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ECONOMIC RESILIENCE IN DEVELOPING COUNTRIES: THE ROLE OF DEMOCRACY IN THE FACE OF EXTERNAL SHOCKS

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SUSTAINABLE DEVELOPMENT GOALS AND EXTERNAL SHOCKS IN THE MENA REGION:

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**Economic resilience in developing countries:
The role of democracy in the face of external shocks**

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Economic resilience in developing countries: The role of democracy in the face of external shocks

Abstract:

This paper examines the role of democracy in strengthening the resilience of developing economies in the face of exogenous negative external shocks. Our study uses the duration model to estimate how democracy can determine the probable duration of a spell of economic growth. Examining a panel of 96 developing countries observed over the 1965-2015 period, we found that democracy is a resilience factor, insofar as it helps to support growth spells in the event of negative external shocks.

Our results show that an improvement in the democracy score is associated with an increase in the expected duration of a growth spell. The second finding is that some dimensions of democratic institutions like political participation and egalitarian dimension can conduct to sustain economic growth.

Keywords: Resilience; Economic growth; Developing countries; Democracy; Survival models.

JEL Classification : E32, E60, F43, O11.

Introduction

The differences between economically successful and unsuccessful countries are not only reflected in growth rates, but also in the ability to sustain and support these rates against 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? And do democratic institutions support economic growth, despite negative external shocks? And how does democracy contribute to improving the resilience of these countries? And finally, what are the specific democratic political

institutions that matter the most to explain the favorable effect of democracies on growth spell duration?

In this regard, cross-sectional comparative studies offer 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 homogeneity of business cycles. In addition, they do not shed light on the reasons why some growth spells tend to shortly fade away.

Such limitations opened the way for a line of research that tried to consider breaking points and growth reversal of these countries. These studies sought to examine, over decades, 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), start and end of growth spells (Jones and Olken, 2008) and finally stagnation factors (Reddy and Minoiu, 2009).

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

The focus on growth periods provides a richer picture of the growth process than an analysis of average growth rates and avoids potential biases resulting from breakpoints. In addition, the emphasis on sustained growth can shed light on the long-term « growth-democracy-resilience » relationship, ignoring short-term fluctuations in 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 risk bearing at the end of growth periods. This study advances the hypothesis that democracy contributes to supporting the duration of spells of economic growth 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 will review the 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, we will conclude with a summary the main results.

1. Literature Review

Before presenting 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 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 shock that has ruled them out. Whenever a loss of production after a shock and its absorption is significant, the economy is considered less resilient.

The concept of “resilience” qualifies 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 to 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) retained the definition of 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". Similarly, according to the OECD report (2013), resilience is defined as the capacity of individuals, communities and states and their institutions to absorb and respond to shocks, while adapting it positively and ensuring transformation of their structures and means to survive in the face of long-term change and uncertainty.

Developing countries have suffered different categories of shocks which have had a destabilizing effect. These external shocks include rising global interest rates, recessions in advanced economies, sharp deterioration in terms of trade, and sudden interruptions in capital inflows.

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 influence of democracy on economic resilience is ambiguous. In fact, proponents of the nondemocracy perspective argue that democracy can retard growth because government is subject to short-term political pressures, particularly from distributional coalitions. The "state autonomy" favors growth, is possible only under authoritarianism (Przeworski and Limongi, 1993: p. 56). The "state autonomy," defined as a combination of the capacity of the state to pursue developmentalist policies with its "insulation" from

particularistic pressures (parties, unions, ..). The dictators can make long-term investments, independent of the desires of "short-sighted electorates" (Przeworski and Limongi, 1993).

According to public choices, elected governments have a limited capacity to reform due to their search for re-election. In this context, a strong autocratic government with fewer constraints may be more credible in speeding up the decision-making process during crises and ensuring that reforms are introduced.

Olson (1982) argues that democracies are prone to capture from special interest groups. As Olson points out, 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 factors of production (e.g., labor and capital), specialize, and innovate, helping dictate the course of economic development. State needs to be insulated from redistributive forces found in democracies (Olson, 1982).

Unlike these allegations, there are some arguments favorable to democracy:

- Henisz (2000) emphasizes that democracies include more actors involved in the political decision-making process compared to dictatorships.
- The stronger control over political leaders' decisions limits the implementation of distortive public policies, and, as a result, the occurrence of internal shocks, such as high inflation episodes (Acemoglu et al., 2003).
- Political competition can be broadly defined as a non-violent contest for political influence and power (Marshall and Jaggers, 2009). The political competition could mitigate rent-seeking, and reduce the negative economic consequences of such practices, through various mechanisms.
- The existence of political constraints on the ability of the executive to impose its will. These constraints, which can be thought of as "checks and balances," limit the ability of the

government to arbitrarily change the rules of the game and therefore may reduce redistributive struggles (Acemoglu et al., 2003).

- Democracy facilitates the establishment of resilient institutions and policies that mitigate the effects of negative shocks. Indeed, democratic regimes manage better the consequences of external shocks and limit the occurrence of internal shocks, thanks to a better ability to deal with socio-political 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).

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

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

Rodrik D. (2000) argues that democracy is a factor for long-term growth stability and shock absorption. Democratic institutions encourage political consensus around 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. Rodrik (1999) found that, when social divisions are deep, the effects of external shocks are amplified by the distributional conflicts they trigger.

In addition, Hausmann et al. (2005) consider that accelerated growth is sustained when it lasts at least eight consecutive years. Hausmann et al. (2005), studying a sample of 69 developed and developing countries over the 1950-2000 period, shows a positive and significant effect of

democracy on the probability of accelerating economic growth. Commenting on growth acceleration spells, Hausmann et al. (2005) conclude that a change in political regime increases the probability of a growth acceleration by 5.3%, while economic reforms have no direct effect on the onset of a growth acceleration phase.

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

Essers D. (2012) conclude that democracy has a significant and a negative impact on the growth rates observed over the 2007-2009 period.

Abiad et al. (2015) show that the duration of an expansion phase increases with the proportion of FDIs in capital flows and decreases with the degree of income inequality, which remains significant in some developing countries. At the same time, recovery speed positively correlates with greater trade openness, diversification of exports, greater capital account openness and a higher proportion of FDIs.

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 which promote economic stability through political competition.

2. Empirical analysis

2.1. The main hypothesis and expectations

According to 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 and we will retain the definition which 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 indicators of democracy, the duration model and the selected variables, we will present the results of our estimates which would allow us to perceive the impact of democracy on the degree of persistence of sustained economic growth.

2.2. Indicators of democracy

The choice of democracy measure may impact on 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 be correlated 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 concerns the information on which the institutional quality indices are based, as well as their measurement on a discrete or continuous scale. Our estimates use 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 types of index: the Polity2 indicator and the V-dem index.

-The composite index of polity2 is based on sub-scores for constraints on executive power, the competitiveness of political participation and the openness and competitiveness of executive

recruitment (Marshall et al., 2009). The measure, Polity2, comes from the POLITY IV base which is part of a research program at the Center for International Development and Conflict Management (CIDCM) at the University of Maryland. This database covers 186 countries. The Polity index ranges from (-10) to 10, the difference between democracy and autocracy, with large positive values representing a greater degree of democracy, and large negative values denoting a greater degree of autocracy. Polity IV essentially measures the degree of liberalism of political regimes.

- The V-Dem index (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 presence of elections. The V-Dem project distinguishes between five high-level principles of democracy: electoral, liberal, participatory, deliberative, and egalitarian, and collects data to measure these principles.

To assess the effect of type of democracy on economic growth spell duration, we use three dimensions of the democracy:

1. The electoral dimension of democracy embodies the core value of making rulers responsive to citizens through competition for the approval of a broad electorate during periodic elections, as captured by Dahl's (1972) conceptualization of "polyarchy."

The electoral principle of democracy is defined as selecting leaders who are responsive and accountable to citizens through the mechanism of competitive elections as captured by Dahl's (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, freedom to join political and civil society organizations, whether elections are clean

and without systematic irregularities, and whether the chief executive is selected through elections.

The electoral dimension of democracy 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; 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.

2. The participatory dimension of democracy (Participatory democracy index) emphasizes active participation by citizens in all political processes, electoral and non-electoral. It is motivated by uneasiness about a bedrock practice of electoral democracy: delegating authority to representatives. Thus, direct rule by citizens is preferred, wherever practicable. This model of democracy thus takes suffrage for granted, emphasizing engagement in civil society organizations, direct democracy, and subnational elected bodies.

3. The egalitarian dimension of democracy (Egalitarian democracy index) 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 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 must 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 2% over a period of time.

The duration model used is a proportional failure time model based on the Weibull 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 time;
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 time for which 63.2% 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 the 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 constant if it is equal to 1.

The estimation of the parameter makes it possible to conclude to an increase, a constancy or a 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 time associated with the duration of period j is expressed as a product of a random variable τ_j and a proportionality scale which 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 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 GDP growth period at least 2% on average;
- (ii) They end with a decrease in growth, followed by a period of average GDP growth less than 2%.

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 5 years. They start with an increase of at least 2% in real GDP per capita and end with a decrease followed by a growth period of less than 2% 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 2% growth per capita threshold has already been used in the literature and is considered reasonable growth per capita for low-income countries.

Likewise, “incomplete” growth spells are defined as those which 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 growth spells completed	Average duration	Number of growth spells incompleted	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

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 2% 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 is characterized by the effective existence 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. The exercise 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

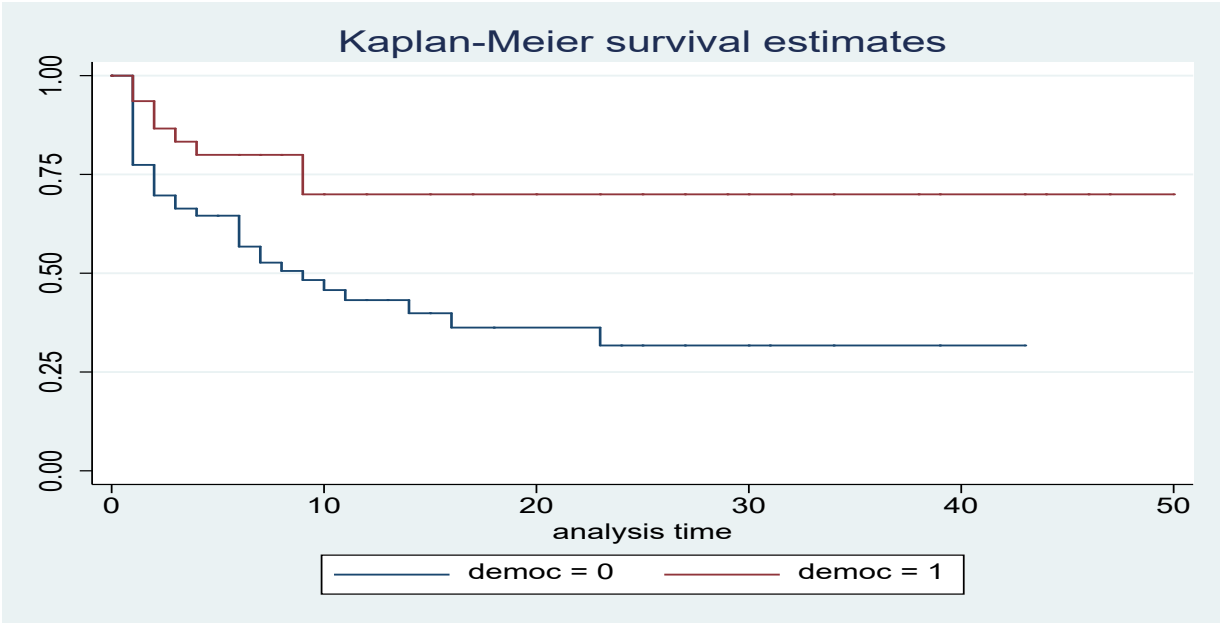
The study will examine a panel of 96 developing countries during the 1965-2015 period. Table 1 presents stylized facts about the frequency and duration of growth periods. Most growth periods take place in Africa (around 35% of all periods, a rate which is proportional to the share of these countries in the sample), while the least numerous periods (around 10% of the total) occur in advanced countries.

Furthermore, we observe that while it is not unusual to start a period of growth, 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 tended to experience breaks and discontinuities fairly quickly, compared to Asian or MENA countries.

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

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



2.5. Results and discussion

After a descriptive analysis of the data presented in Table 3, which suggest strong heterogeneity in the sample, we will estimate a maximum likelihood of survival models in a parametric regression, using the Weibull 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

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 5% in the following period. A risk ratio of 1 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.

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)		
Vdempart			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

Notes: The table reports hazard ratios, where a hazard ratio larger than 1 implies that increases in the associated variable shortens spells, while a ratio smaller than 1 implies that the covariate has a "protective" effect, that is, it helps sustain the spell. *, **, & *** denote statistical significance at the 10%, 5% and 1% levels respectively. P-value are given in brackets underneath the coefficient estimates.

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. This promotes more resilient and more 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 time of duration by 10%. A hazard ratio of 1 means there is no effect and a ratio of 1.1 means it increases expected duration by 10%. We test the probability that the true hazard ratio equals 1.

The results of Table 4 support the hypothesis that democratic countries tend to respond better face of negative external shocks. All proxies for institutions enter 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 at least 8% increase in the expected duration of a growth spell. Lower inflation generally prolongs periods of growth. On the other hand, an increase in the rate of investment, and greater trade openness, have no significant effect. From table 4, while the signs of the two variables are positive human capital, the overvaluation of the exchange rate they are statistically insignificant.

3. 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 growth period in developing countries vulnerable to exogenous

negative shocks, showing thus 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 such as Berg et al. (2012), Ostry et al. (2014) et Abiad et al. (2015). These authors conclude that negative external shocks and macroeconomic volatility negatively correlates with the length of growth periods and that democracy supports growth periods. Our results nuance their findings in focusing on the role of some democratic indicators like political participation and egalitarian dimension of democracy which significantly sustained the duration of growth periods.

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

However, our analysis may be subject of further investigation. More variables that account for major shocks (such as political and civil strife, internal conflicts, natural disasters) should be included. These shocks may occur during a growth period and cause very serious disruptive effects.

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Annex : 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	Cote d'Ivoire	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		