Inflation Legacies: Do Early-Life Experiences Affect African Central Bankers' Policy Preferences?

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Abstract

This paper examines whether the decision-making dynamics of African central bankers are impacted by early-life experiences with inflation crises. We address this question by developing a Barro-Gordon (1983) style model where a central banker with past exposure to an inflation crisis prefers a more hawkish monetary policy. To evaluate our theory, we use data from 26 African countries between 1990 and 2020 to understand the impact of early-life experiences on the policy preferences of African central bankers. Our empirical findings show that 1) Money grows at a significantly lower rate when a central banker experiences inflation crises in early life; 2) The magnitude of the decline in money growth is positively related to the number of early-life inflation crises that a central banker experiences; and 3) Early-life experiences with inflation crises continue to have a significant impact even when a central banker's professional experience and educational level are taken into account.

Keywords: Inflation crisis; Early-life experiences; Central bank governors; Broad money; Childhood.

JEL Classifications: E52, E58, E61, F3.

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1 Introduction

A central banker's policy preferences are influenced by the macroeconomic environment that he or she experiences in the formative years of childhood and young adulthood. Farvaque, Malan, and Stanek (2020) shows that central bankers from developed economies who lived through a recession in those early years are more likely to promote a monetary policy that focuses on output stability. Unlike in the developed world, many people in African countries have suffered through inflation crises (i.e., an annual inflation rate of 20% or higher) that have drastically reduced purchasing power and caused extreme poverty. We contend that an African central banker who experiences inflation crises in his youth should respond aggressively to inflationary shocks. This paper investigates whether early-life experiences with inflation crises cause an African central banker to pursue a more hawkish monetary policy, and the number of experiences with inflation crises impacts the intensity of the policy response.

The literature in economics and finance has shown that early-life experiences influence the attitudes and behaviors of individuals later in life. Malmendier, Tate, and Yan (2011) finds that CEOs raised during the Great Depression demonstrate an aversion to debt and, as a result, choose to rely heavily on internal financing to fund their capital investments. Bernile, Bhagwat, and Rau (2017) shows that CEOs who weathered disasters in their early professional years are more willing to take risks than CEOs who have not had those same experiences. Emmenegger, Marx, and Schraff (2017) finds that experiences with unemployment at a young age diminish long-term political interest and participation. In terms of other socioeconomic work, Cotofan, Dur, and Meier (2024) concludes that individuals who grow up during a recession are less likely to support immigration as adults.

In this study, we focus on African central bankers' early-life experiences with inflation crises to determine if those experiences impact their approaches to monetary policy. Our analysis accounts for Africa's unique political and economic environment compared to other regions of the developing and developed world. Many African central banks face challenges in implementing monetary policies that must balance the public's desire for low inflation with the government's need for seigniorage revenue to promote economic growth.[1] Some African central banks have become more legally independent in recent years, but effectively, the political leadership in those countries still retain a substantial influence over monetary policy decisions. Nonetheless, African central bankers who experience inflation crises in their youth will likely pursue more hawkish monetary policies. A benefit of those inflation-averse policies is that they help mitigate some of the pressures from the countries' political leadership to use inflation as a funding mechanism for fiscal priorities.

This paper builds a theoretical model of the optimal monetary policy selected by an African central banker. The model incorporates two characteristics consistent with the macroeconomic environment in Africa. One, an African central banker who develops a dislike for inflation in the formative years may insert that bias into policy by asymmetrically adjusting the bank's output target in response to economic shocks. Two, an African central banker considers both monetary and fiscal policy when making policy decisions, regardless of

[1] Click (1998) finds that countries which cannot easily borrow in capital markets are more likely to use seigniorage to fund government spending.

the fact that some central banks in Africa have gained greater independence in recent years. That is, African central bankers consider the effects of their policies not only on inflation and output, but also on taxes and government spending.

Empirical tests are conducted to determine whether the exposure to inflation crises in early-life impacts an African central banker's policy choices. We begin by identifying all the central bankers from 26 African countries who governed their respective central banks from 1990 through 2020 and then tabulate the number of years for each central banker that the annual inflation rate was 20% or higher in their youth. That data is utilized to construct four distinct variables representing a person's real-life experiences with inflation crises. Each of the four variables is estimated separately in a fixed effects regression where the growth rate of broad money is the policy instrument and, as such, the dependent variable in the regression. The results show that a central banker who experiences inflation crises in youth is less likely to advocate for expansionary monetary policy. That *pushback* from the central banker counteracts some of the impact of fiscal dominance in African countries. Formally, our analysis shows money growth is lower when a central banker experiences either a greater number of total years or successive years (i.e., years in a row) of high inflation in the early years of life. The results also reveal that a central banker who lived through two or more years of inflation crises is more likely to restrain the growth rate of money. Finally, a sensitivity analysis shows our main results continue to hold even when the model accounts for the professional experience and educational level of the central banker.

Our research makes three important contributions to the existing literature regarding the impact of early-life experiences on behavior later in life. One, it develops a theoretical model inspired by Barro and Gordon (1983) to determine the role of early-life experiences with inflation crises in shaping the monetary policy actions of central bankers. Two, the study assembles data on the number of inflation crises encountered by African central bankers in their formative years. Three, to our knowledge, this paper is the first to identify an empirical link between an African central banker's early-life experiences with inflation crises and his monetary policy actions.

The remaining sections of this paper are organized as follows: Section 2 outlines our theoretical model where an African central banker who experiences inflation crises in the early years pursues a more hawkish monetary policy. Section 3 discusses the data and the estimation method employed. Section 4 presents our main empirical results and compares them to the findings in our theoretical model. Section 5 conducts a sensitivity analysis of our empirical results. Section 6 concludes.

2 The Theoretical Model and Results

This section develops a model where inflation-averse African central bankers asymmetrically adjust their output targets to prevent inflation from accelerating after a negative aggregate supply shock. An inflation-averse central banker is a central banker who experiences an annual inflation rate of 20% or higher before reaching the age of 25. Our approach modifies Gerlach's (2003) recession-aversion model in two ways. One, we assume African policymakers have a greater dislike for high inflation rather than for low output. Two, our model incorporates the idea that coordination of fiscal and monetary policy is more prevalent in African

economies compared to developed economies. That is, we assume African central bankers are just as concerned about the level of taxation and the degree of government spending as they are about the rate of inflation and the amount of output.

African government officials, including central bankers, prioritize minimizing the inflation rate, the deviation of output from the government's output target, y_t^T, taxes' share of output, and the deviation of government spending's share of output from its socially optimal level, $\overline{g}$. Those preferences are quantified in the government's utility function:

$$U = \left(-\frac{1}{2}\right)\left[\phi_\pi \pi_t^2 + \left(y_t - y_t^T\right)^2 + \phi_\tau \tau_t^2 + \phi_g \left(g_t - \overline{g}\right)^2\right], \tag{1}$$

where the parameters $\phi_\pi > 0$, $\phi_\tau > 0$, and $\phi_g > 0$.[2] The central banker selects the output target as a function of both the steady-state level of output when taxes are zero, $\overline{y}$, and the inflation-averse response to a negative aggregate supply shock, $k\left(e^{-\varepsilon_t} - 1\right)$:

$$y_t^T = \overline{y} - k\left(e^{-\varepsilon_t} - 1\right), \tag{2}$$

where $0 < k \lesssim 1$ measures the central banker's degree of inflation aversion.[3] A calibration of $k = 0$ indicates the central banker is not averse to inflation, whereas a value of k close to 1 indicates the policymaker intensely dislikes inflation. In our model, the primary reason that a central banker is averse to inflation is that he experienced one or more inflation crises in early life. A Taylor series approximation of the output target's response to ε_t shows that $e^{-\varepsilon_t} - 1 \approx \varepsilon_t^2/2 - \varepsilon_t$.[4] Thus, an inflation-averse policymaker's response to an aggregate supply shock is asymmetric because the policymaker will reduce y_t^T more after a negative aggregate supply shock, $\varepsilon_t < 0$, than he will raise y_t^T after a positive aggregate supply shock, $\varepsilon_t > 0$, of the same size. That asymmetric change in y_t^T results in a smaller increase in inflation following the negative supply shock compared to the larger decrease in inflation following the same-sized, positive aggregate supply shock. Such an asymmetric policy satisfies the inflation-aversion preferences of the central banker who experiences inflation crises during his early years.

Our economy comprises a Lucas (1973) style aggregate supply curve and a standard government budget constraint. Specifically, output, y_t, responds positively to an unexpected increase in inflation, $\pi_t - E_{t-1}(\pi_t)$, and negatively to a rise in taxes' share of output, τ_t:

$$y_t = \overline{y} + c_1\left(\pi_t - E_{t-1}(\pi_t)\right) - c_2\tau_t + \varepsilon_t, \tag{3}$$

where π_t is the actual inflation rate, $E_{t-1}(\pi_t)$ is the expected inflation rate, $\overline{y} > 0$ is the expected value of output when $\tau_t = 0$, $c_1 > 0$ and $c_2 > 0$ are constants, and $\varepsilon_t \sim N(0, \sigma^2)$ is an aggregate supply shock. Ahmed and Park (1994) finds that aggregate supply shocks are the primary source of output fluctuations in small open economies. In (3), a positive aggregate supply shock, $\varepsilon_t > 0$, increases output and decreases inflation, whereas a negative

[2] For comparison, Gerlach's (2003) utility function for developed countries only includes the inflation rate and the output gap.

[3] The recession-averse central banker in Gerlach (2003) raises the output target after a negative aggregate supply shock (i.e., $y_t^T = \overline{y} + k\left(e^{-\varepsilon_t} - 1\right)$), whereas our inflation-averse policymaker lowers the output target in (2) following a negative aggregate supply shock.

[4] A second-order Taylor series approximation of $e^{-\varepsilon_t}$ yields $e^{-\varepsilon_t} \approx 1 - \varepsilon_t + \varepsilon_t^2/2$.

aggregate supply shock, $\varepsilon_t < 0$, has the opposite effect. The government's budget constraint assumes that government spending can only be financed with tax and seigniorage revenue:

$$g_t = \tau_t + \mu\pi_t, \tag{4}$$

where $\mu > 0$ is interpreted as the inflation tax base.[5]

Each period, the government policymaker maximizes (1) subject to (3) and (4) to select the optimal inflation rate, output, tax rate, and government spending's share of output:

$$\begin{aligned}\pi_t &= \frac{\Psi_b}{\mu\Psi_b + \phi_\pi\Psi_c}\overline{g} - \frac{c_1\Psi_a^2}{(\mu\Psi_b + \phi_\pi\Psi_c)(c_1\Psi_a + \mu\Psi_b + \phi_\pi\Psi_c)}k\left(\sigma_t^2/2\right) \\ &\quad - \frac{\Psi_a}{c_1\Psi_a + \mu\Psi_b + \phi_\pi\Psi_c}(1-k)\varepsilon_t - \frac{\Psi_a}{c_1\Psi_a + \mu\Psi_b + \phi_\pi\Psi_c}k\left(\varepsilon_t^2/2\right),\end{aligned} \tag{5}$$

$$\begin{aligned}y_t &= \overline{y} - \frac{c_2\phi_g\phi_\pi}{\mu\Psi_b + \phi_\pi\Psi_c}\overline{g} + \frac{c_1\Psi_a\left(\mu^2\phi_g\phi_\tau + \phi_\pi\left(\phi_\tau + \phi_g\right)\right)}{(\mu\Psi_b + \phi_\pi\Psi_c)(c_1\Psi_a + \mu\Psi_b + \phi_\pi\Psi_c)}k\left(\sigma_t^2/2\right) \\ &\quad + \frac{\left(\mu^2\phi_g\phi_\tau + \phi_\pi\left(\phi_\tau + \phi_g\right)\right) + (c_1\Psi_a + c_2\Psi_d)k}{c_1\Psi_a + \mu\Psi_b + \phi_\pi\Psi_c}\varepsilon_t - \frac{c_1\Psi_a + c_2\Psi_d}{c_1\Psi_a + \mu\Psi_b + \phi_\pi\Psi_c}k\left(\varepsilon_t^2/2\right),\end{aligned} \tag{6}$$

$$\begin{aligned}\tau_t &= \frac{\phi_g\phi_\pi}{\mu\Psi_b + \phi_\pi\Psi_c}\overline{g} + \frac{c_1\Psi_a\Psi_d}{(\mu\Psi_b + \phi_\pi\Psi_c)(c_1\Psi_a + \mu\Psi_b + \phi_\pi\Psi_c)}k\left(\sigma_t^2/2\right) \\ &\quad + \frac{\Psi_d}{c_1\Psi_a + \mu\Psi_b + \phi_\pi\Psi_c}(1-k)\varepsilon_t + \frac{\Psi_d}{c_1\Psi_a + \mu\Psi_b + \phi_\pi\Psi_c}k\left(\varepsilon_t^2/2\right),\end{aligned} \tag{7}$$

$$\begin{aligned}g_t &= \frac{\mu\Psi_b + \phi_g\phi_\pi}{\mu\Psi_b + \phi_\pi\Psi_c}\overline{g} + \frac{c_1\Psi_a\left(c_2\phi_\pi - \mu c_1\phi_\tau\right)}{(\mu\Psi_b + \phi_\pi\Psi_c)(c_1\Psi_a + \mu\Psi_b + \phi_\pi\Psi_c)}k\left(\sigma_t^2/2\right) \\ &\quad + \left(\frac{c_2\phi_\pi - \mu c_1\phi_\tau}{c_1\Psi_a + \mu\Psi_b + \phi_\pi\Psi_c}\right)(1-k)\varepsilon_t + \left(\frac{c_2\phi_\pi - \mu c_1\phi_\tau}{c_1\Psi_a + \mu\Psi_b + \phi_\pi\Psi_c}\right)k\left(\varepsilon_t^2/2\right),\end{aligned} \tag{8}$$

where $\Psi_a = \left(\phi_\tau + \phi_g\right)c_1 + \mu\phi_g c_2 > 0$, $\Psi_b = \phi_g\left(c_1c_2 + \mu\left(\phi_\tau + c_2^2\right)\right) > 0$, $\Psi_c = \left(\phi_\tau + \phi_g + c_2^2\right) > 0$, and $\Psi_d = \mu\phi_g c_1 + \mu^2\phi_g c_2 + \phi_\pi c_2 > 0$. We begin by considering the optimal values of inflation, output, taxes, and government spending in (5) through (8) when the central banker is not adverse to inflation, $k = 0$. In the absence of any shocks, $\varepsilon_t = 0$, the inflation rate, π_t, and taxes' share of output, τ_t, will be above their preferred rates of zero, while aggregate output, y_t, and government spending's share of output, g_t, will be below the output target of y_t^T, and its socially optimal share of $\overline{g}$, respectively. When socially optimal government spending is higher, the central banker knows the fiscal authority will increase government spending's share of output. That elevated level of spending causes the fiscal authority to raise taxes which reduces output. The central banker reacts to the lower output by printing more money, but that response pushes up the inflation rate. Thus, higher inflation in response to more optimal government spending, $\overline{g}$, characterizes an economy where fiscal policy dominates over monetary policy.

[5] We assume the government cannot issue debt, so a closed-form solution of the model can be obtained.

The primary cause of output movements in many small open economies is aggregate supply shocks, ε_t. In our model, a negative aggregate supply shock, $\varepsilon_t < 0$, pushes down output. Policymakers mitigate that decline in output by pushing up inflation and reducing taxes. Government spending's response depends on whether the decrease in taxes or the increase in seigniorage due to higher inflation dominates. A larger response of output to a tax cut, c_2, or higher preference for low inflation, ϕ_π, enhances the decline in taxes and increases the likelihood of a decrease in government spending. Alternatively, a greater preference for low taxes, ϕ_τ, a larger response of output to unanticipated inflation, c_1, and a higher inflation tax base, μ, leads to more inflation, which raises the likelihood of an increase in government spending. A positive aggregate supply shock, $\varepsilon_t > 0$, however, raises output and has the opposite effect on inflation, taxes, and government spending.

The appointment of an inflation-averse central banker, $0 < k \lesssim 1$, has two important effects on our optimal values of inflation, output, taxes, and government spending in (5) through (8). One, the inflation-averse policymaker's output target in (2) and the restriction that $0 < k \lesssim 1$ dampen the responses of inflation, taxes, and government spending to an aggregate supply shock without impacting the direction of change.[6] That same output target, however, enhances the response of output to an aggregate supply shock. Two, the output target utilized by the inflation-averse policymaker leads to asymmetric responses in inflation, output, taxes, and government spending following an aggregate supply shock. The impact of those asymmetric effects is apparent when we calculate the expected values for inflation, output, taxes, and government spending in (5) through (8):

$$E_{t-1}\left[\pi_t\right] = \frac{\Psi_b}{\mu\Psi_b + \phi_\pi\Psi_c}\overline{g} - \frac{\Psi_a}{\mu\Psi_b + \phi_\pi\Psi_c}k\left(\sigma_t^2/2\right), \tag{9}$$

$$E_{t-1}\left[y_t\right] = \overline{y} - \frac{c_2\Psi_d}{\left(\mu\Psi_b + \phi_\pi\Psi_c\right)}k\left(\sigma_t^2/2\right), \tag{10}$$

$$E_{t-1}\left[\tau_t\right] = \frac{\phi_g\phi_\pi}{\mu\Psi_b + \phi_\pi\Psi_c}\overline{g} + \frac{\Psi_d}{\mu\Psi_b + \phi_\pi\Psi_c}k\left(\sigma_t^2/2\right), \tag{11}$$

$$E_{t-1}\left[g_t\right] = \frac{\mu\Psi_b + \phi_g\phi_\pi}{\mu\Psi_b + \phi_\pi\Psi_c}\overline{g} + \frac{\left(c_2\phi_\pi - \mu c_1\phi_\tau\right)}{\mu\Psi_b + \phi_\pi\Psi_c}k\left(\sigma_t^2/2\right). \tag{12}$$

The optimal values reported in (9) through (12) reveal that an inflation-averse central banker pursues policies that lower the expected values of inflation and output and raise the expected value of taxes. Thus, the central banker's aversion to inflation helps mitigate the pressure from the fiscal authority to raise inflation (via seigniorage) to fund government spending. As for government spending, the policymaker's effect on its expected value is indeterminate for the same reasons its response to an aggregate supply shock is unclear. Those differences in the expected values occur because an inflation-averse central banker is much more aggressive at lowering the output target, y_t^T, after a negative aggregate supply shock, $\varepsilon_t < 0$, than he is at raising the output target following a positive aggregate supply shock, $\varepsilon_t > 0$, of the same size. The optimal values reported in (5) through (8) show the changes in inflation, output,

[6] Technically, $k < 1/(1 - \varepsilon_t/2)$ to ensure that the qualitative responses of taxes, government spending, and inflation do not change after an aggregate supply shock.

taxes, and government spending are larger in magnitude after a negative aggregate supply shock than after a positive aggregate supply shock of the same size.

Our theoretical model shows that African central bankers who experience inflation crises during youth pursue more inflation-averse monetary policies, and the intensity of the aversion increases as the number of inflation crises rises. The degree of inflation aversion is represented by the parameter $0 < k \lesssim 1$ in (2). A value of k close to 1 indicates a central banker has experienced many inflation crises and, as a result, is extremely inflation averse. In that case, the central banker pursues an extremely hawkish monetary policy that restrains actual and expected inflation in (5) and (9), respectively. Furthermore, the low values for actual and expected inflation suggest that the inflation-averse central banker is pushing back against some of the fiscal authority's pressure to raise inflation in support of optimal government spending, $\overline{g}$. The next sections of the paper empirically evaluate our assertion that an African central banker who has early-life experiences with inflation crises will pursue a more hawkish monetary policy, where a greater number of inflation crises enhances the intensity of the policy response.

3 Data and Estimation Method

3.1 Data

This section outlines the data and the estimation method used in our empirical analysis. Specifically, we utilize data on the formative years of central bankers for 26 countries from 1990 to 2020. Table 1 identifies those 26 African countries. The objective of this empirical analysis is to determine whether experiencing an inflation crisis during the initial 25 years of life impacts an African central banker's subsequent monetary policy preferences.[7]

Table 1: African Countries

Benin	Gabon	Rwanda
Botswana	Ghana	Senegal
Burkina Faso	Kenya	Sierra Leone
Cameroon	Malawi	South Africa
Central African Rep.	Mali	Togo
Chad	Mauritius	Tunisia
Dem. Rep. of Congo	Mozambique	Uganda
Cote d'Ivoire	Niger	Zambia
Equatorial Guinea	Nigeria	

Broad money as defined in the World Bank Development Indicators database is the central bank's policy instrument and the dependent variable in our regression.[8] A money

[7] Initially, we follow the existing literature and focus on a central banker's experience with high inflation by the age of 25, see Farvaque et al. (2020). In the sensitivity analysis section, however, we consider a central banker's experience by the age of 35 and between the ages of 18 and 25.

[8] The World Bank defines "broad money" as "the sum of currency outside banks; demand deposits other than those of the central government; the time, savings, and foreign currency deposits of resident sectors

balances measure is the appropriate monetary policy instrument to use, as opposed to an overnight interest rate, because the financial systems of most African countries are less sophisticated than those of developed countries. Insufficient financial development forces African central bankers to focus primarily on manipulating money balances to achieve their policy objectives. Furthermore, the World Bank constructs measures of broad money to be uniform across countries, so we can easily incorporate money balances into our panel study. Analyzing money growth across central banks enables us to better understand the impact of a central banker's early-life experiences on his monetary policy preferences.

Our independent variable of interest accounts for a central banker's early-life experience with inflation crises. The economy is considered to have an inflation crisis when the annual inflation rate is 20% or higher.[9] Malmendier and Nagel (2016), Farvaque et al. (2020), and Aslam and Farvaque (2022) are other examples of work that consider the impact of early-life experiences. To the best of our knowledge, however, this paper is the first to examine how a central banker's policy preferences change when the central banker experiences one or more inflation crises in the formative years.

Data on African central bankers and inflation crises is sourced from the Global Crisis Database curated by Reinhart and Rogoff (2009). Table 2 presents the descriptive statistics for the number of inflation crises and the maximum number of successive inflation crises that an African central banker encounters by age 25, age 35, and between ages 18 and 25. On average, each central banker in the region has encountered approximately 1.23 inflation crises by the age of 25. The "inflation crises" variable specifies the number of years during a central banker's youth that the annual inflation rate was 20% or higher. Three countries in our panel dataset emerge prominently as having the highest incidence of inflation crises during the first 25 years of a central banker's life. The Democratic Republic of the Congo has 19 inflation crises, followed closely by Ghana with 14, and Sierra Leone with 13. Nevertheless, central bankers from Botswana, Mauritius, Rwanda, South Africa, and Zambia passed through their formative years without encountering any inflation crises.

Table 2: Descriptive Statistics – Early-Life Experiences Variables

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
Number of inflation crises by age 25	806	1.234	2.672	0	19
Maximum number of successive inflation crises by age 25	806	0.610	2.245	0	17
Number of inflation crises by age 35	806	2.790	4.570	0	29
Maximum number of successive inflation crises by age 35	806	1.615	4.336	0	29
Number of inflation crises between ages 18 and 25	806	0.577	1.325	0	8
Maximum number of successive inflation crises between ages 18 and 25	806	0.395	1.470	0	9

other than the central government; bank and traveler's checks; and other securities such as certificates of deposit and commercial paper."

[9] Reinhart and Rogoff (2009) defines a 20% annual inflation rate as the threshold at which an inflation episode becomes an inflation crisis.

The panel dataset also reveals that a substantial number of African central bankers have endured consecutive years of inflation crises during their childhood and young adult years. To determine the intensity and sustained nature of those challenges, we examine an alternative variable that measures the maximum number of successive inflation crises encountered by a central banker in his youth. This "successive inflation crises" variable is set to the maximum number of consecutive years the inflation rate was 20% or higher during a central banker's formative years. For example, the annual inflation rate in the Democratic Republic of the Congo was greater than 20% every year from 1974 to 1990. Any central banker from the Democratic Republic of the Congo whose early years included that time period would have a "successive inflation crises" value of 17. Our hypothesis posits that the more intense the inflation crisis–as indicated by the number of successive crises–the greater the likelihood that a central banker will develop an aversion to inflation and adopt a more hawkish monetary policy. Table 2 shows the maximum number of successive inflation crises experienced by an African central banker by the age of 25 averages 0.61.

An alternative to specifying inflation crises with a continuous variable is to use a dummy variable. A dummy variable assumes early-life inflation crises have a fixed impact on money growth but only when a certain number of crises have been experienced, whereas a continuous inflation crises variable assumes money growth moves in proportion to the number of crises experienced. We transform the "inflation crises" variable into two distinct dummy variables and estimate them in separate models. The "low" dummy variable is set to a value of 1 if a central banker only experiences 0 or 1 inflation crises in early life and a value of 0 otherwise. The "high" dummy variable is set to a value of 1 if a central banker lives through 2 or more inflation crises in youth, and a value of 0 if fewer crises are endured.

Our study builds upon the work of Farvaque et al. (2020) and Strong and Gakpa (2023) by incorporating a robust set of additional control variables to capture other key determinants of money growth. These variables help us understand the factors that influence central bankers' policies as they relate to the growth rate of money. Table 3 displays the descriptive statistics for our dependent and control variables. All of the data is sourced from the World Bank Development Indicators database unless otherwise noted. Demographic variables representing the percentage of the population in the 15 to 64 and 65 and above age brackets are included separately to account for potential demographic influences on broad money. Our model incorporates several economic variables including the inflation rate, output gap, degree of trade openness, and a fixed exchange rate dummy variable that equals 1 if a country has a fixed exchange rate system. The output gap is measured by the deviation of actual GDP from its long-run trend as determined by the Hodrick-Prescott filter, and trade openness is calculated as the sum of exports and imports as a percentage of GDP. In terms of political variables, we include Romelli's (2022) index for the degree of legal central bank independence (CBI), and a coup d'état dummy variable set to 1 if a coup d'état occurs that year.[10]

The sensitivity analysis section of this paper examines the impact of our results to alternative control variables. Those variables include the annual turnover rate (TOR) of central bank governors, a checks and balances dummy variable, a central bank insider dummy vari-

[10]Data for Romelli's legal CBI index variable and the coup d'état dummy variable are from Romelli (2022) and the Center for Systemic Peace, respectively.

able, and a Ph.D. in economics or finance dummy variable.[11] In terms of dummy variables, the checks and balances variable is set to 1 if the Executive Index of Electoral Competition is less than 6, the central bank insider variable is set to 1 if the central bank governor's most recent position was at a central bank, and the Ph.D. in economics or finance variable is set to 1 if the central banker has earned a Ph.D. in economics or finance.[12]

Table 3: Descriptive Statistics – Control and Dependent Variables

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
Growth rate of broad money	779	37.165	313.215	−51.985	6,968.922
Romelli's legal CBI index	718	0.566	0.151	0.359	0.811
TOR of central bank governors	754	0.173	0.189	0	1.25
Inflation	806	58.135	961.914	−31.566	26,765.857
Population ages 15-64	806	54.265	5.105	47.183	70.775
Population ages 65+	806	3.348	1.340	1.871	12.520
Trade openness	771	63.413	24.194	19.684	144.668
Output gap	806	1.612	3.441	−14.702	24.196
Fixed exchange rate regime	806	0.541	0.499	0	1
Checks and balances	801	2.385	1.038	1	5
Coup d'état	860	0.114	0.385	0	4
Central bank insider	860	0.248	0.432	0	1
Ph.D. in economics or finance	860	0.557	0.497	0	1

3.2 Estimation Method

We estimate the following equation to determine whether an African central banker who experiences inflation crises in the early years pursues a more hawkish monetary policy compared to an African central banker who does not experience inflation crises:

$$\Delta \ln(M_{i,t}) = \alpha_0 + \alpha_1 \Delta \ln(M_{i,t-1}) + \theta_1 crises_{i,t} + \beta X_{i,t} + a_i + \mu_t + \eta_{i,t}, \tag{13}$$

where $M_{i,t}$ denotes broad money for country i at time t, $crises_{i,t}$ represents our early-life crises variable, $X_{i,t}$ is a vector that includes the other control variables, a_i stands for country i specific effects, μ_t accounts for time t specific effects, and $\eta_{i,t}$ is the error term. The early-life crises variable, $crises_{i,t}$, takes on one of four forms: "inflation crises," "successive inflation crises," "low," or "high." The continuous variables "inflation crises" and "successive inflation crises" measure the number of inflation crises and the length of the longest inflation crisis, respectively, during the youth of an African central banker. Alternatively, the dummy variables "low" and "high" determine whether the number of inflation crises are 1 or less and 2 or more, respectively, during a central banker's early years.

[11] Data for the annual TOR of central bank governors variable and the checks and balances dummy variable are from Strong (2021) and the Inter-American Development Bank's Database of Political Institutions, respectively. Data for the central bank insider and Ph.D. in economics and finance dummy variables are from Strong and Yayi (2023).

[12] According to the Inter-American Development Bank, an Executive Index of Electoral Competition value of less than 6 means the country's leadership is autocratic or personality based.

The coefficients in (13) are estimated using the fixed effects estimator. That particular technique accounts for within-country variation but eliminates the influence of time-invariant, country-specific factors on our variable of interest. By removing the time-invariant factors, a fixed effects model *reduces* the omitted variable bias problem and leads to more robust standard errors. The fixed effects estimator, however, does not *eliminate* the omitted variable bias problem, so the error terms may still be heteroscedastic and autocorrelated. To account for that possibility, we adjust our standard errors by clustering observations at the country level.

Our empirical model includes a lag of the dependent variable–the growth rate of broad money–to account for potential persistence in the policy instrument. Coefficients from a fixed effects estimator with a lagged dependent variable as a right-hand-side regressor are vulnerable to Nickell (1981) bias of order T, where T represents the number of time periods in the data. Nickell bias occurs when correlation exists between the lagged dependent variable and any unobserved individual-specific effects captured in the error term. The asymptotic bias, however, goes to zero when T is large enough. In our analysis, the panel dataset comprises annual observations from 26 African countries over a period of 31 years, so the effect of Nickell bias on our coefficient estimates is extremely small.

We also use two-step difference Generalized Method of Moments (GMM) to calculate alternative estimates for the parameters in (13) and then compare those results to our fixed effects estimates to verify the robustness of our empirical results. GMM estimation will also alleviate any concerns regarding Nickell (1981) bias in our fixed effects estimates. It is worth noting that the appropriateness of GMM estimation hinges on two conditions: (1) The instruments utilized are exogenous, and (2) The error terms do not exhibit any serial correlation. We evaluate the legitimacy of our GMM estimates through a series of tests. The Hansen test is performed to verify all overidentifying restrictions are valid, which provides some evidence that the model is not misspecified. We also conduct Arellano-Bond (1991) AR(1) and AR(2) tests to detect any first-order and second-order autocorrelation in the error terms and confirm that the chosen instruments are not correlated with the error terms.[13]

4 The Empirical Results

Table 4 presents the fixed effects estimates for our baseline model, where youth is the period up to age 25 of the African central banker's life. Columns 1 through 4 display the fixed effects estimates for four different specifications, each of which is estimated with a different early-life crisis variable: "inflation crises," "successive inflation crises," "low," and "high," respectively. The results in column 1 indicate that money growth falls by 1.23 percentage points for each inflation crisis that a central banker lived through by age 25. In column 2, estimates reveal that each additional consecutive year of inflation crisis in a central banker's youth causes money growth to decline by 1.37 percentage points. Those findings show that the intensity of an African central banker's aversion to inflation is stronger when that policymaker experiences more inflation crises or successive inflation crises in his formative years. Our theoretical model accounts for a central banker with an intense dislike for inflation by setting $0 < k \lesssim 1$ in the central bank's output target, (2), to a high value.

[13] *See* Arellano and Bond (1991), Arellano and Bover (1995), and Blundell and Bond (1998).

Table 4: Fixed Effects Estimates – By the Age of 25

	(1)	(2)	(3)	(4)
Lagged money growth rate	0.030***	0.030***	0.031***	0.031***
	(0.001)	(0.000)	(0.000)	(0.000)
Inflation crises	**−1.226*** **			
	(**0.377**)			
Successive inflation crises		**−1.371*** **		
		(**0.369**)		
Low			−0.497	
			(1.621)	
High				**−5.202*** **
				(**1.120**)
Population ages 15-64	−0.529**	−0.619***	−0.599**	−0.552**
	(0.207)	(0.216)	(0.282)	(0.213)
Population ages >= 15-64	0.276	0.493	1.020	0.637
	(0.668)	(0.620)	(0.866)	(0.641)
Trade openness	0.116**	0.122**	0.119**	0.116**
	(0.049)	(0.048)	(0.051)	(0.050)
Romelli's legal CBI index	1.772	1.941	1.613	0.005
	(1.894)	(1.804)	(1.959)	(1.922)
Fixed exchange rate	−2.776	−2.403	−0.614	−2.168
	(3.712)	(3.478)	(3.621)	(3.769)
Inflation	0.256***	0.256***	0.256***	0.256***
	(0.001)	(0.001)	(0.001)	(0.001)
Output gap	1.176***	1.177***	1.138***	1.127***
	(0.182)	(0.179)	(0.252)	(0.243)
Coup d'état	0.195	0.188	0.294	0.127
	(1.054)	(1.055)	(1.085)	(1.097)
Number of countries	26	26	26	26
Observations	650	650	650	650
R^2	0.998	0.998	0.998	0.998
Country fixed effects	YES	YES	YES	YES

Standard errors are in parentheses. The dependent variable is the growth rate of broad money.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

The "low" and "high" dummy variable models presented in columns 3 and 4 examine whether money growth is impacted by an African central banker being exposed to too few or too many inflation crises in his early life. Our results in column 3 with the "low" dummy variable reveal that money growth is not significantly impacted by an African central banker who has limited experience with inflation crises in those early years. The statistically-significant coefficient on the "high" dummy variable in column 4, however, suggests that money growth is 5.20 percentage points lower when an African central banker experienced 2 or more inflation crises in his youth. That estimated "high" variable coefficient indicates

that the number of inflation crises experienced by a central banker by the age of 25 has a threshold effect on the growth rate of money.

Table 5: GMM Estimates – By the Age of 25

	(1)	(2)	(3)	(4)
Lagged money growth rate	0.028***	0.029***	0.031***	0.030***
	(0.002)	(0.002)	(0.004)	(0.002)
Inflation crises	**−2.228*** **			
	(**0.292**)			
Successive inflation crises		**−2.110*** **		
		(**0.267**)		
Low			**71.383***	
			(38.663)	
High				−0.689
				(13.315)
Population ages 15-64	−0.475	−0.627	1.362	−0.660
	(1.424)	(1.184)	(2.447)	(1.433)
Population ages >= 15-64	−1.264	−1.887	−15.389	−1.438
	(15.247)	(12.787)	(21.308)	(8.217)
Trade openness	0.122**	0.134**	−0.042	0.122*
	(0.059)	(0.061)	(0.116)	(0.068)
Romelli's legal CBI index	2.383	−0.995	59.515	−13.846
	(34.662)	(35.039)	(80.368)	(42.567)
Fixed exchange rate	13.242	16.164	−24.058	−6.504
	(44.053)	(39.384)	(95.308)	(65.179)
Inflation	0.256***	0.257***	0.257***	0.257***
	(0.000)	(0.000)	(0.001)	(0.001)
Output gap	1.367***	1.437***	−0.522	1.283**
	(0.403)	(0.432)	(1.793)	(0.466)
Coup d'état	2.343	2.882	0.578	3.682
	(9.047)	(8.654)	(10.301)	(8.139)
Number of countries	26	26	26	26
Observations	856	856	856	856
Arellano-Bond AR(1) test	0.000	0.000	0.000	0.000
Arellano-Bond AR(2) test	0.919	0.845	0.904	0.670
Hansen test	0.459	0.460	0.581	0.593

Standard errors are in parentheses. The dependent variable is the growth rate of broad money. P-values are reported for the Arellano-Bond AR(1) test, Arellano-Bond AR(2) test, and the Hansen test.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Table 5 presents the GMM estimates for the same four models that were estimated with fixed effects in Table 4. Our GMM estimates are largely consistent with our fixed effects results. The coefficients on "inflation crises" and "successive inflation crises" in columns 1 and 2 are negative and statistically significant as they were in the fixed effects models. The

"low" dummy variable in column 3 has a weakly statistically-significant, positive relationship with money growth, while the "high" dummy variable in column 4 does not have a significant impact on money growth. Although those results differ in the sense of statistical significance from the fixed effects model, they do not conflict with our theoretical hypothesis that an African central banker who experiences inflation crises in his youth is more likely to pursue anti-inflationary policies as an adult.

Four of the remaining control variables have a statistically-significant impact on the growth rate of money. Estimated coefficients indicate inflation, the output gap, and the degree of trade openness in the economy have a positive effect on broad money growth. Inflation has the expected impact on broad money growth, but the positive coefficient on the output gap seems counterintuitive. As previously discussed, Africa has some unique features that make it difficult to compare with developed economies. Block, Ferree, and Singh (2003) and Iddrisu and Bokpin (2018) find that political business cycles are prevalent in Africa, especially in democracies that are politically competitive. The positive coefficient on the output gap may indicate that African policymakers are adjusting money balances for political purposes. Our estimates show that trade openness is positively related to money growth. Notice that result supports Leibovici's (2019) conclusion that countries with a high level of trade openness are less likely to contract monetary policy in response to an increase in expected inflation. Lastly, the negative coefficient on the percentage of the population that is of working age (i.e., ages 15 to 64) is consistent with Juselius and Takats (2015) findings that inflation tends to be lower in countries with a large percentage of working-age adults.

5 Sensitivity Analysis

This section presents a detailed sensitivity analysis of the estimates from our fixed effects model. We begin by examining two alternative definitions of the ages that are considered part of an African central banker's formative years. First, we extend the formative years to include all experiences with inflation crises by the age of 35. That expanded age range is relevant because young adults in Africa often live with their parents longer than young adults in developed countries, which delays their transition to independent living.[14] Second, we limit the effect of early-life experiences with inflation crises to between the ages of 18 and 25. Those early adult years are important because African central bankers are attending college or starting their careers. They are also gaining financial independence and becoming more aware of the economic conditions in their countries.[15]

Tables 1A and 2A display the fixed effects estimates when the early years of an African central banker's life are measured by the age of 35 and between the ages of 18 and 25, respectively. Estimated coefficients on the "inflation crises" and "successive inflation crises" remain negative, but they are smaller in magnitude when the age range for youth is expanded from the first 25 years to the first 35 years. When the early years are limited to the ages of 18 through 25, those estimated coefficients continue to be negative but are larger in absolute terms. We observe similar behavior in the magnitude of the coefficients for the "high"

[14] *See* Thornton (2023).

[15] *See* Malmendier and Wachter (2022).

and "low" variables, except that the coefficient on the "high" variable is not statistically significant when the formative years include up to age 35. Two important conclusions are apparent from the results in Tables 1A and 2A. One, our finding that an African central banker who experiences inflation crises in early years is robust to different definitions of youth. Two, the experience of living through inflation crises between the ages of 18 to 25 has the most meaningful impact on an African central banker's monetary policy preferences.

A central banker's monetary policy preferences may be influenced by expertise acquired through work or education.[16] Since our baseline model does not account for a central banker's professional experience or educational level, we test the sensitivity of our baseline results to determine if the absence of these variables causes our early-life experiences variable to have a significant effect on money growth. Our central bank insider dummy variable denotes whether the central banker was already working for the central bank when appointed. A central bank governor who previously held a central bank position may conduct monetary policy operations differently from someone who was hired from outside the central bank. The Ph.D. in economics or finance dummy variable denotes whether the central banker has earned a Ph.D. in economics or finance. Hallerberg and Wehner (2013) argues a central banker with a Ph.D. in economics or finance has a fundamental understanding of the financial markets, economic systems, and theories needed to effectively execute the role of a central bank governor. Tables 3A through 4A show the fixed effects estimates for the models with the central bank insider variable and the Ph.D. in economics and finance variable, respectively. Our results reveal that neither of those expertise variables has a significant effect on money growth, and the coefficient estimates on our early-life experiences variables are essentially the same as in the baseline model. Thus, we conclude that the early-life experiences of the central banker has a greater impact on money growth than the central banker's professional experience or educational level.

Finally, we separately test the sensitivity of our baseline fixed effects results to the annual turnover rate (TOR) of central bank governors, a checks and balances variable to account for a country's institutional quality, and the year (time) fixed effects. For many African countries, a legal measure of central bank independence is not an accurate measure of de facto independence.[17] The annual TOR of central bank governors is an alternative measure of central bank independence to Romelli's (2022) index, where a larger TOR indicates less independence. The checks and balances variable denotes whether a country's leadership is autocratic or based on personality. If a country has a personality type of leader, then the leader is effectively controlling the country's monetary policy and not the central bank governor. Tables 5A through 7A display the fixed effects estimates from the three alternative models. Our estimates for the "inflation crises," "successive inflation crises," and "high" variables remain negative and statistically significant in all models. The only meaningful differences among the alternative fixed effects models and our baseline model are that Romelli's legal CBI index is positive and significant in the two-way fixed effects model. That positive coefficient indicates the money growth rate is higher when the central bank has more independence. The result is counterintuitive in developed countries, but many African countries with a high level of central bank independence are also politically competitive democracies

[16] *See* Malmendier and Wachter (2022).

[17] *See* Strong (2021).

and vulnerable to pressures from fiscal authorities. Thus, the positive coefficient on Romelli's legal CBI index is consistent with the unique features of African economies. Results from our sensitivity analysis support our primary finding that an African central banker who experiences inflation crises in early life will pursue a more hawkish monetary policy.

6 Conclusion

The academic literature is rich in research on how early-life experiences impact future behavior of individuals. In monetary economics, academic work on early-life experiences has focused primarily on developed countries. To the best of our knowledge, the literature is lacking any notable research on early-life experiences in Africa. People in many developing countries, particularly those in Africa, have suffered more from high inflation than from low output. This paper utilizes a Barro-Gordon (1983) model to support our hypothesis that African central bankers with exposure to inflationary crises in youth develop an aversion to inflation which is reflected in their monetary policy preferences.

We utilize data on 26 African countries from 1990 to 2020 to empirically test our hypothesis that early-life experiences with inflation crises affect the policy decisions of African central bankers. Our empirical analysis reveals that 1) Money growth is significantly smaller in an African country when the central banker experienced inflation crises in the formative years; 2) The amount of the decline in money growth depends positively on the number of inflation crises the central banker experienced in his youth; and 3) A central banker's early-life experiences with inflation crises still affect his policy decisions even after accounting for professional experience and educational level. These findings contribute to a growing literature on the impact of early-life experiences on central bankers' monetary policy preferences.

In the early 2020s, inflation rose sharply across the world. Most of the central bankers during that period grew up during the 1970s when inflation was high–at least by recent historical standards–for an extended period of time. It is understandable that those central bankers have a strong commitment to bring down inflation. If the current disinflation policy is successful and inflation stays low, it will be interesting to see how future central bankers respond to a jump in inflation. Will those central bankers be as committed to disinflation as the central bankers of today? Based on our research of early-life experiences, we would expect future central bankers to be less committed to disinflation because of their limited experience with high inflation. Will we be correct? That question must be answered by future generations of researchers.

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Table A1: Fixed Effects Estimates – By the Age of 35

	(1)	(2)	(3)	(4)
Lagged money growth rate	0.030***	0.029***	0.031***	0.031***
	(0.001)	(0.001)	(0.000)	(0.000)
Inflation crises	**−0.777*** **			
	(**0.242**)			
Successive inflation crises		**−0.938*** **		
		(**0.287**)		
Low			1.564	
			(2.966)	
High				−1.711
				(1.408)
Population ages 15-64	−0.479**	−0.549**	−0.565**	−0.547**
	(0.199)	(0.212)	(0.259)	(0.257)
Population ages >= 15-64	0.545	0.639	0.756	0.699
	(0.535)	(0.543)	(0.610)	(0.573)
Trade openness	0.111**	0.114**	0.118**	0.119**
	(0.049)	(0.047)	(0.050)	(0.048)
Romelli's legal CBI index	3.608*	1.536	1.641	4.176
	(2.033)	(1.680)	(1.712)	(3.276)
Fixed exchange rate	−3.496	−3.568	−1.526	−1.684
	(3.955)	(3.867)	(3.444)	(3.617)
Inflation	0.256***	0.256***	0.256***	0.256***
	(0.001)	(0.001)	(0.001)	(0.001)
Output gap	1.205***	1.187***	1.135***	1.101***
	(0.185)	(0.191)	(0.247)	(0.243)
Coup d'état	0.279	0.294	0.319	0.259
	(1.070)	(1.082)	(1.077)	(1.078)
Number of countries	26	26	26	26
Observations	650	650	650	650
R^2	0.998	0.998	0.998	0.998
Country fixed effects	YES	YES	YES	YES

Standard errors are in parentheses. The dependent variable is the growth rate of broad money.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Table A2: Fixed Effects Estimates – Between the Ages of 18 and 25

	(1)	(2)	(3)	(4)
Lagged money growth rate	0.030***	0.030***	0.031***	0.031***
	(0.001)	(0.000)	(0.000)	(0.000)
Inflation crises	**−2.170*** **			
	(**0.678**)			
Successive inflation crises		**−1.669*** **		
		(**0.569**)		
Low			1.274	
			(1.412)	
High				**−6.434*** **
				(**2.086**)
Population ages 15-64	−0.423*	−0.517**	−0.535*	−0.540**
	(0.242)	(0.240)	(0.260)	(0.245)
Population ages >= 15-64	0.709	0.877	0.825	0.827
	(0.682)	(0.697)	(0.725)	(0.713)
Trade openness	0.112**	0.124**	0.116**	0.115**
	(0.050)	(0.045)	(0.051)	(0.050)
Romelli's legal CBI index	−1.673	1.563	−0.912	1.769
	(2.137)	(1.815)	(3.162)	(1.849)
Fixed exchange rate	−1.844	−1.170	−1.123	−1.656
	(3.909)	(3.661)	(3.518)	(3.873)
Inflation	0.256***	0.256***	0.256***	0.256***
	(0.001)	(0.001)	(0.001)	(0.001)
Output gap	1.256***	1.169***	1.162***	1.158***
	(0.188)	(0.211)	(0.245)	(0.240)
Coup d'état	0.240	0.420	0.307	0.226
	(1.080)	(1.122)	(1.090)	(1.088)
Number of countries	26	26	26	26
Observations	650	650	650	650
R^2	0.998	0.998	0.998	0.998
Country fixed effects	YES	YES	YES	YES

Standard errors are in parentheses. The dependent variable is the growth rate of broad money.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Table A3: Fixed Effects Estimates – Controlling for Professional Experience

	(1)	(2)	(3)	(4)
Lagged money growth rate	0.030***	0.030***	0.031***	0.031***
	(0.001)	(0.000)	(0.000)	(0.000)
Inflation crises	**−1.258*** **			
	(**0.377**)			
Successive inflation crises		**−1.393*** **		
		(**0.370**)		
Low			−0.196	
			(1.943)	
High				**−5.154*** **
				(**1.179**)
Population ages 15-64	−0.525**	−0.617***	−0.586*	−0.552**
	(0.205)	(0.217)	(0.296)	(0.214)
Population ages >= 15-64	0.448	0.651	1.055	0.706
	(0.650)	(0.618)	(0.850)	(0.651)
Trade openness	0.117**	0.122**	0.119**	0.116*
	(0.049)	(0.048)	(0.050)	(0.050)
Romelli's legal CBI index	1.978	2.124	1.826	0.095
	(1.836)	(1.765)	(2.092)	(1.950)
Fixed exchange rate	−2.869	−2.464	−0.749	−2.169
	(3.742)	(3.505)	(3.793)	(3.757)
Inflation	0.256***	0.256***	0.256***	0.256***
	(0.001)	(0.001)	(0.001)	(0.001)
Output gap	1.213***	1.210***	1.153***	1.140***
	(0.183)	(0.182)	(0.255)	(0.249)
Coup d'état	0.083	0.090	0.237	0.090
	(1.049)	(1.052)	(1.089)	(1.099)
Central bank insider	1.150	1.008	0.623	0.405
	(1.115)	(1.114)	(1.412)	(1.179)
Number of countries	26	26	26	26
Observations	650	650	650	650
R^2	0.998	0.998	0.998	0.998
Country fixed effects	YES	YES	YES	YES

Standard errors are in parentheses. The dependent variable is the growth rate of broad money.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Table A4: Fixed Effects Estimates – Controlling for Educational Level

	(1)	(2)	(3)	(4)
Lagged money growth rate	0.030***	0.030***	0.031***	0.031***
	(0.001)	(0.000)	(0.000)	(0.000)
Inflation crises	**−1.224*** **			
	(**0.383**)			
Successive inflation crises		**−1.369*** **		
		(**0.380**)		
Low			−0.687	
			(2.077)	
High				**−5.205**
				(**1.150**)
Population ages 15-64	−0.520**	−0.615**	−0.575*	−0.527*
	(0.248)	(0.264)	(0.311)	(0.256)
Population ages >= 15-64	0.274	0.492	1.050	0.627
	(0.649)	(0.602)	(0.934)	(0.609)
Trade openness	0.166**	0.121**	0.119**	0.115**
	(0.050)	(0.049)	(0.051)	(0.051)
Romelli's legal CBI index	1.733	1.925	1.418	−0.104
	(1.766)	(1.654)	(1.890)	(1.783)
Fixed exchange rate	−2.790	−2.408	−0.600	−2.216
	(3.625)	(3.395)	(3.661)	(3.652)
Inflation	0.256***	0.256***	0.256***	0.256***
	(0.001)	(0.001)	(0.001)	(0.001)
Output gap	1.180***	1.179***	1.155***	1.138***
	(0.190)	(0.189)	(0.271)	(0.247)
Coup d'état	0.197	0.188	0.297	0.131
	(1.053)	(1.054)	(1.081)	(1.094)
Ph.D. in economics or finance	−0.238	−0.094	−0.818	−0.674
	(3.315)	(3.282)	(3.482)	(3.281)
Number of countries	26	26	26	26
Observations	650	650	650	650
R^2	0.998	0.998	0.998	0.998
Country fixed effects	YES	YES	YES	YES

Standard errors are in parentheses. The dependent variable is the growth rate of broad money.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Table A5: Fixed Effects Estimates – Controlling for TOR

	(1)	(2)	(3)	(4)
Lagged money growth rate	0.030***	0.030***	0.031***	0.031***
	(0.001)	(0.000)	(0.000)	(0.000)
Inflation crises	**−1.199*** **			
	(**0.340**)			
Successive inflation crises		**−1.345*** **		
		(**0.339**)		
Low			−0.676	
			(1.513)	
High				**−5.373*** **
				(**1.193**)
Population ages 15-64	−0.394*	−0.478*	−0.466	−0.459*
	(0.238)	(0.246)	(0.320)	(0.256)
Population ages >= 15-64	−0.076	0.122	0.638	0.419
	(0.685)	(0.631)	(0.792)	(0.640)
Trade openness	0.093*	0.099**	0.101**	0.094*
	(0.047)	(0.046)	(0.048)	(0.047)
TOR of CB governors	0.649	0.765	−1.296	−1.729
	(3.169)	(3.154)	(3.358)	(3.270)
Fixed exchange rate	−3.466	−3.182	−1.296	−1.729
	(3.207)	(3.015)	(3.182)	(3.336)
Inflation	0.256***	0.256***	0.256***	0.256***
	(0.001)	(0.001)	(0.001)	(0.001)
Output gap	0.931***	0.948***	0.870**	0.863**
	(0.313)	(0.312)	(0.371)	(0.365)
Coup d'état	−0.181	−0.201	−0.004	−0.15
	(1.122)	(1.116)	(1.177)	(1.178)
Number of countries	26	26	26	26
Observations	681	681	681	681
R^2	0.998	0.998	0.998	0.998
Country fixed effects	YES	YES	YES	YES

Standard errors are in parentheses. The dependent variable is the growth rate of broad money.

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Table A6: Fixed Effects Estimates – Controlling for Institutional Quality

	(1)	(2)	(3)	(4)
Lagged money growth rate	0.030***	0.030***	0.031***	0.031***
	(0.001)	(0.001)	(0.000)	(0.000)
Inflation crises	**−1.118*** **			
	(**0.348**)			
Successive inflation crises		**−1.256*** **		
		(**0.337**)		
Low			−0.504	
			(1.410)	
High				**−4.496*** **
				(**1.391**)
Population ages 15-64	−0.442**	−0.522**	−0.462	−0.446*
	(0.212)	(0.214)	(0.295)	(0.236)
Population ages >= 15-64	0.166	0.359	0.780	0.477
	(0.678)	(0.629)	(0.879)	(0.669)
Trade openness	0.124**	0.129**	0.134**	0.127**
	(0.050)	(0.049)	(0.051)	(0.051)
Romelli's legal CBI index	0.997	1.137	0.419	−0.710
	(1.849)	(1.768)	(1.852)	(1.825)
Fixed exchange rate	−3.773	−3.456	−2.483	−3.499
	(4.180)	(4.026)	(4.379)	(4.312)
Inflation	0.256***	0.256***	0.256***	0.256***
	(0.001)	(0.001)	(0.001)	(0.001)
Output gap	1.259***	1.262***	1.274***	1.239***
	(0.158)	(0.158)	(0.168)	(0.168)
Coup d'état	0.369	0.366	0.399	0.267
	(1.061)	(1.068)	(1.068)	(1.076)
Checks and balances	−0.851	−0.865	−1.365	−1.104
	(0.640)	(0.632)	(0.818)	(0.850)
Number of countries	26	26	26	26
Observations	645	645	645	645
R^2	0.998	0.998	0.998	0.998
Country fixed effects	YES	YES	YES	YES

Standard errors are in parentheses. The dependent variable is the growth rate of broad money.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Table A7: Two-Way Fixed Effects Estimates – By the Age of 25

	(1)	(2)	(3)	(4)
Lagged money growth rate	0.030***	0.030***	0.031***	0.031***
	(0.001)	(0.001)	(0.001)	(0.001)
Inflation crises	**−0.696***			
	(0.350)			
Successive inflation crises		**−0.813****		
		(0.366)		
Low			−2.476	
			(1.584)	
High				**−3.142***
				(1.635)
Population ages 15-64	0.090	0.049	0.176	0.148
	(0.510)	(0.513)	(0.529)	(0.511)
Population ages >= 15-64	0.516	0.622	1.374*	0.694
	(0.655)	(0.620)	(0.738)	(0.593)
Trade openness	0.109***	0.114***	0.122***	0.109***
	(0.039)	(0.038)	(0.038)	(0.038)
Romelli's legal CBI index	12.879**	13.139**	15.674**	13.186**
	(5.789)	(5.672)	(6.018)	(6.291)
Fixed exchange rate	−1.938	−1.822	−0.255	−1.650
	(5.565)	(5.468)	(5.633)	(5.663)
Inflation	0.256***	0.256***	0.256***	0.256***
	(0.001)	(0.001)	(0.001)	(0.001)
Output gap	0.884***	0.889***	0.815***	0.813***
	(0.195)	(0.185)	(0.241)	(0.264)
Coup d'état	0.241	0.227	0.195	0.203
	(1.126)	(1.126)	(1.111)	(1.117)
Number of countries	26	26	26	26
Observations	650	650	650	650
R^2	0.998	0.998	0.998	0.998
Country fixed effects	YES	YES	YES	YES
Year fixed effects	YES	YES	YES	YES

Standard errors are in parentheses. The dependent variable is the growth rate of broad money.
*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$