

Economic Resilience in Developing Countries: The Role of Democracy in the Face of External Shocks

Mohamed Ali Trabelsi and Salah Ahmed

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Abstract

In this paper, we examine the role of democracy in strengthening the resilience of developing economies in the face of exogenous negative external shocks. To achieve our research objectives, we use the duration model to estimate how democracy can determine the probable duration of an economic growth spell. Examining a panel of 96 developing countries observed over the 1965-2015 period, we find that democracy is a resilience factor, insofar as it helps to support growth spells in the event of negative external shocks. One implication of this study is the role of democracy in improving living standards in developing countries. The study may be subject to further research, and more variables that account for major shocks (such as political and civil unrest, internal conflicts, and natural disasters) can be considered. These shocks may occur during a growth period and cause very serious disruptive effects. The results show that an improvement in democracy score is associated with an increase in the expected duration of a growth spell. Another finding is that some dimensions of democratic institutions, such as political participation and egalitarian inclusion, can lead to sustainable economic growth.

Keywords: Resilience, economic growth, developing countries, democracy, survival models.
JEL Classifications: E32, E60, F43, O11, O43.

ملخص

في هذا البحث، نبحث دور الديمقراطية في تعزيز قدرة الاقتصادات النامية على الصمود عند مواجهة صدمات خارجية سلبية. ولتحقيق هدف البحث، استخدم كاتي البحث نموذج المدة لتقدير كيف يمكن للديمقراطية أن تحدد المدة المحتملة لفترة النمو الاقتصادي. ومن خلال دراسة لجنة مؤلفة من 96 دولة نامية تم وضعها تحت الملاحظة خلال الفترة من 1965 إلى 2015، وجدنا أن الديمقراطية تعد من عوامل القدرة على الصمود، بقدر ما تساعد في دعم فترات النمو في حالة حدوث صدمات خارجية سلبية. إن الديمقراطية لها فوائد في تحسين مستويات المعيشة في البلدان النامية. وقد تخضع الدراسة لمزيد من البحث. فيمكن النظر في المزيد من المتغيرات التي تُسبب الصدمات الكبرى (مثل الاضطرابات السياسية والمدنية، والنزاعات الداخلية، والكوارث الطبيعية). كما قد تحدث هذه الصدمات خلال فترة النمو، وتتسبب في آثار معطلة شديدة الخطورة. تُظهر النتائج أن تحسن نقاط الديمقراطية يرتبط بزيادة المدة المتوقعة لفترة النمو. في حين أن النتيجة الثانية هي أن بعض أبعاد المؤسسات الديمقراطية، مثل المشاركة السياسية، والإدماج القائم على المساواة، يمكن أن تؤدي إلى نمو اقتصادي مستدام. إن الآثار الاجتماعية هي: فوائد الديمقراطية لتحسين مستويات المعيشة في البلدان النامية.

Introduction

The difference between economically successful and unsuccessful countries is not only reflected in growth rates, but also in the ability to sustain and support these rates during crises (i.e. their resilience). Facing the different common external shocks reflected in a fluctuation of terms of trade, demand for export, and financial flows, the obvious questions would be: why do developing countries react differently? Do democratic institutions support economic growth despite negative external shocks? How does democracy contribute to improving the resilience of these countries? And, finally, what are the specific democratic political institutions that matter the most in explaining the positive effect of democracies on growth spell duration?

In this regard, cross-sectional comparative studies only offer a few answers to these questions. Indeed, using annual averages, they do not distinguish periods of instability resulting from sudden increases and decreases in growth. They implicitly assume business cycle homogeneity. In addition, they do not shed light on the reasons why some growth spells tend to shortly fade away.

Such limitations made room for a line of research that tried to consider breaking points and growth reversal in these countries. These studies sought to examine growth gaps, growth acceleration (Hausmann et al, 2005), the combination between multiple growth regimes (Jerzmanowski, 2006), the duration of a growth collapse (Hausmann et al, 2008), the start and end of growth spells (Jones and Olken, 2008), and stagnation factors (Reddy and Minoiu, 2009) over decades.

Drawing on this literature and mainly on the study of Berg et al. (2012), our study aims to examine the relationship between democracy and resilience by mainly focusing on sustained growth spells.

The focus on growth periods provides a clearer view on the growth process than on an analysis of average growth rates and eliminates potential biases resulting from breakpoints. In addition, the emphasis on sustained growth can shed light on the long-term “growth-democracy-resilience” relationship, bypassing the short-term fluctuations of average growth rates.

In this paper, we propose to empirically answer these questions in developing countries using duration models while highlighting the factors that determine the inherent risk to the end of growth periods. This study tests the hypothesis that democracy contributes to supporting the duration of economic growth spells in developing countries. Therefore, we show how democracy contributes to improving the resilience of these countries in the face of external shocks.

Duration analysis allows us to estimate the link between the probability that a growth period will end the following year using a set of variables, representing trade shocks, trade openness, inflation, human capital, investment, and quality of democratic institutions (electoral

democracy index, participation democracy index, egalitarian democracy index, and political institutions).

The rest of the paper is structured as follows. In the first section, we review literature on the concept of economic resilience and the role of democratic institutions in economic resilience. The results of the estimates of the effect of democracy on resilience are presented in the second section using the duration model applied to 96 developing countries over the 1965-2015 period. Finally, the paper concludes with a summary of the main results.

1. Literature Review

Before examining the role of democracy in resilience, it is essential to first clarify the concept of resilience.

1.1. Economic Resilience

Duval and Vogel (2008) define economic resilience as the ability to keep production close to its potential despite the occurrence of a shock. It therefore has at least two dimensions: the degree to which shocks are absorbed and the speed at which economies return to equilibrium after a shock. Resilience is therefore the ability of different economies to reach their growth potential after a disruptive shock. Whenever a loss of production after a shock and its absorption is significant, the economy is considered less resilient.

The concept of “resilience” denotes this ability to react; it is the ability of a given country to effectively anticipate, absorb, integrate, or overcome the effects of a shock in time. It is defined as the ability of a country to sustain growth periods and minimize recovery following an adverse shock.

According to Guillaumont (2009), economic resilience is defined as the ability to recover from a shock; the ability to cancel and counter threats to growth that are often linked to economic, political, social, or natural shocks. Berg et al. (2012) define growth resilience as the capacity to sustain growth over a long period. The IMF (2012) defines resilience as “the ability of an economy to sustain longer and more vigorous periods of expansion and to experience shorter and less severe contraction periods and faster recoveries.”

The literature agrees to define economic resilience as the ability to recover from unfavorable economic conditions or economic shocks. In our study, we will retain the definition which assumes that the resilience of an economy indicates the capacity to support longer periods of expansion.

1.2. The role of democracy in the resilience of economic growth

Theoretically, the effect of democracy on economic resilience is ambiguous. In fact, proponents of the non-democracy perspective argue that democracy can hinder growth because governments are subject to short-term political pressures, particularly from distributional coalitions.

Olson (1982) argues that democracies are affected by special interest groups and points out that political competition fundamentally affects how governments manage the economy, thereby influencing the returns to productive versus non-productive activity for individuals. These returns, in turn, directly influence the propensity of economic agents to supply production factors (e.g. labor and capital), specialize, and innovate, therefore helping dictate the course of economic development. The state needs to be insulated from the redistributive forces found in democracies (Olson, 1982).

In contrast to these contentions, there are some arguments in favor of the effects of democracy. Democracy facilitates the establishment of resilient institutions and policies that mitigate the effects of negative shocks. Indeed, democratic regimes better manage the consequences of external shocks and limit the occurrence of internal shocks due to a better ability to deal with sociopolitical conflicts. The presence of social freedom and political rights improves the capacity of the economy to adjust to the international environment while democracy promotes better income distribution (Rodrik, 1999).

In addition, Rodrik (1999) and Quinn and Woolley (2001) gather solid evidence indicating that democratic countries experience less volatility. Acemoglu et al. (2003) highlight the importance of institutions in explaining the differences in instability between countries, while Mobarak (2005) finds that democracy reduces instability through increased citizen control over the management of economic policy.

Examining a panel of countries, Collier et al. (2006) finds that democracy has a mixed effect: it reduces the effects of export price shocks but amplifies the shocks linked to import oil price.

Rodrik D. (2000) argues that democracy is a factor for long-term growth stability and shock absorption. Democratic institutions encourage a political consensus on political responses to external shocks and therefore manage conflicts better than autocracies. Participatory political regimes induce a greater desire for cooperation and conciliation, resulting in economic stability.

Berg et al. (2012) examine the determinants of growth duration in a sample of 140 countries, after identifying periods of strong growth and break points in economic growth during the 1950-2010 period. The results indicate that the duration of economic growth depends on the degree of equality of income distribution, the quality of democratic institutions, trade openness, and macroeconomic stability.

Essers (2012) concludes that democracy has a significant and a negative impact on the growth rates observed over the 2007-2009 period. In the same context, Kunal et al. (2018) examine the political determinants of the magnitude of growth in acceleration and deceleration episodes in 125 countries over the period 1950-2010 and show that democracies do not necessarily outperform autocracies in a growth acceleration episode. However, they can avoid large growth collapses.

In conclusion, the link between shocks and economic growth depends on a country's institutional capacity to manage conflicts and adjust the economy to its equilibrium. This capacity depends on the presence of democratic institutions that promote economic stability through political competition.

2. Material and methods

2.1. The main hypothesis and expectations

In line with the literature review, we test the hypothesis that democracy is a resilience factor in that it increases a country's ability to sustain growth periods following an adverse external shock. We will retain the definition that assumes that the resilience of an economy indicates the capacity to support longer periods of expansion.

Our aim is to estimate the impact of democracy on the probability that a country's period of relatively strong economic growth will come to an end. In other words, we are interested in investigating whether the “waiting period” during which a country remains in distress is associated with democracy.

After a brief overview of democracy indicators, the duration model, and the selected variables, we will present the results of our estimates that would allow us to determine the impact of democracy on the degree of persistence of sustained economic growth.

2.2. Democracy indicators

The choice of a democracy measure may impact the estimates of democracy's effect on growth. Existing democracy indices are typically subject to considerable measurement error, leading to spurious changes in the democracy score of a country even though its democratic institutions do not truly change. Even with year and country fixed effects, changes in democracy may correlate with other changes or respond to current or future economic conditions, raising obvious omitted variable bias concerns (Acemoglu et al., 2019).

There is an ongoing debate about the appropriate measure of democracy. This debate highlights the information on which the institutional quality indices are based, as well as their measurement on a discrete or continuous scale. Our estimates use the continuous measures of democracy used in the literature. These continuous measures are more consistent with the slowly changing nature of institutions described by North (1990), unlike dichotomous measures. To check the sensitivity of our results to different measures of democracy, we use two indices: the Polity2 indicator and the V-dem index.

The composite index of polity2 uses sub-scores for constraints on the executive branch, competitiveness of political participation, and openness and competitiveness of executive recruitment (Marshall et al., 2009). The polity2 measure comes from the POLITY IV base which is part of a research program at the Center for International Development and Conflict Management (CIDCM) of the University of Maryland. This database covers 186 countries. The polity index ranges from (-10) to 10, which is the difference between democracy and autocracy, where large positive values represent a greater degree of democracy and large

negative values denote a greater degree of autocracy. Polity IV essentially measures the degree of liberalism of political regimes.

The V-Dem index³ (Varieties of Democracy Dataset, Version 9) is a new approach to conceptualizing and measuring democracy. It provides a multidimensional and disaggregated dataset that reflects the complexity of the concept of democracy as a system of rule that goes beyond the simple electoral process. The V-Dem project distinguishes between five high-level principles of democracy: electoral, liberal, participatory, deliberative, and egalitarian, and it collects data to measure these principles.

To assess the effect of the type of democracy on an economic growth spell duration, we use three dimensions of democracy. The first is the electoral dimension of democracy, which embodies the core value of making rulers responsive to citizens by competing for the approval of a broad electorate during periodic elections, as captured by Dahl's (1972) conceptualization of "polyarchy."

The electoral principle of democracy¹ is defined as selecting leaders who are responsive and accountable to citizens through the mechanism of competitive elections as captured by Dahl (1972).

This objective is achieved when elections are free and fair, the executive is selected (directly or indirectly) through elections, suffrage is extensive, and political and civil society organizations can operate freely.

To capture these requirements, the Polyarchy index combines indicators on the level of suffrage and freedom to join political and civil society organizations, whether elections are transparent and without systematic irregularities, and whether the chief executive is selected through elections.

The electoral dimension of democracy¹ seeks to embody the core value of making rulers responsive to citizens, achieved through electoral competition for the electorate's approval under circumstances when suffrage is extensive, meaning: political and civil society organizations can operate freely; elections are clean and not marred by fraud or systematic irregularities; and elections affect the composition of the chief executive of the country. In between elections, there is freedom of expression and an independent media capable of presenting alternative views on matters of political relevance.

The second dimension is the participatory dimension of democracy¹ (the Participatory democracy index), which denotes the active participation of citizens in all political processes, whether electoral and non-electoral. It is motivated by uneasiness about a bedrock practice of electoral democracy: delegating authority to representatives. Then, direct rule by citizens is preferred, wherever practicable. This model of democracy thus takes suffrage for granted,

³ The V-dem institute (University of Gothenburg, Sweden).

emphasizing engagement in civil society organizations, direct democracy, and subnational elected bodies.

The third dimension is the egalitarian dimension of democracy¹ (the Egalitarian democracy index), which holds that material and immaterial inequalities inhibit the exercise of formal rights and liberties and diminish the ability of citizens from all social groups to participate. Egalitarian democracy is achieved when the rights and freedoms of individuals are protected equally across all social groups and when resources are distributed equally across all social groups. The distribution of resources should be sufficient to ensure that citizens' basic needs are met in a way that enables their meaningful participation. Additionally, an equal distribution of resources ensures the potential for greater equality in the distribution of power. To make it a measure of egalitarian democracy, the index also takes the level of electoral democracy into account.

2.3. The model

The dependent variable in our econometric model is the probability that sustained economic growth will end. According to Berg et al. (2012), a country is considered to have achieved sustained growth if it records a regular growth rate greater than or equal to two percent over a period of time.

The duration model used is a proportional failure point model based on Weibull's distribution. The probability density of this distribution is defined by:

$$f(t; \gamma; \delta) = \frac{\gamma}{\delta} \left(\frac{t}{\delta}\right)^{\gamma-1} e^{-(t/\delta)^\gamma}$$

where

1. $t > 0$ is the assigned variable or break point;
2. $\gamma > 0$ is the shape parameter and,
3. $\delta > 0$ the distribution scale parameter.

Its survival function is defined by: $S(t; \gamma; \delta) = e^{-(t/\delta)^\gamma}$ and its failure cumulative distribution function is defined by: $F(t; \gamma; \delta) = 1 - e^{-(t/\delta)^\gamma}$.

The scale parameter is determined by replacing δ with t in the cumulative distribution function, which gives us: $F(\delta) = 1 - e^{-1} = 0.632 = 63.2\%$. This shows that the scale parameter δ represents the point for which 63.2 percent of failures are recorded.

If we denote $\lambda(t)$ the instantaneous failure rate, we show that:

$\text{Log}\lambda(t) = \text{Log}\gamma + (\gamma - 1)\text{Log}t - \gamma\text{Log}\delta$. This equation is represented by a line whose abscissa is $\text{Log}t$ and ordinate is $\text{Log}\lambda(t)$ (Palisson, 1989). From this relationship, we deduce that the slope of the line has as expression: $p = (\gamma - 1)$. The hazard of Weibull's distribution increases with time if $\gamma > 1$, decreases if $\gamma < 1$, and is constant if it is 1.

The estimation of the parameter makes it possible to conclude an increase, constancy, or decrease of the exit probability with the duration of persistence in the growth phase.

We model the way in which the evolution of the period (as a function of different independent variables) affects the probability that it will end at some point in the analysis time.

Consistent with the proportional hazard hypothesis, the effect of the independent variables is multiplicative related to hazard (and not related to survival time as in the accelerated failure model).

The model assumes that the failure point associated with the duration of period j is expressed as a product of a random variable τ_j and a proportionality scale that is a function of the weighted sum of a set of independent variables x_{tj} .

$$t_j = \exp\left(\sum_{k=1}^K \beta_k x_{k,tj}\right)\tau_j$$

where τ_j follows a Weibull's distribution with a shape parameter γ .

The coefficients β_k express temporal ratios which indicate to what extent a variation of a unit of an independent variable would shorten or lengthen the anticipated duration of reference $E(\tau_j)$.

2.4. Data and descriptive statistics

Referring to the database of Berg et al. (2012), our analysis unit (the duration variable) is a growth period. This period is defined as a period of strong growth following a high growth and ending either with a slowdown in growth or with the end of the sample. It identifies the complete phases of growth as periods of time which meet the following two conditions: (i) they begin with a launching, followed by a period of average GDP growth of at least two percent on average; and (ii) they end with a decrease in growth, followed by a period of average GDP growth of less than two percent.

Likewise, incomplete growth periods can be defined as those that meet condition (i) and are still running at the end of the sample.

Following Berg et al. (2012), growth spells are real GDP per capita growth periods that last at least five years. They start with an increase of at least two percent in real GDP per capita and end with a decrease followed by a growth period of less than two percent on average, or simply with the end of the observation period. The duration of continuous periods of accelerated growth can be interrupted by exogenous shocks, particularly in the most vulnerable countries.

The two percent growth per capita threshold has already been used in the literature and is considered a reasonable growth per capita for low-income countries.

Likewise, “incomplete” growth spells are defined as those that meet the first condition but are still in progress at the end of the sample. A total of 56 full periods and 52 incomplete periods are identified in the sample (Table 1).

Table 1. Duration and frequency of GDP per capita growth spells

Region	Number of countries	Number of completed growth spells	Average duration	Number of incompleting growth spells	Average duration
Asia	15	8	15.6	14	26.7
Latin America	22	23	8.2	13	19.2
Sub-Saharan Africa	44	18	6.4	20	17.6
MENA	15	7	11.9	5	20.2

Source: The authors.

Berg et al. (2012) define a period of complete growth as a period of time that begins with an upward break. It is followed by an average growth rate of at least two percent and ends with a downward break. The data sources for the variables are shown in Table 2.

Among the variables that indicate exogenous external shocks, we retain terms of trade and change in US interest rates. The chosen democracy variable is Polity IV. This is an index ranging from (+10: democracy) to (-10: autocracy).

The democracy index shows the effective presence of institutional rules framing power and the presence of institutions that allow citizens to express their expectations and choose their political elites. Autocracy is characterized by the absence or restriction of political competition and control. Execution of power is slightly restricted by institutions, and leaders are only selected from a political elite.

Table 2. Variables and data sources

Variables	Description	Sources
Vdem	Electoral democracy Index	The V-Dem Institute (University of Gothenburg)
Vdempart	Participation democracy index	The V-Dem Institute (University of Gothenburg)
Vdemegal	Egalitarian democracy index	The V-Dem Institute (University of Gothenburg)
Polity	Political institutions (P4polity2)	Polity IV
Inv	Ln (investments, % of GDP)	PWT 7.1
Humcap	Ln (primary + secondary years of education)	Barro Lee
Exchange rate	Exchange rate, national currency/USD (market+estimated).	PWT
Open	Trade openness =Export +imp % of GDP	WBI
Inflation	Ln (100+inflation rate)	WBI

Change in terms of trade	Terms of trade growth (Price level of exports/Price level of imports)	IMF
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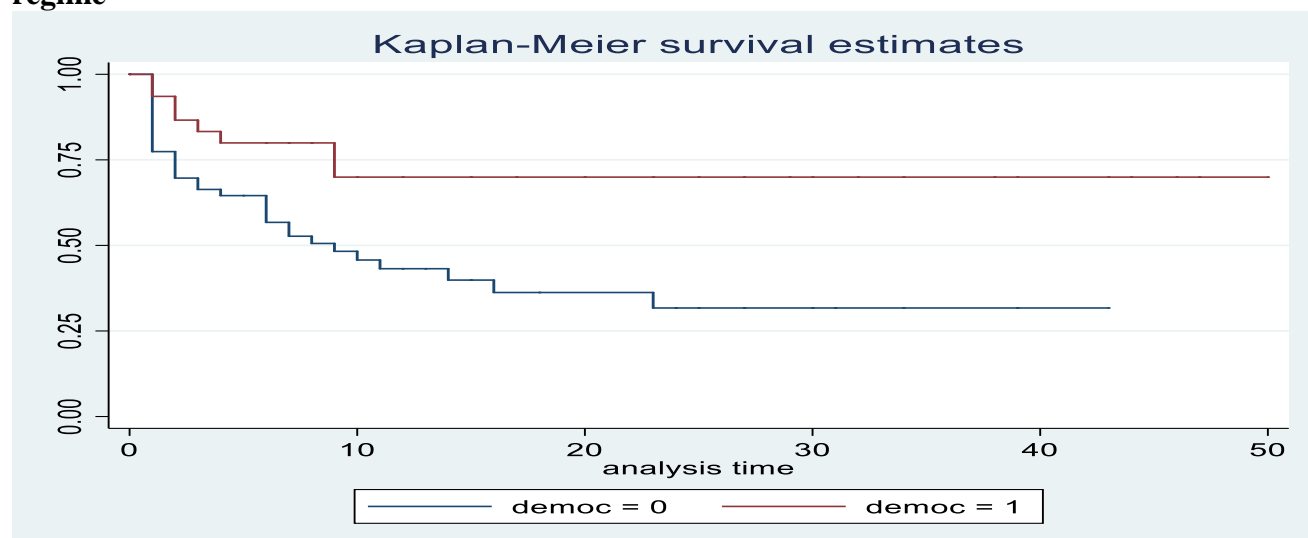
The study will examine a panel of 96 developing countries observed during the 1965-2015 period. Table 1 presents stylized facts about the frequency and duration of growth periods. Most growth periods take place in Africa (around 35 percent of all periods, a rate which is proportional to the share of these countries in the sample), while the least growth periods (around ten percent of the total) occur in advanced countries.

Furthermore, we observe that while it is not unusual to start a growth period, countries differ in their ability to maintain it for longer periods. Compared to other regions, African and Latin American countries have the shortest average growth period, while, on average, a full period in Asia lasts about 16 years (Table 1).

In sub-Saharan Africa, their growth periods tend to experience breaks and discontinuities fairly quickly compared to Asian or MENA countries.

Conducting a non-parametric estimation of the survival of growth spells according to political regime, we find that democratic countries have a higher survival rate than authoritarian countries (Figure 1).

Figure 1. Nonparametric estimation of the survival of growth spells according to political regime



3. Results and Discussion

After presenting a descriptive analysis of the data in Table 3, which sense a strong heterogeneity in the sample, we will estimate a maximum likelihood of survival models in a parametric regression using Weibull's survival distribution.

Table 3. Descriptive statistics of the variables

Variable	Obs	Mean	Std Dev	Min	Max
p4polity2	4.453	-1.153829	6.711612	-10	10
Inv	4.624	2.889192	0.641048	-0.3232415	4.383527
Vdem_part	4.570	0.1837567	0.1558495	0.009	0.805
Vdem_poly	4.570	0.3258193	0.2268712	0.008	0.929
Vdem_egal	4.570	0.227844	0.1607496	0.017	0.836
Inflation rate	3.444	36.71384	495.9857	17.64042	23773.13
Hum cap	4.233	1.198931	0.7997237	-3.684944	2.47215
Open	4.625	64.82642	44.01233	4.111102	433.0451
Exchange rate	4.411	334.2211	1344.71	8.10e-14	18612.92
Changes in terms of trade	4.317	0.0562438	10.88022	-114.7957	91.88754

Source: the authors

The results in Table 4 show the regression coefficients, which can be interpreted as “risk ratios”: the factor by which a risk rate increases when the covariate increases by unit one. For example, a risk ratio of 1.05 means that a change of one unit in the regressor increases the risk of slowing growth by five percent in the following period. A risk ratio of one means that there is no effect, and a risk ratio less than one denotes a “growth protection effect.”

The dependent variable represents the risk that the growth phase will be interrupted. The coefficient associated with the independent variable represents the change in the probability that the growth episode ends next year for a variation of one unit in the given independent variable.

As expected, negative external shocks are associated with higher growth failure rates. These negative exogenous external shocks negatively affect the duration of a growth period. Real negative external shocks are particularly costly in terms of production in developing countries.

The results highlight the beneficial effects of improving political institutions (making them more democratic). Democracy significantly extends the duration of growth periods; thereby promoting more resilient and sustainable growth.

A proportional hazard model with time varying covariates is used to relate the probability that a growth spell will end to a variety of economic and political variables.

A hazard ratio of 0.9 means that a unit change in the regressor decreases the expected duration by ten percent. A hazard ratio of one means there is no effect and a ratio of 1.1 means it

increases its expected duration by ten percent. We test the probability that the true hazard ratio equals one.

The results reported in Table 4 support the hypothesis that democratic countries tend to respond better to negative external shocks. These results corroborate with those of Essers (2012) who show the ability of democratic countries to face economic crisis, specifically the 2008 crisis.

All proxies for institutions are entered into the model with statistical significance and expected signs. The results also highlight the beneficial effects of improving political institutions (making them more democratic) and improving the terms of trade. A one-point improvement in the democracy score is associated with an at least eight percent increase in the expected duration of a growth spell. Lower inflation generally extends growth periods. On the other hand, an increase in investment rate and greater trade openness have no significant effect. From Table 4, while the signs of these two variables are positive, human capital and overvaluation of the exchange rate are statistically insignificant.

Table 4. Democracy and the duration of growth spells

	(1)	(2)	(3)	(4)
Dependent variable	Analysis time when record ends	Analysis time when record ends	Analysis time when record ends	Analysis time when record ends
Inv	1,067* (0,0645)	1,063* (0,0632)	1,063* (0,0625)	1,076* (0,0606)
Inflation	1,030*** (0,0110)	1,034*** (0,0118)	1,038*** (0,0125)	1,039*** (0,0129)
Change in terms of trade	0,969*** (0,0140)	0,966*** (0,0140)	0,965*** (0,0138)	0,967*** (0,0135)
Polity	0,923** (0,0325)			
Exchange rate	0,998*** (0,0014)	0,998*** (0,0013)	0,998*** (0,0014)	0,998*** (0,0013)
Humcap	0,786 (0,2677)	0,796 (0,2732)	0,796 (0,2743)	0,817 (0,2907)
Open	0,998*** (0,0043)	0,999*** (0,0044)	0,999*** (0,0042)	1,001*** (0,0043)
Vdem		0,788* (0,0861)		
Vdempt			0,967*** (0,0154)	
Vdemegal				0,693** (0,1150)
Observations	794	794	794	794
Success/failure	67/27	67/27	67/27	67/27
Log-likelihood	-67,755	-67,866	-67,934	-67,631

Source: the authors

Notes: The table reports hazard ratios, where a hazard ratio larger than one implies that increases in the associated variable shortens spells, while a ratio smaller than one implies that the covariate has a “protective”

effect, i.e. it helps sustain the spell. *, **, & *** denote statistical significance at the ten percent, five percent, and one percent levels, respectively. P-values are given in brackets under the coefficient estimates.

4. Conclusion

The duration of current accelerated growth periods can be interrupted by exogenous negative shocks, particularly in the most vulnerable countries. According to our hypothesis, democracy has an impact on the length of a growth period in developing countries vulnerable to exogenous negative shocks, thereby showing that democracy is likely to protect the growth process of these countries.

Our estimates validate this hypothesis. Resilience expresses institutional ability to support longer expansion phases. This finding is consistent with those of some authors like Berg et al. (2012), Ostry et al. (2014), and Abiad et al. (2015). These authors conclude that negative external shocks and macroeconomic volatility negatively correlate with the length of growth periods and that democracy supports growth periods. Our results support their findings in focusing on the role of some democratic indicators like political participation and egalitarian inclusion, which significantly sustained the duration of growth periods and corroborate with those of some authors such as Berg and al. (2012) who find that the duration of growth episodes is positively associated with lower income inequality, democratic institutions, and macroeconomic stability.

On the other hand, our results show that democracy significantly extends the duration of growth periods. This promotes more resilient and sustainable growth. An improvement in the democracy score is associated with an increase in the expected duration of a growth spell.

We should point out that our analysis of duration only considers periods of growth but not economic stagnation. Therefore, we cannot predict the crisis of stagnation in countries that have started a democratic political transition, such as Tunisia.

The factors that cause sustained growth usually do not explain why a country is stagnant. The dynamics of stagnation are difficult to predict and it can even start with the democratization of political institutions. The case of Tunisia is a better example where the crisis of economic stagnation has continued for ten years for several political and identity reasons.

First, the impact of political democratization on economic growth is not immediate and takes a lot of time. Second, the building of democratic economic institutions and structural reforms face resistance from vested interests, lobbies, and other groups opposed to reform. The third obstacle is related to political instability and social unrest.

Despite the heterogeneity of growth experiences between countries in transition, democracy is a very useful factor in immunizing the country against external shocks, such as a vaccine that inhibits the development of a virus and develops antibodies while avoiding the complications of contamination.

Our results support the idea that democracies do better than autocracies in managing conflicts caused by external shocks.

However, our study may be subject to further research. More variables that account for major shocks (such as political and civil unrest, internal conflicts, and natural disasters such as COVID-19) can be considered. These shocks may occur during a growth period and cause very serious disruptive effects.

References

- Abiad A., Bluedorn J., Guajardo J. and Topalova P. (2015), The Rising Resilience of Emerging Market and Developing Economies, *World Development*, 72, pp. 1-26
- Acemoglu D., Johnson S., Robinson J. and Thaicharoen Y. (2003). "Institutional causes, macroeconomic symptoms: volatility, crises and growth". *Journal of Monetary Economics*, 50 (1), pp. 49-123.
- Acemoglu D., Naidu S., Restrepo P. and Robinson J.A. (2019). "Democracy does cause growth". *Journal of Political Economy*, 127 (1), pp. 47-100.
- Berg A., Ostry J. and Zettelmeyer J. (2012). What makes growth sustained? *Journal of Development Economics*, 98, pp.149-166.
- Collier P., Goderis B. and Hoeffler A. (2006). Shocks and growth: adaptation, precaution and compensation. *Department of Economics*. Oxford University.
- Dahl R. (1972). Polyarchy: participation and opposition. *Yale University Press*, New Haven.
- Duval R. and Vogel L. (2008). Economic resilience to shocks: The role of structural policies. *OECD Journal: Economic Studies*, 2008 (1), pp. 1-38.
- Essers D. (2012). Democracy and external shock resilience in developing countries: evidence from the great recession. *Working Paper*. Institute of Development Policy and Management. University of Antwerp.
- Guillaumont P. (2009). «A retrospective Economic Vulnerability Index. *Policy Brief Series*. 3. FERDI.
- Hausmann R., Pritchett L. and Rodrik D. (2005). Growth accelerations. *Journal of Economic Growth*, 10, pp. 303-329.
- Hausmann R., Rodriguez F. and Wagner R. (2008). Money, crises and transition. *Carmen M. Reinhart. Carlos A. Vegh. Andrés Velasco* (Eds.), MIT Press, pp. 376-428.
- Henisz W.J. (2000). The institutional environment for economic growth, *Economics and Politics*, 12, pp. 1-31.
- Jerzmanowski M. (2006). Empirics of hills, plateaus, mountains and plains: A Markov-switching approach to growth *Journal of Development Economics*, 81(2), pp. 357-38.
- Jones B.F. and Olken B. (2008). The Anatomy of Start-Stop Growth. *The Review of Economics and Statistics*, 90 (3), pp. 582-587.
- Kunal Sen, Lant Pritchett, Sabyasachi Kar and Selim Raihan (2018). Democracy Versus Dictatorship? The Political Determinants of Growth Episodes, *Journal of Development Perspectives* 2(1-2), pp. 3-28.
- Marshall M.G. and Keith J. (2009). Polity IV Project: Political Regime Characteristics and Transitions, *Dataset Users' Manual* (Arlington, Virginia: Polity IV Project)
- Mobarak A.S. (2005). Democracy, Volatility, and Economic Development, *Review of Economics and Statistics*, 87 (2), pp. 348-361.
- North D.C. (1990). Institutions, Institutional Change and Economic Performance, *Cambridge University Press*.
- Olson M. (1982). The rise and decline of nations: economic growth, stagflation, and social rigidities. *Yale University Press*, New Haven

- Ostry J.D., Berg A. and Tsangarides C.G. (2014). Redistribution, inequality and growth. *IMF Staff Discussion Note*, SDN/14/02.
- Palisson F. (1989). Détermination des paramètres du modèle de Weibull à partir de la méthode de l'actuariat. *Revue de Statistique Appliquée*, 37 (4), pp. 5-39.
- Przeworski A. and Limongi F. (1993). Political Regimes and Economic Growth. *The Journal of Economic Perspectives*, 7 (3), pp. 51-69.
- Quinn D. P. and Woolley J.T. (2001). Democracy and National Economic Performance: The Preference for Stability. *American Journal of Political Science*, 45 (3), pp. 634-657.
- Reddy S. and Minoiu C. (2009). Real income stagnation of countries 1960-2001. *Journal of Development Studies*, 45, pp. 1-23.
- Rodrik D. (1999). Where did all the growth go? External shocks, social conflict and growth collapses. *Journal of Economic Growth*, 4 (4), pp. 385-412.
- Rodrik D. (2000). Participatory politics, social cooperation, and economic stability. *American Economic Review*, 90 (2), pp. 140-144.
- Sen K., Pritchett L., Kar S. and Raihan S. (2018). Democracy Versus Dictatorship? The Political Determinants of Growth Episodes, *Journal of Development Perspectives* 2(1-2), pp. 3-28.

Appendix: List of countries

Africa	Africa	Latin America	MENA	Asia
Gambia, The	Congo, Dem. Rep.	Guatemala	Syria	Malaysia
Ghana	Chad	Honduras	Bahrain	Indonesia
Sudan	Guinea-Bissau	Ecuador	Qatar	Thailand
Guinea	Mauritius	Nicaragua	Saudi Arabia	Philippines
Malawi	Rwanda	Guyana	Egypt	Korea, Republic of
Cameroon	Sierra Leone	Haiti	Libya	Vietnam
Nigeria	Togo	Costa Rica	Yemen	Taiwan
Gabon	Lesotho	Brazil	Morocco	Laos
Central African Republic	Ethiopia	Chile	Iraq	Cambodia
Equatorial Guinea	Mali	Uruguay	Jordan	Singapore
Seychelles	Botswana	Venezuela	Kuwait	Bangladesh
Kenya	Ivory Cost	Panama	Tunisia	Nepal
South Africa	Liberia	Peru	Iran	India
Mozambique	Angola	Mexico	Algeria	Sri Lanka
Congo, Republic of	Tanzania	Jamaica	Lebanon	Pakistan
Senegal	Uganda	Dominican Republic	Oman	
Zimbabwe	Mauritania	Argentina	United Arab Emirates	
Namibia	Benin	Colombia	Turkey	
Burkina Faso	Cape Verde	Paraguay		
Niger	Zambia	El Salvador		
Madagascar	Burundi	Bolivia		