretical model that when the zero lower bounds are binding, the effects of fiscal policy uncertainty are more significant M'Amanja & Morrissey (2005) investigated the Kenyan situation for 1964–2002 using a similar methodology and discovered a positive growth effect of public investment. Panel data for 15 developing nations from 1970 to 1987 were examined by Haque and Kim (2003) using fixed- and random-effects models. They discovered that spending on communication and transportation has a beneficial effect on economic growth. Similarly, Easterly and Rebelo (1993) found that investments in transportation and communication have a positive and significant impact on growth after using cross-section and panel data from various samples for more than 100 nations. Bernardin et al. (2015) found that expenditure on human capital (i.e., education and health) is connected with stronger economic growth using panel data on 120 developing nations. Nijkamp and Jacques Poot (2002) used a sample of 21 low- and medium-income countries from 1965 to 1984 to study the link between the sectoral allocation of public spending and economic growth. They concluded that investments in "human capital development" have the highest production elasticity, while those in infrastructure capital had positive but considerably lower output elasticity, and investments in military capital had negative output elasticity in half of the studied countries.

Guloba (2018) looked into the fiscal policy of Uganda from 2000 to 2016 and how it affected the country's public investment management. To

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determine if budgeted projects produced the desired results, the study analyses the project absorptive capacity and overall budgetary trend. Weak public investment capacity was found to result in public investment output that was below budget, which lessened the desired fiscal policy impact. Uganda must therefore strike a compromise between its expansionary fiscal policies and its capacity to absorb fiscal resources if it is to meet its financial goals.

Al-Jarrah (2005) used time-series approaches to analyse the causal relationship between Saudi Arabia's defence spending and economic growth from 1970 to 2003. He discovered evidence of two-way causality, showing that longer-term economic growth was negatively impacted by increasing defence spending. Several empirical research for emerging nations supports this. Al-Obaid (2004) examined the long-term relationship between total government spending and real gross domestic product using annual data from 1970 to 2001 in order to evaluate the viability o Wagner's law," the notion "that public spending tends to increase with economic growth. According to Wagner's prediction, the cointegration test revealed a positive long-run relationship between the GDP per capita and the share of public spending in GDP.

The analysis of the empirical literature reveals that little has been written that attempts to model the combined effect of uncertainty and fiscal policy on output growth. Using the threshold vector autoregressive model (TVAR) to endogenously estimate various uncertainty regimes, Arabic and Cover (2016) studied the efficiency of fiscal policy under various uncertainty regimes in the United States. Government spending shocks tend to crowd out private sector investment spending during periods of average or low uncertainty, but during periods of high uncertainty, after a one-year delay, government spending shocks"crowd-i" private sector investment expenditures. This is due to the fact that periods of high uncertainty are when fiscal policy shocks have a much greater impact on the economy. Similarly, Popiel (2020) used a common structural vector autoregression (SVAR) model to explore Fiscal policy, uncertainty, and US output. The findings showed that there is no consistent link between output and the uncertainty of fiscal policy. Moreover, Popiel (2020) demonstrates that a model with time-varying parameters revealed that the lack of consistency between specifications is not caused by variations in the transmission of uncertainty shocks over time.

Our research did not turn up any empirical data that sought to model the combined effect of uncertainty and fiscal policy on output growth in Uganda. Because of this, we use the most recent datasets and a rigorous econometric technique in this paper to provide an empirical evaluation of the interactive impact of uncertainty and fiscal policy on output growth. Within the context of the Autoregressive Distributed Lag model (ARDL), we investigate the process through which the influence of uncertainty is transmitted through government borrowing, spending, and tax on output growth.

METHODOLOGY AND DATA SOURCES

Theoretical Framework

The most appealing analytical framework for examining the effects of induced fiscal policy by uncertainty on output growth is provided by the endogenous growth theory. According to the endogenous growth theory, fiscal measures should be used to increase both the level and growth rate of output inside the model. This is in contrast to the neoclassical growth theory, which holds that since long-term growth is mostly influenced by exogenous and policy-invariant causes, the policy can only have a temporary impact on growth. The favoured paradigm in the literature on public finance is the endogenous growth theory since it offers a framework for analysing how policies affect growth (Barro, 1991; Sala-i-Martin, 1994).

Models of fiscal policy effects on growth are often constructed using the paradigm developed by Barro

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in 1991, followed by Barro and Sala-i-Martin (1992, 1995). By using a Cobb-Douglas production function with government spending, tax income, and government borrowing as inputs, this study is motivated by these studies. The fiscal policy can affect both the level of the output path and the steady-state growth rate in Barro and Sala-i-(1995) and Barro &Martin's (1991) public-policy endogenous growth models. Fiscal policy can change the incentives to save or invest in new capital, which changes the equilibrium capital-output ratio and, consequently, the level of the output path but not its slope in the endogenous growth model. This has temporary effects on growth as the economy transitions to its new path.

Fiscal policy becomes one of the primary causes of the observed variations in growth experiences in the exogenous growth model. By incorporating the function of fiscal policy in the production function as control variables, this study specifically adopts and expands the Solow growth model. The Solow growth model, in its structural form, credits growth in the nation's output to three sources: a rise in the stock of physical capital, an increase in the labour force's size, and a residual that encompasses all other elements. The continuous and homogenous aggregate production function of degree one is the one used by Solow (1956).

$$Y = F(L, K, T) \qquad [i]$$

Where Y is aggregate real output, K is stock of capital, L is labour, and T is technical change. Taking technical change as constant, equation *i* can be re-written as:

$$Y = Af(K, L) \qquad [ii]$$

Equation *ii* can be expressed in growth terms to obtain equation *iii* as below:

$$\frac{dY}{Y} = \frac{\left[A.\frac{dY}{dK}\right]dK}{Y} + \frac{\left[A.\frac{dY}{dN}.\frac{N}{Y}\right]dN}{Y} + \frac{dA}{A} \qquad [iii]$$

This can be written for estimation purposes as:

$$\frac{\Delta Y}{Y} = \alpha_0 + \frac{\alpha_1 I}{Y} + \frac{\alpha_2 \Delta N}{Y} \qquad [iv]$$

Where; $\alpha_0 = dA/A$; $\alpha_1 = A.dY/dK$; $\alpha_2 = A * dY/dN * N/Y$; $I = dK$ =Change in capital (Investment); I/Y =Ratio of investment to income; $\Delta N/Y$ =Ratio of change in population to income

The constant (α_0) is assumed to capture the growth in productivity, α_1 is the marginal productivity of capital and α_2 is the elasticity of output with respect to population. Therefore, with this background, the model can be formed as follows:

$$Gy_t = \alpha_0 + \alpha_1 Gk_t + \alpha_2 Gl_t + v_t \qquad [v]$$

Where: Gy = Growth rate of real GDP; Gk = Growth rate of capital; Gl = Growth rate of labour; v =Disturbance term

The coefficients (α_s) are estimated. Since the study examines how induced fiscal policy (proxied by tax revenue, government expenditure and borrowing as the main fiscal policy instruments) affects output growth, we introduced these to the growth model as control variables. To capture how uncertainty induces fiscal policy, we created an interaction term between fiscal policy instruments and uncertainty. Given this adjustment, equation *v* is modified as follows:

$$Gy_t = \alpha_0 + \alpha_1 Gk_t + \alpha_2 Gl_t + \alpha_3 (Gge * Uncer)_t + \alpha_4 (Ggb * Uncer)_t + \alpha_5 (Gtr * Uncer)_t + v_t \qquad [vi]$$

Where Gy_t is the growth rate of output-a measure of economic growth, Gk_t is the growth rate of capital stock and $Gl_t$is the growth rate of the labour force which are the initial variables predicted by Solow (1956) to affect economic growth. While Gge_t in equation *vi* is the growth rate of government expenditure as a percentage of GDP, $Ggb_t$is the growth rate of government borrowing proxied by external debt stock a percentage of GDP and $Gtr_t$is the is growth rate of tax revenue measured as a

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percentage of GDP and $Uncer_t$ is the measure of uncertainty that is interacted with all the fiscal policy variables to capture how uncertainty induces the impact of fiscal policy on output growth at a point in time.

The equation argues the existence of a potential long-run association between output growth and four inputs; that is; capital stock, Labour force and government expenditure (Gge_t). Tax revenue (Gtr_t) is expected to have a negative effect on GDP growth, while government borrowing (Ggb_t) is expected to have either a negative or a positive effect on output growth. The constant (α_0) captures the growth in productivity, α_1 is the marginal productivity of capital and α_2 is the elasticity of output with respect to population.

Empirical Model Estimated and Data Sources

In this study, we adopt the Autoregressive Distributed Lag model (ARDL) developed by Pesaran and Shin (1995) due to the statistical behaviour of the variables used in the analysis. The ARDL method allows for a mix of I (0) and I (1) variables in the same cointegration equation. In addition, the ARDL method allows for the estimation of the long-run effects jointly with the short-run effects and the method is appropriate to account for the effects of shocks in the model. The estimated model is based on the equation vii.

$$GDPG_t = \alpha_0 + \alpha_1 GDP_{t-1} + \alpha_2 Gk_{t-1} + \alpha_3 Gl_{t-1} + \alpha_4 (Gge_{t-1} * Uncer_{t-1}) + \alpha_5 (Ggb_{t-1} * Uncer_{t-1}) + \alpha_6 (Gtr_{t-1} * Uncer_{t-1}) + \sum_{i=1}^{n} \partial_1 \Delta (GDPG)_{t-1} + \sum_{i=0}^{n} \partial_2 \Delta (Gk)_{t-1} + \sum_{i=1}^{n} \partial_3 \Delta (Gl)_{t-1} + \sum_{i=0}^{n} \partial_4 \Delta (Gge_{t-1} * Uncer_{t-1}) + \sum_{i=0}^{n} \partial_5 \Delta (gb_{t-1} * Uncer_{t-1})_{t-1} + \sum_{i=0}^{n} \partial_6 \Delta ((Gtr_{t-1} * Uncer_{t-1})_{t-1} + u_t \quad [vii]$$

From equation vii, u_t, β, and ∂ are the white-noise error term, the short-run coefficients, and the long-run coefficients of the model, respectively. Δ Is the first difference operator, t denotes the time period, and n is the maximum number of lags in the model. This model is estimated using Eviews10 and the maximum lag of each regressor (k) is obtained by minimising the Akaike Information Criteria. The data used in the estimation include GDP growth, total tax revenue as a ratio to GDP, general government expenditure as a ratio to GDP, total government borrowing as a ratio to GDP, labour force growth and capital stock. These data sets were obtained from different sources. Data on fiscal measures were obtained from the Ministry of Finance Planning and Economic Development, data on uncertainty was obtained from the IMF, while data on capital stock and labour force growth were obtained from the World Development Indicators of the world bank. The definition of variables is contained in *Table 2*.

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Table 2: Definition of variables and sources of data

Variable and symbol	Definition	Source of data
GDP growth (Gy_t)	Growth in gross domestic product measured in percentages and this is the dependent variable in this study.	World Bank
Uncertainty ($Uncer_t$)	Uncertainty refers to essentialist or epistemic situations involving imperfect information that arises due to stochastic or partially observable environments, as well as due to ignorance, sluggishness, or both.	IMF
Capital Stock (Gk_t)	Capital stock consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories	World Bank
Labourforce (Gl_t)	Labour force is the total labour pool that is available in any country at a point in time and includes those who are either in employment or those that are unemployed.	World Bank
Government expenditure (Gge_t)	Government expenditure refers to the purchase of goods and services, which include public consumption and public investment, and transfer payments consisting of income transfers such as pensions and social benefits as well as capital transfer.	World Bank
Government borrowing (Ggb_t)	Government borrowing is essentially the total amount of money that the central government borrows to fund its spending on public services and falls under capital receipts in the Budget document. In other word, government borrowing is the amount of money that the government borrows to spend on public services.	World Bank
Tax revenue (Gpr_t)	Tax revenue refers to the income that is gained by governments through taxation and is the result of the application of a tax rate to a tax base.	MoFPED/GoU

RESULTS AND FINDINGS

Stationarity Analysis

The augmented Dickey-Fuller (ADF) and Phillips Peron tests were utilised to ascertain the time series characteristics of the variables including GDP growth, total tax revenue as a ratio of GDP, general government expenditure as a ratio of GDP, total government borrowing as a ratio of GDP, Labour force growth and capital stock. The results indicated that GDP growth, uncertainty and labour force growth are stationary in levels while capital stock and all other fiscal policy measures used in the analysis haven unit root at the level. Yet, after the initial differences, these become stationary. This has the implication that neither the Vector Error Correction (VEC) approach nor Ordinary Least Squares estimation could be used to estimate the model. As a result, the study used an Autoregressive Distributed Lag (ARDL) model to evaluate for any potential cointegration between the variables.

The F-Bounds Cointegration Analysis

Due to the statistical behaviour of the variables utilised in the analysis, we choose the Autoregressive Distributed Lag model (ARDL) proposed by Pesaran and Shin (1995) for this investigation. With the use of this technique, it is possible to empirically investigate variables that are both I (0) and I (1) in the same cointegration equation. Similar to this, the ARDL technique enables the estimation of both long- and short-term effects simultaneously, and the method is suitable for considering the impacts of shocks in the model. The primary finding of this analysis is that the

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variables are cointegrated, as shown by the cointegration results in *Table 3*.

Table 3: F-Bounds cointegration test results

F-Bounds Test		Null Hypothesis: No levels of relationship		
Test Statistic	**Value**	**Signif.**	**I (0)**	**I (1)**
		Asymptotic: n=1000		
F-statistic	3.766816	10%	2.75	3.79
K	5	5%	3.12	4.25
		2.5%	3.49	4.67
		1%	3.93	5.23
Actual Sample Size	163	Finite Sample: n=80		
		10%	2.867	3.975
		5%	3.335	4.535
		1%	4.375	5.703

Source: Output from EViews10

The results presented in *Table 3* indicate that the computed *F*-statistic is 3.76, while the Pesaran lower and the upper asymptotic critical values are 3.12 and 4.25, respectively. Since the lower bound critical value assumes that all the regressors are I(0), while the upper bound critical value assumes that they are I(1), the null hypothesis of no cointegration was rejected since the computed test statistic exceeds the lower critical bounds value and below the upper critical bounds value. Consequently, the main conclusion from the above analysis is that the variables are cointegrated and we thus proceed to estimate the ARDL model to ascertain the short and long-run impact of fiscal policy induced by uncertainty on Uganda's output growth.

Empirical Analysis

To ascertain the short and long-run impact of fiscal policy induced by uncertainty on Uganda's output growth, the ARDL general to-specific approach was utilised. Following the estimation of the mode, the short-run coefficients without uncertainty are presented in *Table 4*, while coefficients with the introduction of uncertainty are presented in *Table 4*. Interestingly to note, among the three fiscal policy measures adopted in this study, government borrowing is the least affected in the face of uncertainty both in the short and long run. Tax revenue and government expenditure are the most affected fiscal policy measures in the presence of uncertainty.

Our findings indicate that in the short run, a percentage point increase in tax revenue increases output growth by approximately 0.098 percentage points, keeping all other factors constant. However, the introduction of uncertainty into tax revenue, a percentage point increase in the tax revenue reduces output growth by approximately 0.366 percentage points. Further, a percentage point increase in government borrowing has a negative instantaneous impact on output growth, but the impact becomes positive after a lag of one year keeping all other factors constant. The findings indicate that a percentage point increase in government borrowing reduces output growth by approximately 0.05 percentage points in the same year but increases growth in output by approximately 0.072 percentage points after one year. With the introduction of uncertainty into government borrowing, a percentage point increase in borrowing only increases output growth by approximately 0.066 percentage points.

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Table 4: Short-run dynamics without uncertainty

Dependent Variable: GDP GROWTH: Method: ARDL: Selected Model: ARDL (1, 0, 1, 1, 0, 0) selected based on Akaike Information Criterion				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.***
GDP_GROWTH (-1)	0.811436	0.043303	18.73844	0.0000
TAX_REVENUE	0.098130	0.039196	2.503573	0.0133
GOV_BORROWING	-0.056376	0.020220	-2.788151	0.0060
GOV_BORROWING (-1)	0.071757	0.019805	3.623163	0.0004
GOV_EXPENDITURE	-0.301795	0.109226	-2.763040	0.0064
GOV_EXPENDITURE (-1)	0.185993	0.110132	1.688818	0.0933
CAPITAL_FORMATION	0.162734	0.085129	1.911612	0.0578
POPULATION_GROWTH	0.221648	0.671894	0.329885	0.7419
C	0.694974	2.744320	0.253241	0.8004
@TREND	0.025102	0.013744	1.826430	0.0697
R-squared	0.801413	Mean dependent var		5.678608
Adjusted R-squared	0.789732	S.D. dependent var		2.815681
S.E. of regression	1.291131	Akaike info criterion		3.408301
Log likelihood	-267.7765	Hannan-Quinn criter.		3.485358
F-statistic	68.60497	Durbin-Watson stat		1.913834
Prob(F-statistic)	0.000000			

Source: Output from EViews10

On government expenditure, just like government borrowing, a percentage point increase in expenditure has an instantaneous negative impact on output growth, but the impact turns positive after a lag of one year keeping all other factors constant. The findings indicate that output growth reduces by nearly 0.30 percentage points within the first year and increases by about 0.18 percentage points after a lag of one year due to a percentage point increase in government expenditure keeping all other factors constant. However, with uncertainty, a percentage point increase in government expenditure reduces output growth by approximately -0.43 percentage points Ceteris Paribas.

Table 5: Short-run dynamics with uncertainty

Dependent Variable: GDP GROWTH: Method: ARDL: Selected Model: ARDL (1, 1, 0, 0, 0, 0) selected based on Akaike Information Criterion				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.***
GDP_GROWTH (-1)	0.815813	0.044261	18.43172	0.0000
UNCERTAINIY_TAXREVENUE	-0.196056	0.138809	-1.412416	0.1598
UNCERTAINIY _TAXREVE (-1)	-0.366198	0.100143	-3.656749	0.0004
UNCERTAINIY _GOVBORROWING	0.066130	0.034984	1.890300	0.0606
UNCERTAINIY _GOVEXPENDITURE	-0.433692	0.128830	-3.366379	0.0010
CAPITAL_FORMATION	0.139817	0.065197	2.144521	0.0336
POPULATION_GROWTH	0.430989	0.581094	0.741686	0.4594
C	3.074974	2.156270	1.426061	0.1559
@TREND	0.024906	0.010158	2.451858	0.0153
R-squared	0.802373	Mean dependent var		5.678608
Adjusted R-squared	0.792107	S.D. dependent var		2.815681
S.E. of regression	1.283817	Akaike info criterion		3.391185
Log likelihood	-267.3816	Hannan-Quinn criter.		3.460536
F-statistic	78.15590	Durbin-Watson stat		1.889378
Prob(F-statistic)	0.000000			

Source: Output from EViews10

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Therefore, in the short run, the impact of uncertainty on output growth is transmitted mostly through government expenditure and tax revenue. This can be argued that in the presence of uncertainty, such as the current covid-19 pandemic, economic activities and supply value chains are disrupted globally, the government is not assured of the amount of tax revenue collection, the revenue body revises its targets downwards, and so are government entities on downsizing their fiscal budgets. Overall, government expenditure shrinks, and so is the general expenditure multiplier; this eventually affects output growth negatively. Our findings further indicate that the impact of government borrowing on output growth is least affected in the face of uncertainty. This can be argued that, in the presence of uncertainty, the public sector remains the only less risky entity to both domestic and international lenders to extend credit to. Thus, even when the business environment is less friendly to all economic agents, the government entity remains less vulnerable to accessing credit. This therefore explains why uncertainty affects more tax revenue collections and government expenditure.

To ascertain the long-run dynamics of the joint impact of fiscal policy and uncertainty on output growth, the ARDL model produced the long-run coefficients with and without uncertainty, as presented in *Tables 5* and *6*, respectively. Interestingly, the long-run dynamics show that all three fiscal policy measures adopted in this study have a significant positive impact on output growth without uncertainty (see *Table 6*). The growth of capital stock also has a significant impact on output growth, while the impact of population growth fails the statistical significance.

Table 6: Long-run dynamics without uncertainty

Levels Equation				
Case 4: Unrestricted Constant and Restricted Trend				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
TAX_REVENUE	0.520407	0.213589	2.436484	0.0160
GOV_BORROWING	0.081567	0.030350	2.687587	0.0080
GOV_EXPENDITURE	0.614126	0.268728	2.285305	0.0237
CAPITAL_FORMATION	0.863020	0.443722	1.944956	0.0536
POPULATION_GROWTH	1.175450	3.649649	0.322072	0.7478
@TREND	0.133123	0.069556	1.913888	0.0575

Source: Output from EViews10

However, in the presence of uncertainty, the impact of tax revenue on output growth remains positive but statistically inconsequential, even at a 10% level of significance. The impact of government borrowing on growth remains positive and enlarges, while the impact of government expenditure turns negative and upsurges in absolute magnitude (see *Table 7*). The impact of the growth rate of capital stock on growth remains positive but reduces in absolute magnitude from 0.86 to 0.76 percentage points, respectively. This is in line with studies such as (Benati, 2013; Aizenman & Marion, 1993; Ssebulime & Bbaale, 2019; Popiel, 2020; Arčabić & Cover, 2016; Muvawala et al., 2020) among others.

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Table 7: Long run dynamics - with uncertainty

Levels Equation				
Case 5: Unrestricted Constant and Unrestricted Trend				
Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
UNCERTAINIY_TAXREVENUE	0.923743	0.653704	1.413091	0.1596
UNCERTAINIY _GOVBORROWING	0.359035	0.196158	1.830333	0.0691
UNCERTAINIY _GOVEXPENDITURE	-2.354627	0.711733	-3.308300	0.0012
CAPITAL_FORMATION	0.759102	0.372443	2.038171	0.0432
POPULATION_GROWTH	-2.339952	3.049014	-0.767445	0.4440

Source: Output from EViews10

Therefore, among the three fiscal policy measures adopted in this study, government borrowing is the least affected in the face of uncertainty both in the short and long run. The implication of this finding is that in the frugality and judiciousness of rising global and domestic uncertainty, the projected growth and growth outturn inbound to diverge significantly over time unless government macroeconomic frameworks fully incorporate economic uncertainties into their projections. Uganda's government is thus bound to utilise borrowing avenues in the most optimal means possible to stimulate and sustain growth. While domestic tax revenues have proved to spur growth both in the short and the long run, the impact is bound to shrink in the face of uncertainty. The findings are in line with studies such as (Benati, 2013; Aizenman & Marion, 1993; Ssebulime & Bbaale, 2019; Popiel, 2020; Arčabić & Cover, 2016; Muvawala et al., 2020) among others.

CONCLUSIONS AND RECOMMENDATIONS

In conclusion, the study examined how fiscal policy and uncertainty interact to affect Uganda's economic growth. The analysis showed that government borrowing is the fiscal policy measure least affected by uncertainty, both in the short and long terms. The fiscal policy metrics most impacted by uncertainty are tax collection and government spending. The study also found that tax income and government spending account for the majority of uncertainty effects on output growth in the short term. The explanation we offer for this conclusion is that when there is uncertainty, like the COVID-19 pandemic, economic activities and supply value chains are disrupted globally, the government is unsure of the amount of tax revenue collection, the revenue agency lowers its targets, and government entities lower their fiscal budgets, government spending decreases, and the general expenditure multiplier decreases, which eventually affects output growth. The public sector continues to be the sole institution that is less hazardous for both domestic and foreign lenders to grant credit to in the midst of uncertainty, which means that the impact of government borrowing on output growth is least influenced by it.

Hence, the government entity stays less susceptible to obtaining loans even when the business environment is less favourable to all economic agents. This explains why government spending and tax revenue collections are more affected by uncertainty than government borrowing. The paper concludes that until government macroeconomic frameworks effectively include economic uncertainties in their estimates, the anticipated growth and growth outturn are expected to deviate greatly in the face of rising global and domestic uncertainty. We urge the government to make the best use of the borrowing option in order to promote and maintain growth. Even while domestic tax revenues have been shown to promote growth in both the short- and long-term, the effect will inevitably diminish in the face of uncertainty. Government should create strict regulations and guidelines for the effective use of borrowed money, particularly for public investments having the

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potential to seriously undermine the nation's production capacity.

DECLARATION

Availability of Data and Material

This paper was undertaken for the period 1980-2020 and it used secondary annual data. Data used in the estimation include GDP growth, total tax revenue as a ratio of GDP, general government expenditure as a ratio of GDP, total government borrowing as a ratio of GDP, Labour force growth and capital stock. These data sets were obtained from different sources. Data on fiscal measures were obtained from the Ministry of Finance Planning and Economic Development and available at *'http://finance.go.ug/funding-release'*; data on uncertainty was obtained from the IMF, while data on capital stock and Labourforce growth were obtained from the World Development Indicators of the world bank available at *(https://data.worldbank.org/country/uganda?view)* . All the data analysed are available on request from the corresponding author.

Competing Interests

The Authors declare that they have no competing interest in this publication whatsoever.

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SK is the main author of the manuscript, he initiated the research idea, undertook a literature review, developed the theoretical framework, collected and analysed the data from the different sources. MI and JM are co-authors of this manuscript. They approved the research idea, supported the theoretical underpinning of the research paper, undertook quality assurance and supported the empirical data analysis and generation of policy implications. All authors read and approved the final manuscript.

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REFERENCES

Ahir, H., Bloom, N., & Furceri, D. (2020). The IMF's World Uncertainty Index (WUI). *Finance and Development*, 58–60.

Al-Jarrah, M. A. (2005). Defense spending and economic growth in an oil-rich country: The case of Saudi Arabia. *Pakistan Economic and Social Review*, 151-166.

Alloza, M. (2017) *"Is fiscal policy more effective in uncertain times or during recessions"* Working Papers 1730, Banco de España.https://ideas.repec.org/p/bde/wpaper/1730.html

Al-Obaid, H. M. (2004). *Rapidly changing economic environments and theWagner's Law: The case of Saudi Arabia*. Colorado State University.

Aizenman, J., & Marion, N. P. (1993). Policy Uncertainty, Persistence and Growth. *Review of International Economics*, *1*(2), 145–163.

Arčabić, V., & Cover, J. P. (2016). Uncertainty and the effectiveness of fiscal policy. *EFZG working paper series*, (11), 1-29.

Barro, R. J. (1991). Economic growth in a cross-section of countries. *Quarterly Journal of Economics*, *106*, 407–443.

Beckmann, J., & Czudaj, R. (2020). Fiscal policy uncertainity and its effects on the real economy:

Article DOI: https://doi.org/10.37284/eajbe.6.1.1289

Chemnitz Economic Papers, Chemnitz University of Technology, Faculty of Economics and Business Administration, Chemnitz, 039.

Benati, L. (2013). Economic Policy Uncertainty and the Great Recession. *Journal of Applied Econometrics*, 1–31.

Bernardin, A., Abdelhak, S., Eva, J., Rossen, R., Mark De, B., & Todd, M. (2015). Fiscal Policy and Long-Term Growth. *International Monetary Fund Washington, D.C.*, *15*(June).

Bloom, N. (2009). The impact of uncertainty shocks. *Econometrica*, *77*(3), 623–685.

BOU. (2020). Monetary Policy Report- October 2020-Bank of Uganda. *Republic of Uganda*, *December*.

BoU. (2020). State of the Economy-Monetary Policy Report. Government of Uganda, Kampala.

Bhagat, S., Ghosh, P., & Rangan, S. P. (2013). Economic Policy Uncertainty and Economic Growth in India, Research Paper No. 407. *Indian Institute of Management (IIM), Bangalore, India*, *May 2013*.

Dave, A., S. B., Jose Maria, B., Nicholas, B., Philip, B., Scarlet, C. Gregory, T. (2020). Economic uncertainty before and during the COVID-19 pandemic. *Journal of Public Economics*, 104274.

Davis,S. J, Baker, S. R., Bloom, N., and (2020). Measuring economic policy uncertainty. The *Quarterly Journal of Economics*, *131*(4), 1593-1636.

Devarajan, S, Swaroop, V and Zou, H (1996). What do governments buy? The composition of public spending and economic performance. *Policy Research Disservnation centre*.

Dino Merotto. (2019). "*Uganda: Jobs Strategy for Inclusive Growth*." World Bank, Washington, DC. License: Creative Commons Attribution CC BY 3.0 IGO.

Easterly, W. & Schmidt-Hebbel, K. (1993). Fiscal Deficits and Macroeconomic Performance in Developing Countries. *World Bank Research Observer, 8(2).*

Guloba, A. (2018). Uganda' s Fiscal Policy (2000-2016): Implications for Public Investment Management (PIM). *American Journal of Industrial and Business Management*, *8*, 514–536.

Haque, M. E., & Kim, D. H. (2003). P*ublic investment in transportation and communication and growth: a dynamic panel approach*. University of Manchester, School of Economic Studies.

Johannsen, B.K. (2014). When are the Effects of Fiscal Policy Uncertainty Large? *Finance and Economics Discussion Series 2014-40*, Board of Governors of the Federal Reserve System (U.S.).

Karimi Ghaleh Jough, F., & Beheshti Aval, S. B. (2018). Uncertainty analysis through development of seismic fragility curve for an SMRF structure using an adaptive neuro-fuzzy inference system based on fuzzy C-means algorithm. *Scientia Iranica*, *25*(6), 2938-2953.Q

Mansorouri, G (2011). Fiscal Policy in Good Times, Bad and uncertain times." *Working paper 114*(4): 1399-1436.

M'Amanja, D., & Morrissey, O. (2005). Fiscal Policy and Economic Growth in Kenya. Centre for Research in Economic Development and International Trade, University of Nottingham, 05/06.

MoFPED (2022). Background to the Budget 2022/23. *Ministry of Finance Planning and Economic Development*. https://www.finance.go.ug/sites/default/files/P

Article DOI: https://doi.org/10.37284/eajbe.6.1.1289

ublications/Background%20to%20the%20Budget%20FY%202022-23.pdf

Muvawala, J., Sebukeera, H., & Ssebulime, K. (2020). Socio-economic impacts of transport infrastructure investment in Uganda: Insight from frontloading expenditure on Uganda's urban roads and highways. *Research in Transportation Economics*.

NPA (2015). Second National Development Plan for Uganda 2015/ 16 - 2019/20. *National Planning Authority*. Retrieved from: http://npa.ug/wp-content/uploads/NDPII-Final.pdf.

NPA (2020). Third National Development Plan for Uganda 2015/ 16 - 2019/20. *National Planning Authority*. Retrieved from: http://www.npa.go.ug/wp-content/uploads/2020/08/NDPIII-Finale_Compressed.pdf.

Nijkamp, P., & Jacques Poot, V. (2002). Meta-Analysis of the Impact of Fiscal Policies on Long-Run Growth. *Tinbergen Institute, Amsterdam and Rotterdam, 02*, 028/3.

Owyang, M. T., Ramey, V. A., & Zubairy, S. (2013). Are government spending multipliers greater during periods of slack? Evidence from twentieth-century historical data. *American Economic Review*, *103*(3), 129-134.

Pesaran, M. H., & Shin, Y. (1995). An autoregressive distributed lag modelling approach to cointegration analysis (Vol. 9514). Cambridge, UK: Department of Applied Economics, University of Cambridge.

Popiel, M. K. (2020). Fiscal policy uncertainty and US output. *Studies in Nonlinear Dynamics and Econometrics*, *24*(2), 1–27. https://doi.org/10.1515/snde-2018-0024

Sala-i-Martin, X. (1994). Economic growth: cross-sectional regressions and the empirics of economic growth. *European Economic Review*, *38*, 739–747.

Solow, R. M. (1956). A Contribution to the Theory of Economic Growth. *The Quarterly Journal of Economics*, *70*. https://doi.org/10.2307/1884513

Ssebulime, K., & Bbaale, E. (2019). Budget deficit and inflation nexus in Uganda 1980–2016: a cointegration and error correction modeling approach. *Journal of Economic Structures*, *8*(1).

