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SOMMAIRE

Effect of inclusive growth on political instability in Sub-Saharan Africa

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Abstract

Sub-Saharan Africa is recognized as the world's most politically unstable region. This research aims to analyse the effect of inclusive growth on political instability in a sample of 26 Sub-Saharan African countries from 1991 to 2015. The results obtained from estimating a dynamic panel model using a two-step system generalized method of moments (GMM) estimator show that inclusive growth has a negative effect on political instability. The baseline results are robust to the inclusion of additional control variables. When we use gross domestic product (GDP) per capita, the employment rate and the income equality rate as alternative measures of inclusive growth, we find that increasing GDP per capita, the employment rate and the income equality rate reduces political instability. The panel random effects instrumental variables estimators confirm our main findings. The results suggest that policymakers should promote inclusive growth by stimulating growth in wealth and employment while reducing income inequality among citizens to consolidate political stability.

Keywords Inclusive growth · Political instability · Dynamic panel data · Sub-Saharan Africa

JEL Classification C33 · D72 · P16

1 Introduction

The economic literature recognizes that political instability is detrimental to economic growth (Dalyop, 2019; Jong-A-Pin, 2009; Alesina et al., 1996). Political instability is defined as the propensity for government collapse (Alesina et al., 1996). This can result from the actions of the elite (Fosu, 2001, 2002) or those of the population at the grassroots level (Nel, 2003). Fosu (2001, 2002) argued that elite instability refers to the behaviour of the political elite, who, for one reason or another, prefer to express their disagreement through actions other than voting that threaten the government's mandate. In contrast, according to Nel (2003), instability at the grassroots level encompasses mass demonstrations, riots, and popular revolutions directed against the government.

Poverty and the fragility of political systems in most developing countries are the result of economic institutions that are not inclusive but rather extractive (Acemoglu and Robinson, 2012). According to these authors, extractive economic institutions generate a biased distribution of economic opportunities in favour of elites. Although economic growth creates new opportunities, it is not inclusive in developing countries. Indeed, biases in the distribution of economic opportunities in favour of the wealthy deprive vulnerable populations of access to the labour market, limit their capacity to create wealth, and exacerbate income inequalities between the rich and the poor. Inclusive growth is that which not only generates new economic opportunities, but also ensures equal access to the opportunities created for all segments of society, particularly for the poor (Ali and Son, 2007). The lack of inclusiveness in growth exacerbates economic deprivation and politically weakens developing countries. The theoretical and empirical literature has highlighted the relationship between economic deprivation and political instability.

Relative deprivation, defined as the perception by individuals or groups of a gap between their legitimate expectations and their actual situation, is a key factor that can lead to political violence (Gurr, 1970). According to Acemoglu and Robinson (2012), people experiencing economic and political deprivation cannot expect leaders to voluntarily change the process of redistributing power and wealth.

Most changes are the result of violent protests against existing political powers. In the same vein, the theory of political transitions developed by Acemoglu and Robinson (2001) argues that highly unequal societies are likely to be politically unstable. According to these authors, inequalities may generate social frustrations and incite populations to undertake actions aimed at overthrowing the government. Inequalities between rulers and the ruled may also motivate elites to stage coups d'État in order to benefit from political rents. Inclusive growth, by reducing social frustrations, could lower the incentives for the population to engage in actions aimed at toppling the government. Likewise, by reducing disparities in economic opportunities between rulers and the ruled, inclusive growth diminishes political rents, which could in turn reduce elites' incentives to organise coups aimed at overthrowing the government.

Economic deprivations, such as low incomes, income inequalities, and unemployment, are among the principal determinants of political instability in the empirical literature. In particular, low-income levels, often driven by poor macroeconomic performance, can trigger popular discontent and encourage people or other elite groups to undertake actions aimed at overthrowing the government. Blomberg and Hess (2002) find that economic recessions, due to declining economic activity and income, generate internal and external conflicts. These conflicts include revolutionary conflicts, where the government faces politically organized groups (such as political parties, labour organisations, or factions within the regime) seeking to overthrow the government. Similarly, Collier and Hoeffler (2004) find that a low per capita income increases the risk of conflict within a country, whereas a high per capita income reduces this risk. Bjørnskov and Rode (2020) find that rising per capita income reduces political instability.

Income inequality has been identified by many studies (Oualy, 2021; Blanco & Grier, 2009; Dutt & Mitra, 2008; Alesina & Perotti, 1996) as one of the main causes of political instability. Several authors (Oualy, 2021; Dutt & Mitra, 2008; Alesina & Perotti, 1996; Perotti, 1996) have reported a positive relationship between income inequality and political instability. However, other authors (Blanco & Grier, 2009; Acemoglu & Robinson, 2006) have highlighted an inverted U-shaped relationship between income inequality and political instability.

Thus, according to Acemoglu and Robinson (2006), Blanco and Grier (2009), income inequality increases political instability beyond a threshold above which it reduces it.

The level of employment has also been highlighted by numerous studies (Al-Jabri et al., 2022; Hailu Demeke, 2022; Azeng & Yogo, 2015) as an important determinant of political instability. Indeed, youth unemployment is an issue for political stability in the sense that unemployed youth can easily be mobilized for demonstrations detrimental to political stability. Al-Jabri et al. (2022), Hailu Demeke (2022), Azeng and Yogo (2015) empirically showed that unemployment has a positive influence on political instability.

Sub-Saharan Africa (SSA), which is characterized by prominent levels of income inequality, also ranks as the world's most politically unstable region. According to Solt (2020), the Gini coefficient is 66 for the world, 67 for SSA, and 48 for Europe. According to Bjørnskov and Rode (2020), over the period 1991-2015, out of 53 successful coups d'état in the world, SSA alone recorded 29 successful coups d'état, i.e., more than half of the successful coups over the period. As far as employment is concerned, the International Labour Organization (2023) estimates the unemployment rate in SSA to be 6.3%, compared with 5.3% worldwide. This low unemployment rate is far from encouraging, as according to the International Labour Organization (2023), more than 85% of jobs in SSA are informal. According to the World Bank (2023), SSA is among the regions of the world with the lowest per capita incomes.

All these previous studies have significantly contributed to understanding the relationships among per capita income, income inequality, employment levels, and political instability. They thus recommend policies aimed at reducing income inequality, improving per capita income, and increasing employment levels. There is a broad consensus among both researchers (Ali & Son, 2007; Ianchovichina & Gable, 2012) and policymakers that inclusive job creation and a reduction in inequalities necessarily require the promotion of inclusive growth. By reducing the frustration and discontent associated with a lack of access to economic opportunities, inclusive growth can serve as a remedy for political instability.

The relationship between inclusive growth and political instability is undoubtedly complex, yet the empirical literature on this topic remains underdeveloped. This complexity stems from the fact that certain factors influencing the economy also affect the political sphere. The work of Assfaw et al. (2025) is among the few studies that have examined the relationship between inclusive growth and political instability. However, their analysis focuses on the relationship running from political instability to inclusive growth. These authors show that political instability negatively affects inclusive growth in Ethiopia. By contrast, to the best of our knowledge, very little empirical evidence exists on the reverse relationship, namely from inclusive growth to political instability. This article seeks to fill this gap in the literature by examining the effect of inclusive growth on political instability. It is structured around the following research question: what is the effect of inclusive growth on political instability in sub-Saharan African countries? This study aims to determine the effect of inclusive growth on political instability in a sample of 26 SSA countries over the period 1991-2015. As an anticipated answer to the research question, this research anticipates that inclusive growth negatively affects political instability in SSA. The choice of SSA as the study area is justified by the fact that the region is the most politically unstable. It is also confronted with multiple forms of economic deprivation, such as low levels of income per capita, high-income inequality, and elevated unemployment.

This research uses the system generalized method of moments two-step estimators to derive the main results. These main findings show that different measures of inclusive growth reduce political instability. The results obtained from the panel random effects instrumental variables estimators support these main results. By contributing to the understanding of inclusive growth, this research constitutes, within the limits of our knowledge, one of the first empirical pieces of evidence of the effect of inclusive growth on political instability.

The remainder of the article is structured as follows. Section 2 is devoted to the measurement of inclusive growth, whereas section 3 presents the measurement of political instability. Section 4 presents the empirical model.

Section 5 presents the data source and provides a descriptive analysis. Section 6 outlines the results and discussion, and section 7 presents the conclusion and economic policy implications.

2 Measurement of inclusive growth

Inclusive growth has been defined and calculated by authors such as Ranieri and Almeida Ramos (2013), Ianchovichina and Gable (2012), and Ali and Son (2007). Ianchovichina and Gable (2012) define inclusive growth as accelerating the pace of growth and expanding the size of the economy while levelling the playing field for investment and increasing opportunities for productive employment. To measure inclusive growth, we followed the methodology developed by Ali and Son (2007). In this approach, growth is defined as inclusive if it increases the social opportunity function, which is a function of two factors: (i) the average opportunities available to the population and (ii) how opportunities are shared within the population. On the basis of these two factors, Ali and Son (2007) define inclusive growth as growth that not only creates new economic opportunities but also guarantees equal access to the opportunities created for all segments of society, particularly the poor.

Drawing on the social welfare function developed by Arrow (1951), Ali and Son (2007) define a social opportunity function as follows:

$$O = O(y_1, y_2, \dots, y_n) \quad (1)$$

where y_i is the opportunity available to the ith income earner x_i and n is the size of the population. The average opportunity of the population is then defined as follows:

$$\bar{y} = \frac{1}{n}\sum_{i=1}^{n} y_i \quad (2)$$

The social opportunity function is an increasing function of its arguments and satisfies the transfer principle. The transfer principle implies that any transfer from a poorer person to a richer person leads to a decrease in the social opportunity function. Ali and Son (2007) propose an opportunity index defined as follows:

$$\overline{y^*} = \int_0^1 \overline{y_p}\, dp \quad (3)$$

where $\overline{y_p}$ is the opportunity available to the bottom p percent of the population. The opportunity equity index derived by the authors takes the following form:

$$\varphi = \frac{\overline{y^*}}{\bar{y}} \quad (4)$$

Equation (4) implies that opportunities are equitably (inequitably) distributed if φ is greater (less) than 1. It follows from equation (4) that:

$$\overline{y^*} = \varphi\bar{y} \quad (5)$$

Equation (5) implies that to achieve inclusive growth, it is necessary to increase $\overline{y^*}$. To achieve this, three scenarios are possible: (i) increase the average level of opportunities, (ii) increase the opportunity equity index, and (iii) increase both (i) and (ii).

The dynamics of inclusive growth can be understood by differentiating equation (5) as follows:

$$d\overline{y^*} = \varphi d\bar{y} + \bar{y}d\varphi \quad (6)$$

Growth becomes more inclusive if $d\overline{y^*} > 0$. In the second member of equation (6), the first term represents the contribution of growth through the increase in society's average opportunity for a given level of relative opportunity distribution. The second term represents the contribution of changes in the distribution when the average opportunity remains unchanged.

The methodology for measuring inclusive growth developed by Ali and Son (2007) has been adopted by several studies (Amponsah et al., 2021, 2023; Combes & Ouedraogo, 2016; Anand et al., 2013), which, however, have used different indicators to calculate the inclusive growth index. Amponsah et al. (2021, 2023) measured inclusive growth using the log-differences of GDP per capita and GDP per worker. Combes and Ouedraogo (2016) derived an inclusive growth index based on the employment rate and income inequality. Anand et al. (2013) calculated an inclusive growth index on the basis of the growth of GDP per capita and income inequality. This inclusive growth index takes into account both the pace and the distribution of economic growth. Drawing on Ali and Son's (2007) definition of inclusive growth, McKinley (2010) proposed an inclusive growth index that includes indicators such as growth, productive employment, economic infrastructure, poverty and income equity, gender equity, human capabilities, and social protection.

Based on equation (6), we derive our inclusive growth index from three components: GDP per capita in constant 2015 US dollars, the employment-to-population ratio, and income inequality (measured by the Gini index). The GDP per capita ($gdppc_{it}$) and the employment-to-population ratio (emp_{it}) are used to approximate the average opportunities available to society.

GDP per capita represents the average income that a citizen could theoretically receive if the real wealth created over a year was equitably distributed. Increasing GDP per capita by expanding the average opportunities available to citizens could increase the inclusiveness of growth. The employment-to-population ratio, expressed on a scale of 100, ranges from 0 to 100. A value of 0 corresponds to an absence of opportunities, and a value of 100 corresponds to a society that offers all its members the economic opportunities they need. An increase in this ratio, by increasing the average opportunities available, increases the inclusiveness of growth. We use the Gini index as a measure of the sharing of economic opportunities. The values of the Gini index range from 0 to 100. A value of 0 corresponds to a perfectly equal distribution of income, whereas a value of 100 corresponds to an extremely unequal distribution of income. Inspired by Combes and Ouedraogo (2016), we perform a transformation of the Gini index as follows: $gi'_{it} = 100 - gi_{it}$, where gi_{it} is the Gini index of country i at time t. gi'_{it} measures the degree of income equality between citizens and varies between 0 and 100, with 0 representing perfect inequality and 100 representing perfect equality. Increasing income equality between citizens increases the inclusiveness of growth. The three components of our inclusive growth index defined in this way satisfy the transfer principle defined by Ali and Son (2007).

To address scaling issues between the different components, we normalize each component using the Min-Max method. This normalization adjusts the values of each component to a scale of 0 to 1. However, for ease of interpretation, we rescale these components to a base of 100. The normalized component thus captures, for each country, its progression relative to the minimum value of the component over the period. Formally, the index is calculated from equation (7):

$$ig_{it} = \theta_1 gdppc_{it} + \theta_2 emp_{it} + \theta_3 g'_{it} \quad (7)$$

where ig_{it} is the inclusive growth index of country i at time t. We impose $\theta_1 = \theta_2 = \theta_3 = \frac{1}{3}$. The equal weighting used in the calculation of our index is not without criticism, but it avoids the arbitrary determination of weights for the different components. The inclusive growth index thus derived is a simple average of the three components. The values of this index are theoretically between 0 and 100, with 0 representing highly noninclusive growth and 100 representing highly inclusive growth. Ranieri and Almeida Ramos (2013) derived a similar inclusive growth index from income poverty, income inequality, and the employment-to-population ratio.

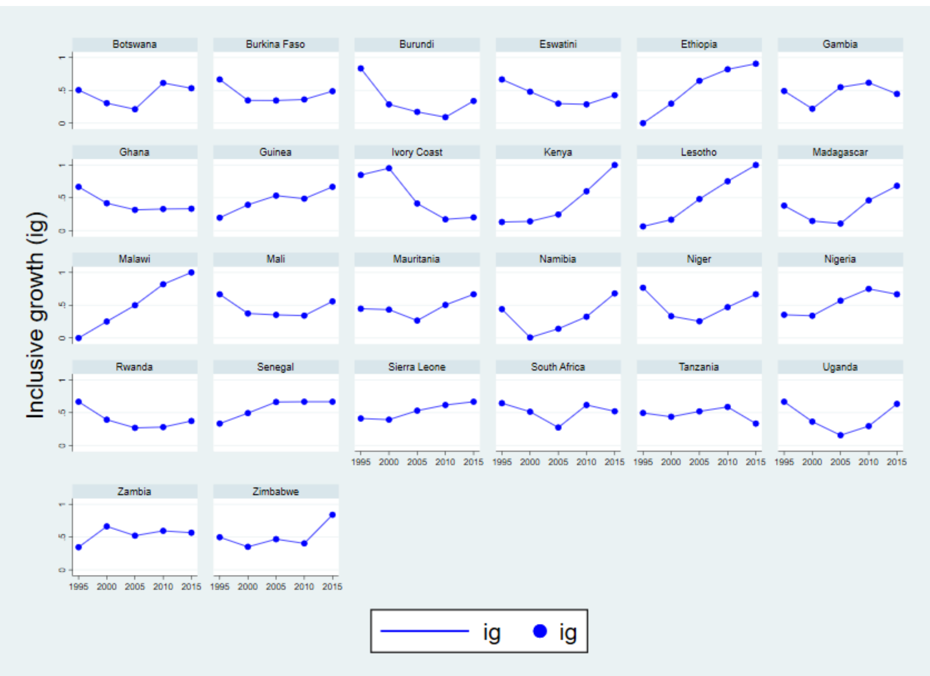
Table 1 shows that Senegal, Zambia, Nigeria, Ethiopia, and Sierra Leone are the five countries in the sample with the highest average inclusive growth indices between 1991 and 2015. In contrast, Namibia, Burundi, Madagascar, Rwanda, and Ghana were the countries in the sample with the lowest average inclusive growth indices over the period.

Table 1 Ranking of sample countries based on the inclusive growth index over the period 1991-2015

Country	Inclusive growth	Rank
Senegal	56.45	1
Zambia	53.84	2
Nigeria	53.57	3
Ethiopia	53.42	4
Sierra Leone	52.39	5
Ivory Coast	51.71	6
Malawi	51.43	7
South Africa	51.42	8
Zimbabwe	51.23	9
Niger	49.86	10
Lesotho	49.24	11
Tanzania	47.48	12
Gambia	46.39	13
Mauritania	46.33	14
Mali	45.89	15
Guinea	45.50	16
Burkina Faso	44.13	17
Botswana	43.32	18
Eswatini	43.12	19
Kenya	42.30	20
Uganda	42.28	21
Ghana	41.25	22
Rwanda	39.63	23
Madagascar	35.53	24
Burundi	34.43	25
Namibia	31.88	26

The average inclusive growth index used to rank countries does not capture the dynamics of inclusive growth across countries. Figure 1 illustrates the trends in the inclusive growth index across the sample countries from 1991 to 2015. The figure shows diverse inclusive growth trajectories across countries. Countries such as Ethiopia, Kenya, Lesotho, and Malawi recorded a clear increase in the inclusive growth index over the period. Senegal showed a moderate increase in its inclusive growth index over the study period. The increase in the inclusive growth index can be attributed to growth in GDP per capita, improved employment opportunities, or better income distribution. Conversely, the other countries in the sample experienced more or less significant upwards and downwards fluctuations in their inclusive growth index over the period. These fluctuations are likely attributable to variations in GDP per capita growth, employment levels, or income distribution, reflecting periods of improvement and deterioration. Countries such as Burundi and Ivory Coast experienced sharp declines in their inclusive growth index, likely due to recurrent political unrest in these two countries over the period. Such events can slow GDP per capita growth, compress employment levels, and increase income inequality.

Figure 1 Trends in the inclusive growth index in the sample countries between 1991 and 2015



3 Measurement of political instability

In the literature, there is a plurality of definitions and measures of political instability. Fosu (1992) defines political instability as the instability of governments, regimes, and communities within a nation. Alesina and Perotti (1996) define political instability as the propensity for government collapse. Nel (2003) distinguishes elite instability (Fosu, 2001, 2002) from grassroots instability. Political instability, whether driven by elites or the population, results from political violence, as previously highlighted by Gurr (1970). According to Gurr (1970), political violence encompasses all collective attacks within a political community against the political regime, its actors, or its policies. These attacks include revolutions, guerrilla wars, coups d'état, rebellions, and riots.

Methods used to measure political instability can be classified into two approaches. In the first approach, political instability is measured on the basis of isolated events of political instability. Fosu (2002) and Barro (1991) use coups d'état, revolutions and assassinations. Angelopoulos and Economides (2008) and Treisman (2000) use the frequency of regime change. Dutt and Mitra (2008) use the alternation between democratic and dictatorial regimes as a measure of political instability. In the second approach, political instability is measured by a composite index calculated from a series of political instability events. Hibbs (1973) constructed a political instability index using principal component analysis (PCA) of various political instability events, such as riots, armed attacks, political strikes, political assassinations, deaths due to political violence, and anti-government demonstrations. Following Hibbs (1973), Alesina and Perotti (1996) also used principal component analysis to calculate a political instability index based on five political instability events: the number of politically motivated assassinations, the number of people killed in mass domestic violence incidents, the number of successful coups d'état, the number of attempted but unsuccessful coups, and a dummy variable that takes the value of zero in democracies, 0.5 in semi-democracies, and 1 in dictatorships. In this analysis, the political instability index is the first principal component of these political instability events. Authors such as Blanco and Grier (2009), Oualy (2021), and Eggoh and Kobbi (2021) have also used the principal component analysis method to calculate their political instability indices. However, these studies differ in the type and number of political instability events included in the index calculation.

We adopt the definition and methodology for measuring political instability developed by Alesina and Perotti (1996). The choice of principal component analysis as the method for measuring the political instability index is driven by two motivations. The first is that this method corrects for the correlation among the information contained in the various political instability events. The second motivation is that principal component analysis captures the multidimensional nature of political instability rather than focusing on a single political instability event to measure political instability. To construct our political instability index, we use political instability events such as successful coups d'état, attempted coups d'état, revolutions, political assassinations, and government crises. These variables account for both elite actions and social unrest that could overthrow the incumbent government. Table 2 presents the events used to construct our political instability index.

Table 2 Events used to calculate the political instability index

Events	Definitions	Sources
Successful coups	Number of successful coups d'état	Bjørnskov and Rode (2020)
Attempted coups	Number of failed coups attempts	Bjørnskov and Rode (2020)
Revolutions	Any illegal or forced change in the government elite, any attempt at change, or any armed rebellion, whether successful or not, whose aim is independence from the central government.	Banks and Wilson (2017)
Assassinations	Any politically motivated assassination or attempted assassination of a high official or politician.	Banks and Wilson (2017)
Government crises	Any rapidly evolving situation that threatens to bring about the overthrow of the current regime, excluding situations of revolt aimed at such an overthrow.	Banks and Wilson (2017)

The PCA performed on the standardized variables shows that the first principal component explains 40.64% of the total variance (see Table 8 in the Appendix). The results of Bartlett's test of sphericity reported in Table 9 in the Appendix indicate that the variables are correlated. The Kaiser–Meyer–Olkin statistic of 0.628 demonstrates that our sample is adequate (see Table 10 in the Appendix). Following Kaiser's (1974) criterion, which recommends retaining only components with eigenvalues greater than 1, we retain the first principal component for constructing our index. The political instability index is derived from equation 8.

$$pi_{it} = 0{,}4791 scoups_{it} + 0{,}3638 fcoups_{it} + 0{,}5695 revo_{it} + 0{,}3496 assass_{it} + 0{,}4377 govcris_{it} \quad (8)$$

where pi_{it} is the political instability index of country i at time t, $scoups_{it}$ represents successful coups, $fcoups_{it}$ represents attempted coups, $revo_{it}$ represents revolutions, $assass_{it}$ represents political assassinations and $govcris_{it}$ represents government crises. The coefficients are the factor loadings obtained via an orthogonal varimax rotation (see Table 11 in the Appendix).

Table 3 shows that the five most politically unstable countries in the sample are Burundi, Sierra Leone, Ivory Coast, Madagascar, and Nigeria. However, the five least unstable countries in the sample are Tanzania, Namibia, Ghana, Botswana, and Eswatini. The rankings of these countries are identical for both the political instability index and the number of politically unstable events. Overall, the rankings of countries are not significantly different when the political instability index or political instability events are considered. Given the political instability events used to calculate the political instability index, our index reflects the reality of political instability in the countries in the sample as closely as possible.

Table 3 Ranking of countries in the sample by the political instability index over the period 1991-2015

Country	Pi	Pi rank	Number of events	Rank events
Burundi	3.365	1	51	1
Sierra Leone	1.309	2	21	4
Ivory Coast	1.255	3	24	2
Madagascar	0.971	4	18	6
Nigeria	0.840	5	22	3
Rwanda	0.635	6	20	5
Niger	0.285	7	12	8
Uganda	0.081	8	15	7
Mauritania	0.072	9	8	12
Lesotho	0.036	10	10	9
Guinea	- 0.045	11	10	9
Gambia	- 0.049	12	7	13
Mali	-0.141	13	7	13
Kenya	- 0.226	14	7	13
Burkina Faso	- 0.359	15	7	13
Ethiopia	- 0.391	16	9	11
Zimbabwe	- 0.401	17	5	19
Zambia	- 0.442	18	6	17
South Africa	- 0.615	19	6	17
Malawi	- 0.682	20	2	20
Senegal	- 0.829	21	2	20
Eswatini	- 0.844	22	1	22
Botswana	- 0.956	23	0	23
Ghana	- 0.956	23	0	23
Namibia	- 0.956	23	0	23
Tanzania	- 0.956	23	0	23

4 Empirical model

The empirical model used in this research to analyse the relationship between inclusive growth and political instability is drawn from Eggoh and Kobbi (2021). We follow Eggoh and Kobbi's (2021) model, using inclusive growth instead of income inequality. The model is specified as follows:

$$pi_{it} = \alpha_i + \lambda pi_{it-1} + \beta ig_{it} + Z'_{it}\gamma + \varepsilon_{it} \quad (9)$$

where pi_{it} is the measure of political instability in country i (with $i = 1, \dots, N$) at time t (with $t = 1, \dots, T$), α_i is the effect specific to country i, β is the marginal effect of inclusive growth (ig_{it}) on political instability, Z'_{it} is a matrix of control variables taken from the literature, γ is a vector of marginal effects associated with the control variables, and ε_{it} is an error term. Table 4 presents the control variables used in the empirical analysis.

Table 4 Control variables used in the empirical analysis

Variables	**Definitions**	**Used by**
Inflation (infl)	Growth rate of the consumer price index (in %)	Eggoh and Kobbi (2021), Al-Shammari and Willoughby (2019)
Urbanization (urb)	Urban population share (in %)	Hibbs (1973), Grechyna (2018), Blanco and Grier (2009)
Democracy (demo)	Binary variable taking the value 1 if the country has a Polity 2 score from the polity5 project by Marshall and Gurr (2020) greater than 5 and 0 otherwise.	Vu (2022), Oualy (2021), Blanco and Grier (2009)
Natural resources (natress)	Share of natural resources in GDP (in %)	Dutt and Mitra (2008)
Ethnic Fractionalization (efrac)	The probability that two individuals drawn at random in a country belong to two distinct groups (Dražanová, 2020)	Blanco and Grier (2009)
Regime durability (durab)	Number of years since the most recent regime change or the end of the transition period defined by the absence of stable political institutions (Marshall & Gurr, 2020)	Eggoh and Kobbi (2021), Blanco and Grier (2009)
Contagion (conta)	Number of politically unstable events in neighbouring countries	Eggoh and Kobbi (2021)

Previous studies on the determinants of political instability have employed various econometric techniques. Authors such as Blanco and Grier (2009) and Oualy (2021) have used ordinary least squares (OLS) as the estimation method. However, the results derived from the OLS estimator could be biased given the potential endogeneity between the economy and politics. This endogeneity may be due to possible measurement errors, omitted variables and the simultaneity between political instability and inclusive growth. Income inequality, which is a component of the inclusive growth index, is subject to measurement errors according to Ferreira et al. (2015). Similarly, data on various political instability events collected from press reports may also be prone to measurement error. The presence of measurement error violates OLS assumptions, producing biased estimates and compromising the reliability and interpretability of the results. Furthermore, important regressors may also be overlooked or omitted from the empirical analysis, either inadvertently or due to data unavailability. Omitted variables breach OLS assumptions, leading to biased and inconsistent estimates and undermining the validity and interpretability of the results. Moreover, the relationship between inclusive growth and political instability can be influenced by simultaneity. In fact, inclusive growth, by increasing per capita income and employment levels or by improving wealth distribution, can contribute to creating a stable political environment. Political stability, in turn, allows policymakers to implement policies that foster the creation of new economic opportunities, which in turn enhances the inclusiveness of growth. The relationship between the different components of the inclusive growth index and political instability is also likely to be influenced by simultaneity. Indeed, studies by Alesina et al. (1996) and Jong-A-Pin (2009) show that high political instability reduces GDP per capita growth. Colino (2012) finds that reducing uncertainty and political instability positively affects employment levels. Fomba Kamga et al. (2022) further find that political instability increases unemployment, underemployment, and the underutilization of youth labour in Sub-Saharan Africa. Finally, according to Vu (2022), political instability negatively affects redistributive policies aimed at the poor. Simultaneity violates OLS assumptions, resulting in biased and inconsistent estimates and hindering a clear interpretation of the causal effect. It is therefore important to employ estimation techniques that account for these various forms of endogeneity.

Alesina and Perotti (1996) used a system of simultaneous equations in their study to mitigate endogeneity biases. Eggoh and Kobbi (2021), in addition to a cross-sectional model, employed the system GMM estimator to analyse the determinants of political instability. Azeng and Yogo (2015) used the system GMM estimator and the instrumental variables estimator to examine the effect of unemployment on political instability.

To address potential endogeneity biases, we use the system generalized method of moments (GMM) estimator of Blundell and Bond (1998). The system GMM estimator is more efficient than the first difference estimator, which is biased in samples where the time dimension is small (Blundell & Bond, 1998). Roodman (2009) showed that the two-step system GMM estimator is more consistent than the one-step estimator. Therefore, in this research, we employ the two-step system GMM estimator to derive the effect of inclusive growth on political instability. The validity of the GMM estimator is based on two assumptions. The first assumes first-order serial correlation, AR(1), and the absence of second-order serial correlation, AR(2). The second assumption assumes the validity of the instruments. The validity of the instruments requires that the selected instruments are both theoretically and statistically valid. To test for serial correlation, we rely on the Arellano and Bond (1991) test for autocorrelation in the errors. We use the Hansen (1982) overidentification test to assess the validity of the instruments.

Alternatively, we use the instrumental variables estimator to assess the robustness of the results obtained from the system GMM estimator.

5 Data sources and descriptive analysis

The data used in this research are drawn from various sources. Data on the Gini index come from the Standardizing the World Income Inequality Database (SWIID) (Solt, 2020). The employment data are sourced from the International Labour Organization (ILO) database (ILOSTAT, 2023). Data on political instability events are obtained from Banks and Wilson (2017) and Bjørnskov and Rode (2020). Regime durability data are drawn from the Polity5 project by Marshall and Gurr (2020). The inflation rate data come from the International Monetary Fund (IMF) database (IMF, 2023). Data on the ethnic fractionalization index are sourced from

Dražanová (2020). The ethnic fractionalization index is expressed on a scale of 100 to facilitate interpretation of the results. Data on GDP per capita and other explanatory variables are obtained from the World Development Indicators (WDI) database of the World Bank (World Bank, 2023). The sample, based on data availability, covers 26 Sub-Saharan African countries over the period 1991-2015. Given the discontinuity in income inequality data, we use five-year averages for all variables over the following subperiods: 1991-1995, 1996-2000, 2001-2005, 2006-2010, and 2011-2015.

Table 5 shows that the average political instability index for the sample countries is 9.77E-09. The minimum, which reflects less political instability, is -0.956, and the maximum, which reflects more political instability, is 7.814. This relatively lower average for political instability across all countries conceals disparities between more politically unstable countries on the one hand and less unstable or even stable countries on the other. The mean of the inclusive growth index for the countries in the sample is 46.308. The average GDP per capita stands at 1,345 constant 2015 US dollars. The mean of the employment rate is 63.64, and the mean of the transformation of income inequality is 55.07. The average rate of inflation is 10.555%. Urban populations account for an average of 31.018% of the total population. A total of 33.8% of the countries in the sample have democratic political regimes. Natural resource rents represent an average of 8.783% of GDP across the sample countries. The average index of ethnic fractionalization for the countries included in the sample is 64.4. The average regime durability in the countries in the sample is 10 years, and the minimum and maximum durations of political regimes are zero and 47 years, respectively. For each country in the sample, there was an average of two events of political instability in neighboring countries.

Table 5 Descriptive statistics of the variables used in the empirical analysis

Variables	Obs	Mean	Standard deviation	Minimum	Maximum
Political instability	130	9.77E-09	1.426	- 0.956	7.814
Inclusive growth	130	46.308	21.820	0	100
GDP per capita	130	1345.005	1371.684	234.9333	6209.263
Employment rate	130	63.642	14.623	37.536	87.274
Transformation of income inequality	130	55.069	9.691	34.82	84.44
Inflation	130	10.555	12.110	- 6.388	107.238
Urbanization	130	31.018	13.935	6.828	65.546
Democracy	130	0.338	0.475	0	1
Natural resources	130	8.783	6.362	0.684	30.386
Ethnic fractionalization	130	64.4	22.35	5.444	88.5
Regime durability	130	10.046	9.838	0	47
Contagion	130	2.001	1.967	0	10.8

The correlation matrix, which represents the correlation between the different variables in pairs, helps to avoid problems of multicollinearity in the model. According to Kennedy (2008), the existence of at least two variables whose correlation coefficient is greater than 0.80 in absolute value creates multicollinearity. All the variables included in the specifications have a low correlation (see Table 12 in the Appendix).

6 Results and Discussion

6.1 Main results

Table 6 presents the estimation results of the effects of the inclusive growth index and its components on political instability. These results are obtained using the two-step system GMM estimator. The validity of this estimator relies on two main assumptions. The first concerns the existence of first-order serial correlation and the absence of second-order serial correlation. The second assumption pertains to the validity of the instruments used. In all specifications, the Arellano and Bond (1991) test shows first-order serial correlation and the absence of second-order serial correlation. Similarly, the Hansen (1982) test does not reject the validity of the instruments used.

In specification (1), we regress the political instability index on the inclusive growth index and a set of control variables. The results show that lagged political instability has a positive influence on current political instability at the 1% level. This result highlights the persistent nature of political instability in SSA countries and can be explained by the fact that the elite or the population has developed experience in ousting governments.

Inclusive growth has a negative and significant effect on political instability at the 5% level. Thus, an improvement in inclusive growth of one percentage point leads to a reduction of 0.0131 points in the political instability score. This result can be explained by the fact that inclusive growth, by increasing the economic opportunities available to populations or reducing the gaps between the rich and the poor, reduces the incentives for the population at the grassroots level to engage in actions aimed at overthrowing the government. Furthermore, the quest for political power is driven by rent-seeking and the desire to rise to the ranks of the wealthy class when there is a disparity in living standards between the holders of political power and the governed. By reducing the inequalities between those who hold state power and those who are governed, inclusive growth reduces the incentives for the elite to plan and execute coups. These results validate our research hypothesis and are in line with the theory of political transitions developed by Acemoglu and Robinson (2001), which shows that countries with intermediate levels of inequality manage to consolidate their democracy and are politically stable. Our results also empirically corroborate those of previous studies (Alesina & Perotti, 1996; Blanco & Grier, 2009; Eggoh & Kobbi, 2021; Oualy, 2021), which suggest that a reduction in inequality is beneficial for political stability.

Urbanization has a positive and significant effect on political instability at the 10% level. When the urban population increases by one percentage point, the political instability score increases by 0.0139 points. Urban centres are environments that attract poor populations from rural areas in search of better living conditions. While some individuals manage to integrate into the urban world, where competition for resources is more intense than in rural areas, others see their conditions worsen. The coexistence of deprived people among those who have everything at their disposal exacerbates their discontent and hatred towards the government, whom they may hold responsible for their degrading conditions. These populations, therefore deprived of the most basic means of subsistence, are prime candidates for protests and demonstrations against the government. Our results are in line with those of Eggoh and Kobbi (2021) but contrast with those of Grechyna (2018), who find that urbanization reduces political instability. This divergence is explained by the fact that well-planned urbanisation, accompanied by adequate infrastructure, improved public service provision, and economic diversification, promotes social integration and reduces political instability, as shown by the findings of Grechyna (2018). Conversely, in sub-Saharan African countries, weak urban planning and development capacity, limited access to basic social services, and difficulties in social integration make urbanisation more chaotic, thereby reinforcing social tensions and political instability.

The coefficient of the democracy variable is negative and significant at the 5% level. Democratic countries have a political instability score that is 0.552 points lower than their nondemocratic counterparts. This implies that countries with a high level of democracy are likely to be more politically stable than nondemocratic countries. This result can be explained by the fact that the greater the level of democracy is, the more perfectly democratic institutions function and the less incentive it is for political actors to seek unconventional changes to the government in power. Instead, political actors trust the rules of democratic transition established by constitutions. Changes in government are therefore peaceful and conventional. This result is in line with the prediction of the theory of political transitions developed by Acemoglu and Robinson (2001), according to which countries with consolidated democracies are politically stable. This result corroborates the findings of Blanco and Grier (2009) on a sample of 18 Latin American countries over the period from 1971 to 2000. However, this result contrasts with those found by Oualy (2021) in a set of 47 Sub-Saharan African countries over the period of 1990-2018 and by Al-Shammari and Willoughby (2019) through an analysis targeting the 5 countries of the Arab Spring and Egypt. The analysis by Oualy (2021), although focusing on Sub-Saharan African countries using ordinary least squares as the estimation method, does not preserve endogeneity biases that can affect the consistency of the estimators. The results of Al-Shammari and Willoughby (2019) can be explained by political actors' distrust of democratic institutions in the context of Arab Spring countries and Egypt.

The share of natural resources in GDP has a positive and significant effect on political instability at the 5% level. When the share of natural resources in GDP increases by one percentage point, the political instability score increases by 0.0312 points. This result can be explained by the fact that the extraction of natural resources in Sub-Saharan African countries is most often to the detriment of local populations, either through the expropriation of their small family farms or through the deterioration of their living environment due to violations of environmental protection standards. Moreover, those who manage to find employment with extracting companies live in precarious conditions, as the jobs they are offered are unskilled and insecure. All these factors fuel discontent and demonstrations against the extractive companies and the government in power. In some cases, this discontent leads to armed conflict or rebellion against the central authority. This result corroborates the findings of Dutt and Mitra (2008).

We use the components of the inclusive growth index as alternative measures of inclusive growth in specifications 2-4. In specification (2), we regress the political instability index on the standardized GDP per capita and a set of control variables. The results show that GDP per capita has a negative and significant effect on political instability at the 5% level. This result can be explained by the fact that higher levels of GDP per capita reduce deprivation and poverty, which in turn reduces social discontent and lessens the population's inclination towards social unrest directed against the government in power. These results are consistent with those of Collier and Hoeffler (2004) and Bjørnskov and Rode (2020). Urbanization and democracy remain predictors of political instability.

In specification (3), we regress the political instability index on the standardized employment rate and a set of control variables. The results show that the employment rate has a negative and significant effect on political instability at the 5% level. This result can be explained by the fact that access to employment, by improving living conditions through income from work, reduces discontent and sociopolitical unrest. Furthermore, the more a population is engaged in work, the less available it is to fuel anti-government demonstrations. When political equilibrium is beneficial to the majority of the population, fewer people are interested in seeing the status quo change. These results are consistent with those of previous studies (Al-Jabri et al., 2022; Al-Shammari & Willoughby, 2019; Azeng & Yogo, 2015; Hailu Demeke, 2022), which show that the unemployment rate has a positive influence on political instability and that reducing the unemployment rate is beneficial for political stability. Urbanization, democracy, and the share of natural resources in GDP remain determinants of political instability. The inflation rate has a positive and significant effect on political instability at the 1% level. This result can be explained by the fact that an increase in the inflation level, indicative of poor macroeconomic management, undermines the credibility of the government in the eyes of the population. The loss of purchasing power due to inflation can lead to popular protests and sociopolitical unrest. Moreover, rising prices often disproportionately affect the most vulnerable groups, increasing social inequalities and grievances. Inflation can also generate economic uncertainty, reducing investment and employment opportunities, which further fuels public dissatisfaction. This result corroborates the findings of Al-Shammari and Willoughby (2019) and Eggoh and Kobbi (2021).

In specification (4), we regress the political instability index on a normalized income inequality transformation and a set of control variables. The transformed income inequality, which can be seen as the income equality rate, has a negative and significant effect on political instability at the 5% level. This result can be explained by the fact that an increase in income equality among citizens reduces discontent and sociopolitical unrest. This result is in line with those of previous empirical studies (Vu, 2022; Oualy, 2021; Blanco & Grier, 2009; Dutt & Mitra, 2008; Nel, 2003; Alesina et al., 1996), which show that reducing inequality is beneficial for political stability. Democracy and the share of natural resources in GDP remain predictors of political instability.

Table 6 System GMM Results

Variables	(1)	(2)	(3)	(4)
Lag of political instability	0.247***	0.280**	0.296***	0.245***
	(0.0825)	(0.120)	(0.0859)	(0.0866)
Inclusive growth	**-0.0131****			
	(0.00627)			
GDP per capita		**-0.00838****		
		(0.00368)		
Employment rate			**-0.00850****	
			(0.00385)	
Transformation of income inequality				**-0.00817****
				(0.00375)
Inflation	0.0409	0.0139	0.0422***	-0.00156
	(0.0249)	(0.0291)	(0.00977)	(0.0238)
Urbanization	0.0139*	0.0128*	0.0113*	0.00560
	(0.00798)	(0.00632)	(0.00633)	(0.00679)
Democracy	-0.552**	-0.456**	-0.580***	-0.749***

Variables	(1)	(2)	(3)	(4)
	(0.223)	(0.186)	(0.202)	(0.203)
Natural resources	0.0312**	0.0225	0.0284*	0.0271*
	(0.0148)	(0.0289)	(0.0158)	(0.0136)
Ethnic fractionalization	-0.00133	0.00137	-0.00108	-0.00399
	(0.00492)	(0.00512)	(0.00675)	(0.00497)
Constant	-0.367	-0.484	-0.418	0.238
	(0.466)	(0.426)	(0.690)	(0.613)
Observations	103	102	96	96
Number of countries	26	26	26	26
Instruments	21	18	19	20
AR (1): p value	0.017	0.015	0.022	0.008
AR (2): p value	0.882	0.562	0.815	0.557
Hansen OID test: prob	0.485	0.281	0.928	0.896

Notes: Robust standard errors in parentheses, *** p<0.01; ** p<0.05; * p<0.1

The results in Table 13 in the Appendix show that our findings do not change significantly when regime durability and the contagion of political instability are introduced as additional control variables in all specifications. The inclusive growth index and its components still have negative effects on political instability.

6.2 Robustness check of the results

To analyse the robustness of our baseline results, we use the panel instrumental variables estimator. The model estimated with instrumental variables is inspired by Azeng and Yogo (2015). The model is specified as follows:

$$pi_{it} = \varphi_i + \delta ig_{it} + Z'_{it}\theta + \mu_{it} \quad (10)$$

where pi_{it} is the measure of political instability in country i (with $i = 1, \dots, N$) at time t (with $t = 1, \dots, T$), φ_i is the country-specific effect, δ is the marginal effect of inclusive growth (ig_{it}) on political instability, Z'_{it} is a matrix of control variables drawn from the literature, θ is a vector of marginal effects associated with the control variables, and μ_{it} is an error term.

The Hausman tests, conducted across all specifications, show that the random effects estimators are more efficient than the fixed effects estimators are. We therefore use the instrumental variables estimator in panel data with random effects (G2SLS random effects IV regression) to analyse the robustness of our baseline results. This estimation method, whose validity relies on the validity of the instruments, corrects for endogeneity in panel data. Table 7 presents the results of the estimations of the effects of inclusive growth and its components on political instability using the instrumental variables method. Inclusive growth, GDP per capita, the employment rate, and the income equality rate, which are potentially endogenous variables in the different specifications, were instrumented using internal and external instruments. Foreign direct investment, net inflows (% of GDP), official development assistance received in US dollars, the dependency ratio, gross secondary school enrolment, the KOF financial development index, total grants (% of GDP), domestic credit to the private sector (% of GDP), and the proportion of the population with access to clean cooking fuels and technologies are the external instruments we use in the various specifications. These instruments, which are selected on the basis of their relevance for each specification, are drawn from the literature on the determinants of inclusive growth (Anand et al., 2013; Khan et al., 2016; Alekhina & Ganelli, 2023), growth (Brückner, 2013), employment (Azolibe et al., 2022), and income inequality (Law et al., 2020; Tridico, 2018). The underidentification tests, based on Kleibergen-Paap's LM statistic, show that the various specifications are not underidentified at the 10% threshold. Similarly, the weak instrument tests, conducted using Kleibergen-Paap's F-statistic, indicate that the instruments are not weak across all specifications at the 1% threshold. The use of Kleibergen-Paap's F-statistic rather than Cragg-Donald's is due to the presence of heteroscedasticity in the different specifications. Indeed, Kleibergen-Paap's F-statistic is more appropriate than Cragg-Donald's when errors are heteroscedastic. The Cragg-Donald test is constructed under the assumption of homoscedastic errors. Finally, Hansen's tests show that the instruments used are valid in all specifications at the 10% threshold.

The results obtained from this estimator do not differ significantly from those obtained from the GMM. The results of specification (1) show that inclusive growth has a negative and significant effect on political instability at the 5% threshold. Similarly, GDP per capita, the employment rate and transformed income inequality still have negative and significant effects on political instability in specifications 2-4 at conventional thresholds.

Table 7 Results of the G2SLS Random Effects IV

Variables	(1)	(2)	(3)	(4)
Inclusive growth	**-0.0206****			
	(0.0104)			
GDP per capita		**-0.0156*****		
		(0.00567)		
Employment rate			**-0.0123***	
			(0.00687)	
Transformation of income inequality				**-0.0206****
				(0.00919)
Inflation	0.0481*	0.0160	0.0352	0.0589**
	(0.0275)	(0.0251)	(0.0257)	(0.0295)
Urbanization	0.0137	0.0162	-0.00316	0.00366
	(0.0107)	(0.0101)	(0.0110)	(0.0113)

Variables	(1)	(2)	(3)	(4)
Democracy	-0.958***	-0.618***	-1.117***	-0.874**
	(0.321)	(0.210)	(0.387)	(0.344)
Natural resources	0.0514**	0.0576**	0.0206	0.0555**
	(0.0203)	(0.0255)	(0.0222)	(0.0230)
Ethnic fractionalization	-0.00451	-0.00625	-0.00849	-0.00366
	(0.00605)	(0.00469)	(0.00592)	(0.00777)
Constant	0.169	0.110	1.085	0.0887
	(0.598)	(0.483)	(0.822)	(0.625)
Observations	104	104	101	103
Number of countries	26	26	25	26
Kleibergen-Paap rk LM statistic p value	0.0096	0.0120	0.0786	0.0357
Kleibergen-Paap rk Wald F statistic	10.292***	13.392***	23.099***	10.530***
Hansen J statistic p value	0.7232	0.7078	0.3208	0.6183

Notes: Robust standard errors in parentheses, *** p<0.01; ** p<0.05; * p<0.1

The results presented in Table 14 in the Appendix show that the inclusion of regime durability and political instability contagion as additional control variables does not significantly affect the results across all specifications.

7 Conclusion and economic policy implications

This study aimed to determine the effect of inclusive growth on political instability in a sample of 26 SSA countries over the period 1991-2015. The results derived from the two-step system generalized method of moments (GMM) show that inclusive growth reduces political instability. The results also highlight the persistence of political instability in Sub-Saharan African countries. Furthermore, we find that democratic countries are politically more stable than nondemocratic countries. The results also indicate that an increase in the share of natural resources in GDP positively affects political instability. The results do not change significantly when alternative measures of inclusive growth are used. They are also robust to the inclusion of additional control variables and the use of an alternative estimation method.

The findings of this research suggest to policymakers that promoting inclusive growth constitutes a key lever for consolidating political stability in sub-Saharan African countries. To enhance the inclusiveness of growth, public authorities must implement policies aimed at increasing wealth, creating employment, and reducing income inequality. To this end, they have several levers at their disposal.

First, investment in infrastructure and human capital is essential for fostering growth that is both robust and inclusive. In the sub-Saharan context, improving transport and energy networks, particularly in rural and peripheral areas, can reduce economic costs, strengthen territorial integration, and facilitate households' and firms' access to economic opportunities. In parallel, investing in human capital requires not only expanding access to education and healthcare, but also improving their quality by training teachers, strengthening primary healthcare systems, and developing vocational training programmes adapted to local labour market dynamics.

Second, reducing income inequality and disparities in access to basic social services is a key component of inclusive growth. In sub-Saharan Africa, inequalities in education, health, and employment often fuel social frustrations. Governments can reduce these disparities by prioritising marginalised areas, strengthening social protection programmes, and supporting the education of vulnerable groups, thereby contributing to a more balanced distribution of opportunities and greater social cohesion.

Third, the creation of productive and stable jobs remains a central pillar of inclusive growth and political stability. Public authorities can facilitate the creation of formal employment by supporting private initiatives, simplifying administrative procedures, offering tax incentives to small and medium-sized enterprises, and expanding access to finance for micro-entrepreneurs. A gradual formalisation of the informal sector, through incentive-based rather than coercive measures, can also improve workers' economic security.

The use of spatial models in future research will allow for a better consideration of spatial effects in the analysis of the relationship between inclusive growth and political instability. Moreover, the updating of datasets and the persistence of political instability in Sub-Saharan African countries still leave enormous scope for research that will provide a better understanding of the determinants of political instability.

Declarations

Authors' contributions

Adama SAWADOGO: Conceptualization, Data curation, Formal analysis, Investigation, Methodology, Software, Writing – original draft, Writing – review & editing. **Noël THIOMBIANO**: Conceptualization, Formal analysis, Investigation, Methodology, Supervision, Writing – original draft, Writing – review & editing. **Relwendé SAWADOGO**: Conceptualization, Formal analysis, Investigation, Methodology, Supervision, Writing – original draft, Writing – review & editing.

Declaration of competing interests

The authors have no competing interests to declare in relation to the content of this manuscript.

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Data availability

The data used for estimation are available from the corresponding author upon request.

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Appendix

Table 8 Principal components

Components	Eigenvalues	Proportion	Cumulative
Comp1	2.032	0.4064	0.4064
Comp2	0.974	0.195	0.6014
Comp3	0.884	0.1769	0.7783
Comp4	0.686	0.1372	0.9155
Comp5	0.422	0.0845	1

Table 9 Bartlett's test of sphericity

Chi-2	85. 74
Degree of freedom	10
Prob	0.00

Table 10 Measure of Kaiser–Meyer–Olkin

KMO	0,628

Table 11 Factor loadings

Variables	Comp1
scoups	0.4791
fcoups	0.3638
revo	0.5695
assass	0.3496
govcris	0.4377

Table 12 Correlation matrix for the empirical analysis variables

	pi	ig	gdppc	emp	gi’	infl	urb	demo	natress	efrac	durabl	conta
pi	1											
ig	0.05	1										
gdppc	-0.26	0.02	1									
emp	0.24	0.01	-0.64	1								
gi’	0.24	0.19	-0.65	0.46	1							
infl	0.11	-0.08	-0.11	0.11	-0.04	1						
urb	-0.23	0.12	0.64	-0.61	-0.35	-0.05	1					
demo	-0.32	0.03	0.42	-0.28	-0.35	0.05	0.29	1				
natress	0.33	-0.03	-0.39	0.36	0.46	0.17	-0.32	-0.29	1			
efrac	-0.19	0.12	0.02	-0.20	0.10	0.08	0.25	-0.02	0.11	1		
durabl	-0.20	0.03	0.53	-0.37	-0.36	-0.05	0.31	0.15	-0.33	-0.09	1	
conta	0.03	0.14	-0.25	0.32	0.32	0.03	-0.31	-0.20	0.04	0.15	-0.04	1

Table 13 System GMM Results (Addition of Control Variables)

Variables	(1)	(2)	(3)	(4)
Lag of political instability	0.267**	0.304***	0.295***	0.240*
	(0.120)	(0.108)	(0.0776)	(0.129)
Inclusive growth	**-0.0117****			
	(0.00495)			
GDP per capita		**-0.00881****		
		(0.00365)		
Employment rate			**-0.00825****	
			(0.00335)	
Transformation of income inequality				**-0.0115****
				(0.00494)
Inflation	0.0425*	0.0109	0.0412***	0.00710
	(0.0222)	(0.0267)	(0.00987)	(0.0217)
Urbanization	0.0107	0.00749	0.00788	0.00183
	(0.00907)	(0.00724)	(0.00646)	(0.00917)
Democracy	-0.531*	-0.488**	-0.619**	-0.705**
	(0.275)	(0.185)	(0.244)	(0.298)

Variables	(1)	(2)	(3)	(4)
Natural resources	0.0268	0.0225	0.0286*	0.0184
	(0.0179)	(0.0299)	(0.0160)	(0.0241)
Ethnic fractionalization	-0.00152	0.00311	-0.000586	-0.00147
	(0.00750)	(0.00459)	(0.00623)	(0.00710)
Regime durability	-0.00597	0.00804	0.00408	-0.0117
	(0.0151)	(0.0112)	(0.0133)	(0.0149)
Contagion	-0.0939	-0.0839	-0.0314	-0.104
	(0.0644)	(0.0807)	(0.0512)	(0.0712)
Constant	-0.0823	-0.325	-0.318	0.540
	(0.663)	(0.482)	(0.642)	(0.624)
Observations	101	102	96	96
Number of countries	26	26	26	26
Instruments	23	20	21	16
AR (1): p value	0.018	0.011	0.016	0.021
AR (2): p value	0.903	0.520	0.809	0.639
Hansen OID test: prob	0.360	0.291	0.930	0.541

Notes: Robust standard errors in parentheses, *** p<0.01; ** p<0.05; * p<0.1

Table 14 Results of G2SLS Random Effects IV (Addition of Control Variables)

Variables	(1)	(2)	(3)	(4)
Inclusive growth	**-0.0214****			
	(0.0104)			
GDP per capita		**-0.0149*****		
		(0.00543)		
Employment rate			**-0.0132****	
			(0.00657)	
Transformation of income inequality				**-0.0207****
				(0.00863)
Inflation	0.0478*	0.0187	0.0346	0.0552*
	(0.0274)	(0.0250)	(0.0262)	(0.0287)
Urbanization	0.0136	0.0139	-0.000705	0.00809
	(0.0114)	(0.0100)	(0.0141)	(0.0105)
Democracy	-0.958***	-0.656***	-1.149***	-0.768**
	(0.327)	(0.222)	(0.341)	(0.322)
Natural resources	0.0531**	0.0605**	0.0263	0.0411*
	(0.0209)	(0.0274)	(0.0242)	(0.0216)

Variables	(1)	(2)	(3)	(4)
Ethnic fractionalization	-0.00435	-0.00528	-0.0106	-0.00615
	(0.00628)	(0.00547)	(0.00651)	(0.00577)
Regime durability	0.00277	0.00815	0.000150	-0.0320*
	(0.0118)	(0.0106)	(0.0143)	(0.0163)
Contagion	0.0129	-0.0213	0.0686	-0.0125
	(0.0759)	(0.0831)	(0.106)	(0.0851)
Constant	0.140	0.00403	1.037	0.547
	(0.597)	(0.496)	(0.707)	(0.625)
Observations	104	104	101	103
Number of countries	26	26	25	26
Kleibergen-Paap rk LM statistic p value	0.0070	0.0044	0.0895	0.0159
Kleibergen-Paap rk Wald F statistic	10.214***	14.786***	24.911***	13.193***
Hansen J statistic p value	0.7278	0.6620	0.3529	0.5929

Notes: Robust standard errors in parentheses, *** $p<0.01$; ** $p<0.05$; * $p<0.1$