

## Democratization and Growth: An Examination across the World Regions

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### Abstract

Are political reforms growth enhancing? Do the effects of democratization upon growth differ over time? Moreover, could such effects differ across the world regions? By employing panel data techniques we do not find that democratizations create high transitional costs, although no strong evidence of immediate positive effects upon growth arise either. Stronger evidence points to positive effects on long-run growth. Interestingly, we find that long run growth arises more in Sub-Saharan African than in other regions<sup>1</sup>. However, for the Sub-Saharan African region, the distinction between full and partial democratization events produces different growth outcomes over time.

JEL Classification: O40, O50, O55

**Keywords:** Democratization; Democracy; Economic Growth; Africa

### Introduction

The role of political institutions, namely a democratic versus an authoritarian regime, in the process of economic development has been much discussed. Much of the past literature that has compared democratic versus authoritarian regimes and their impact on growth failed to reach consensus. Early studies often using cross sectional data do not find any significant impact of democratization on growth<sup>2</sup>. More recent studies, on the other hand, such as Rodrik and Wacziarg [1], and Papaioannou and Siourounis [2] using more sophisticated econometric techniques have often shown a positive association between democratization and growth. However, very few studies consider whether the effects of democratization upon growth vary over time. Over time means not whether democratizations during the 1980's had different effects on growth than during the 1990's, for example. Instead, how do the effects of democratization upon growth differ between one year and ten years, for example, after democratization occurs?

A review of the existing literature reveals little information concerning the above questions and consequently this work paves the way to better understand the short and long-term effects of democratization upon growth. Perhaps the shock of political change first lowers economic growth but then democratization raises growth as the new political freedoms stabilize. Or, perhaps long run effects are also negative as rent seeking becomes more prevalent [3]. If it is the former, then how many years must transpire before positive effects arise? If short run and long run effects of democratization differ then to what extent do they differ?

This paper focuses upon the years immediately following a democratization event. We construct dummies that respectively equal one for a specific year after a democratization event and zero otherwise and include them simultaneously in a panel specification with economic growth as the dependent variable. As the coefficients upon these dummy variables change, then the predicted association between democratization and economic growth evolves over time. Moreover, we will also allow these coefficients to differ across world regions so that short run effects of democratization could also differ across these regions and not merely just over time.

This is not the first study that examines whether the effects of democratization upon economic growth differ over time. Papaioannou and Siourounis [2] consider similar issues but lump several years together. They create dummy variables denoting different periods both before and after democratizations, and examine how their coefficients vary in a growth regression<sup>3</sup>. More specifically, they divide the six years following democratization into 2 three-year windows. They create two dummy variables; one for the first, second and third post reform years and one for the fourth, fifth and sixth post reform years. To capture the long run effects of democratization upon growth, they also add a third dummy variable that equals one for all years following the seventh year post democratization. Certainly, the results by PS shed more light on understanding how democratization affects economic growth. However, from our point of view there are still questions that remain unanswered. The growth rates of democratizing countries for the years following democratization could greatly differ within these three year windows. As a result, if transitional costs are nontrivial but short-lived lasting less than three years, the use of three-year windows might fail to capture these transitional costs. Hence, we will consider annual windows following a democratization episode so as to examine higher frequency effects from democratization to growth. The second extension will be to allow coefficients to differ

<sup>1</sup> I am grateful to Kevin Sylwester for his valuable criticism and suggestions. I would also like to thank Elias Papaioannou for much helpful feedback. All errors are mine.

<sup>2</sup> See Levine and Renelt [5], and Przeworski and Limongi [4] for more complete surveys.

<sup>3</sup> Papaioannou and Siourounis [2] examine the effects of democratization on growth from 1960 to 2003.

across world regions since, as stated, these dynamics could differ depending upon the culture and histories of these countries.

Figure 1 provides evidence of significant variation in growth rates for the three years following democratization for a sample of countries considered in our study. For instance, when Argentina democratized in 1983 the growth rate for the 2 years following democratization declined and even turned negative. Conversely, on the third year the growth rate for Argentina became positive. Similarly, consider the case of Malawi. On the first year after democratization there was a significant increase in the growth rate. However, on the second year the growth rate declined by a sizeable amount. See also Figure 1 for the cases of Brazil and Comoros. The great variation in their growth experiences following democratization is readily apparent.

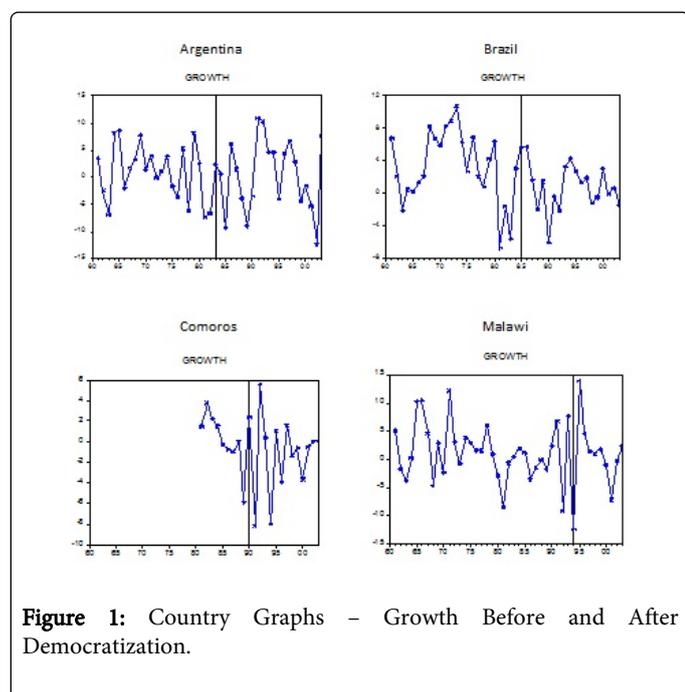


Figure 1: Country Graphs - Growth Before and After Democratization.

This report contributes to the literature in several aspects. First, we show that political transitions towards a democracy do not produce high transitional costs. Second, while Papaioannou and Siourounis [2] show that democratization raises growth in the long-run, we show that their results are mainly driven by the Sub-Saharan African countries. This conforms to the findings of Rodrik and Wacziarg [1]. Building upon this finding, we examine if the partial democratizations affect growth differently than full democratizations. Interestingly, for the Sub-Saharan Africa case, we show that partial transitions towards democracy are only growth enhancing in the short-run. Instead, for growth to be sustained, democracies need to solidify and consolidate the democratic process.

The rest of the paper is organized as follows: Section 2 presents an overview of past studies on democracy and economic growth. Section 3 provides a description of the data we are using in our empirical specification. Section 4 describes the empirical methodology. The

results are discussed in Section 5. Finally, Section 6 concludes the paper and provides suggestions for future research.

## Literature Review

The question of whether the type of political regime influences economic growth has come to the fore during the “third wave of democratization”<sup>4</sup>, a period where around 60 countries experienced some form of democratic transition. Although several authors contend that democracy might foster growth, few others believe that the association between the two is negative. Przeworski and Limongi [4] and Levine and Renelt [5] find a small and statistically insignificant effect of democratization on growth. Barro [6] asserts a non-linear relationship between the two. At low levels of democracy the effects on growth are positive, while at higher levels of democracy the association among the two becomes negative.

On the other hand, others are in the view that democracies are associated with faster growth<sup>5</sup>. Recent studies such as Papaioannou and Siourounis [2], Giavazzi and Tabellini [7], Rodrik and Wacziarg [1], and Persson [7] use panel datasets with annual data and a cross section of countries. They consistently show that democratization does, indeed, foster growth. These studies also sometimes consider whether the effects of democratization upon growth differ across countries. For instance, Giavazzi and Tabellini [8] consider how the effects of political reforms could differ on growth depending upon whether they proceed or follow economic reforms, while Rodrik and Wacziarg [1] show that democratization in sub-Saharan Africa is associated with faster growth compared to other regions. Similarly, based on the democracy index they constructed, Papaioannou and Siourounis [2] provide new empirical evidence that the benefits of democratization upon growth appear in the long run. Finally, Cervellati and Sunde [9] show that peaceful democratizations provide greater growth benefits compared to violent transitions towards democracy.

## Description of the Data and Descriptive Statistics

The empirical analysis utilizes annual panel data from 174 countries during the period 1960 to 2003, the same period as in Papaioannou and Siourounis [2] so as to make immediate comparisons. Table 1 lists all the countries and identifies which ones went through partial and full democratizations according to the classification of PS. Values of annual real GDP per capita growth [GROWTH], and the natural log of real GDP per capita [GDP] were taken from World Bank’s World Development Indicators. We also follow the classification from World Bank in order to construct regional dummies. These are East Asia and Pacific (EAP), Europe and Central Asia (ECA), Latin America and Caribbean (LAC), Middle East and North Africa (MENA), South Asia (SE), Sub-Saharan Africa (SSA), and Western Europe (WE). Our indicator for legal system origin is obtained from La Porta et al. [9]. Appendix 1 describes the key variables in our study and also provides the sources of these variables. A summary of descriptive statistics for the key variables is presented in Table 2.

In order to control for democratic transitions we employ the dataset constructed by Papaioannou and Siourounis [2]. While they do not

<sup>4</sup> A wave of democratization is a group of transitions from authoritarian to democratic regimes that occur within a specified period of time. Huntington (1991) states that democracy expands in waves. 1st wave: 1810-1922, 2nd wave: 1944-1957 and 3rd wave: 1974 – onwards. In 1970, there were only 30 democracies, while in 2002 the number of countries who are democratic is 80.

<sup>5</sup> See, among others, Sen [28], Persson [7], and Persson and Tabellini [27].

provide a specific definition of democracy, they list four criteria that a democracy must have: free, competitive, and fair elections; and political stability.

Sample of Countries		
Panel A	Panel B	Panel C
"Full Democratizations"	"Partial Democratizations"	Borderline Democratizations
(1) Argentina (1983)	(40) Albania (1992)	(63) Central Africa (1993)
(2) Benin (1991)	(41) Armenia (1998)	(64) Comoros (1990)
(3) Bolivia (1982)	(42) Bangladesh (1991)	(65) Iran (1997)
(4) Brazil (1985)	(43) Djibouti (1999)	(66) Nepal (1991)
(5) Bulgaria (1990)	(44) Ethiopia (1995)	(67) Niger (1999)
(6) Cape Verde (1991)	(45) Georgia (1995)	(68) Pakistan (1988)
(7) Chile (1990)	(46) Guatemala (1996)	
(8) Croatia (1990)	(47) Macedonia, FYR (1993)	
(9) Czech Republic (1993)	(48) Indonesia (1999)	
(10) Dominican R. (1978)	(49) Lesotho (1993)	
(11) Ecuador (1979)	(50) Moldova (1994)	
(12) El Salvador (1994)	(51) Madagascar (1993)	
(13) Estonia (1991)	(52) Mozambique (1994)	
(14) Ghana (1996)	(53) Nicaragua (1990)	
(15) Greece (1975)	(54) Nigeria (1999)	
(16) Grenada (1984)	(55) Paraguay (1993)	
(17) Guyana (1992)	(56) Russia (1993)	
(18) Honduras (1982)	(57) Malawi (1994)	
(19) Hungary (1990)	(58) Suriname (1991)	
(20) Korea, R. (1988)	(59) Tanzania (1995)	
(21) Latvia (1991)	(60) Turkey (1983)	
(22) Lithuania (1991)	(61) Ukraine (1991)	
(23) Mali (1992)	(62) Zambia (1991)	
(24) Mexico (1997)		

(25) Mongolia (1992)		
(26) Panama (1994)		
(27) Peru (1980)		
(28) Philippines (1987)		
(29) Poland (1990)		
(30) Portugal (1976)		
(31) Romania (1990)		
(32) São Tome & Prin. (1991)		
(33) Senegal (2000)		
(34) Slovak Republic (1993)		
(35) Slovenia (1992)		
(36) South Africa (1994)		
(37) Spain (1978)		
(38) Thailand (1992)		
(39) Uruguay (1985)		

Table 1: Sample of Countries.

Variable	Observations	Mean	St. Dev
GROWTH of Real GDP per capita			
GDP	5840	7.38	1.55
DEM	6307	0.13	0.33
INVEST	5541	22.19	8.91
GOV	5564	15.82	7.14
TRADE	5580	69.08	39.79

Table 2: Summary Statistics (1960-2003).

Their construction basically relies on two other indices of democracy, namely the Freedom House [FH]<sup>6</sup> and Polity IV [POLITY]<sup>7</sup> measures, and various historical resources. The variable obtained from their dataset is denoted as [DEM]. That is a dummy variable that takes the value of one in the year of a permanent democratization episode and in the subsequent years. PS further denote "partial" and "full"<sup>8</sup> democratization episodes. Like PS, DEM

<sup>6</sup> This variable ranges from 1-7 where higher numbers indicate less political freedom. Freedom House divides countries into not free (5.5 to 7), partly free (3.0 to 5.0) and free (1.0 to 2.5).

<sup>7</sup> This variable ranges from -10 to +10 where lower numbers imply lower levels of democracy. See Marshall and Jaeggens [25] for additional information on this measure.

<sup>8</sup> A full democratization is recorded when Freedom House designates the country as fully free and when the country receives a POLITY IV score above 7.

equals one for either event occurring although we will later allow for differences between the two<sup>9</sup>.

In addition, democratization is recorded as long as a country did not slip back into autocracy. Therefore, a disadvantage of this classification is that it fails to capture any temporary events of democratization. On the other hand, we believe that this variable has advantages over other indices of democracy that have been used in the past. First, unlike the FH and POLITY variables which receive values between 1 to 7 and -10 to +10 respectively, the DEM variable enables us to better interpret the coefficient of democracy since a country is either considered democratic or not. Besides, since Papaioannou and Siourounis utilize both the FH and POLITY variables in order to construct theirs, the new variable could better address special cases where democratization events were unclear.

Finally, to capture the short and long-run effects of democratization on growth, we construct 10 dummy variables based on the variable [DEM]:  $DEM_{0it}$  comes from the transition year. It equals one if a country  $i$  became democratic at time  $t$  and zero otherwise.  $DEM_{1it}=1$  if country  $i$  became democratic at time  $t-1$  and zero otherwise.  $DEM_{2it}=1$  if country  $i$  became democratic at time  $t-2$  and zero otherwise.  $DEM_{3it}$ ,  $DEM_{4it}$ ,  $DEM_{5it}$  and  $DEM_{6it}$  are given similarly.  $DEM_{7it} = 1$  for country  $i$  in period  $t$  if country  $i$  became democratic at time  $t-7$  or earlier. We take to account for long-run effects of democratization upon economic growth. Also, similar to PS we construct leads to control for the state of the economy before democratization:  $DEM_{-2it}=1$  in country  $i$  for period  $t$  if  $i$  became democratic at time  $t+2$ .  $DEM_{-1it}$  is given similarly. Failure to control for growth prior to democratization could bias the coefficients on  $DEM_0$  or  $DEM_1$  to the extent that these changes persist over time. Therefore, it becomes crucial to add these variables in our specification to capture any anticipation effects and/or highly volatile precursors to democratization that could bias the results. Of course, significant coefficients on  $DEM_{-2it}$  and  $DEM_{-1it}$  would indicate that growth (or the lack thereof) could be causing political change.

In the regressions, we also add other explanatory variables that have often been considered in growth regressions [10]. These variables are the investment share of GDP [INVEST], the share of government expenditures in GDP [GOV], and the trade share of GDP [TRADE]. These values were also taken from World Bank's World Development Indicators and are the same control variables PS use.

## Those Responsible for Prevention

The greatest responsible agent for health prevention in Brazil is currently the government, through its designated agency, the Ministry of Health. The implementation of the campaign items for these programs is done as follows: the government hires an advertising agency and they (the government) play the role of the client, creating a detailed briefing about what they want and how the campaign should be. The implementation is borne by the agency that responds only to the ideas of the representative of the government in question. There are also design studios that, by the force of demand or "tradition", specialize in the subject and depend on competition for funds

allocated annually to health prevention in governments and local municipalities. In this case, creation is made and evaluated according to the studio owner, but always through the "sieve" of who provided the financial subsidy.

Finally, there are also agencies that have greater "freedom" of creation, the NGOs, which, in turn, also depend on funding, and work on demand. In the NGOs, the work is often done through a briefing, however the greatest difference is that in this case who usually discusses the contents is not the client (funder), but those responsible for the administration of the NGO, who might be militant and/or seropositive.

In general, preventive propaganda does not respond to the expectations/demands and needs of a directly "concerned" client, but to a funder instrument, and that apparently has been greatly limiting the messages contained in the preventive campaign items.

This arises as a double issue, primarily because many of the preventive actions take into account a derivation of a consolidated medical knowledge translated into short information at times provided by people who do not necessarily have some sort of familiarity with the matter of health prevention.

The second problem originates from the labor relations of the designer in any project situation, which is the negotiation of the formats and contents of a campaign item aimed at better solving design problems. Such negotiation typically occurs directly with the client and not with an "intermediate" agent.

Therefore, the planning of prevention campaigns presents even more restrictions than the clichés in the creative routine of designers, who usually work from the feedback of their clients, filling the gaps and needs that appear in each project. However, in the case of health prevention, such feedback can only be measured through surveys and epidemiological data related to the status before and after the implementation of the campaigns.

Then why not take advantage of the design professionals, who, thanks to their formation, are constantly placed before the search for the solution of problems and the filling of gaps, to think about new systems and models for health prevention and management? The paradigm of damage reduction can serve as an interesting reference in this regard, as it stresses the importance of information, built in interaction with the so-called risk populations and developed through multidisciplinary teams – which points to a possible more active role for the designer within this paradigm.

## Methodology

Past studies on democracy and growth has mostly focused on standard cross-sectional growth regressions with historical characteristics on the right hand side. In this paper, we are examining the within-country effects of democratization upon growth, and we therefore use panel techniques with yearly data. Following Papaioannou and Siourounis [2] we estimate a difference-in-difference<sup>10</sup> specification in which reforming countries are the "treated" group, whereas countries that did not go through any reform

<sup>9</sup> Additionally, PS classified countries that experienced reverse transitions (from a democracy back to an autocracy) and borderline democratizations with trivial improvements in the level of political freedom. We remove these countries from our specification to better estimate the relevant coefficients. The results are very similar once we include them in our sample.

<sup>10</sup> Giavazzi and Tabellini [7] and Rodrik and Wacziarg [1] also use similar econometric techniques to identify the effects of political reforms on economic performance outcomes.

are the “control” group. Also, we use country and time fixed effects to control the unobserved time-invariant country characteristics and global trends, respectively.

**Consider the following specification:**

$$Y_{it} = \alpha_i + \beta_t + \gamma X'_{i,t} + \sum_{j=-2}^7 \zeta_j^* (DEM_j)_{it} + \varepsilon_{it} \quad (1)$$

Equation (1) presents our main specification where  $i,t$  denote country and time respectively,  $Y$  is the growth rate of real GDP per capita adjusted for PPP,  $\alpha_i$  and  $\beta_t$  indicate country and year fixed effects.  $X'_{i,t}$  will initially be empty but later include time-varying covariates such as government expenditure, investment, trade and income.  $DEM$  is our measure of democratization. Finally,  $\varepsilon$  denotes the error term where  $E(\varepsilon_{it}) = 0$  for all  $i$  and  $t$ . To allow for arbitrary correlation over time we calculate standard errors as in Arellano (1987)<sup>11, 12</sup>.

A concern for using a difference-in-difference model is whether there are any unobserved variables that could affect growth differently between the control and treated groups. To the extent that such variables are time-invariant they will be captured by the fixed effects. With respect to time-varying factors we control for standard growth covariates such as natural log of real GDP per capita, investment, trade and government.

**Endogeneity concerns**

Another issue that might be of concern is whether democratization is driven by growth. Like Papaioannou and Siourounis [2], Giavazzi and Tabellini [7] and Rodrik and Wacziarg [1], we treat democratization as exogenous so our analysis is analogous to theirs. A supporting justification comes from Acemoglu et al. [11] who find that income does not cause democratization once they include fixed effects in their specification. Of course, others suggest that growth promotes democracy<sup>13</sup>. Obviously, we cannot rule out the aforementioned scenario, however, we are less concerned regarding this issue.

One additional concern is the possibility for bias generated by including a lagged dependent variable on the right hand side. However, Judson and Owen [12] after performing Monte Carlo simulations show that such bias is less than 3% when  $T \geq 20$ . We, therefore, estimate regressions including only cross-sections with more than 20 years of observations.

**Full versus partial democratizations**

Do partial democratizations affect growth differently than full democratizations? Does the marginal benefit of democratization come early or late, from the initial stages or in the long run? In order to further examine this issue, we follow the classification by PS and create  $DEM\_P$  (partial or moderate) and  $DEM\_F$  (full). The subscripts remain the same and so we consider the same timing issues as before. We then repeat the specifications stemming from Equation 1 but replace  $DEM$  with  $DEM\_F$  and  $DEM\_P$  for all leads and lags. Results on this analysis are presented in section 5.

**Regional differences**

This section explores the possibility that the short and long-run effects of democratization upon growth differ across regions such as Sub-Saharan Africa, Asia and Latin America. Sylwester [13] argues that democratization is associated with faster growth in newer countries. Since many African countries are relatively new, then perhaps political reforms could provide faster growth benefits for these countries. Englebort [14] argues that weak institutions prohibit many African leaders from enacting progrowth policies. If democratic leaders enjoy a stronger political foundation, then democratization could have bigger effects upon growth than in other regions. Of course, one might also argue that transitional costs are higher as democratization might result in greater chaos where political institutions are weak. See Kaplan [15] and Zakaria [16]. If so, then the dynamics as to how democratization affects growth also differs across countries. To allow for such differences we consider the following specification:

$$Y_{it} = \alpha_i + \beta_t + \gamma X'_{i,t} + \sum_{j=-2}^7 \psi_j^* (DEM_j)_{it} + \sum_{\delta=-2}^7 \theta_{\delta}^* (DEM_{\delta})_{it} * Z_{it} + \varepsilon_{it} \quad (2)$$

Equation (2) is identical to (1) but also includes the interactive term(s) between democratization and the regional dummies denoted by  $Z$ . Following the classification by World Bank the regions are: East Asia and Pacific (EAP), Europe and Central Asia (ECA), Latin America and Caribbean (LAC), Middle East and North Africa (MENA), South Asia (SE), Sub-Saharan Africa (SSA), and Western Europe (WE).

**Econometric Results**

Before turning to our analysis, we replicate the results from PS in Table 3. Their specification is identical to our baseline model in equation (1) except for the timing dummies. They consider the following dummy variables. D1 applies to the fifth, fourth, and third pre-democratization years. D2 applies to the second and first pre-democratization years as well as the year of democratization (as labeled by PS). D3 applies to the first, second and third post reform years. D4 applies to the fourth, fifth and sixth post reform years. Finally, D5 applies to the seventh and all subsequent post reform years. These dummies equal one when a democratization occurred in the relevant period and equal zero otherwise. Each variable is set to zero in all other cases. Unlike PS, our dependent variable GROWTH is adjusted for purchasing power parity.

Estimation Method	Fixed Effect	Fixed Effect	Fixed Effect	Fixed Effect
D1	0.41 (0.60)	0.30 (0.54)	0.35 (0.56)	0.77 (0.55)
D2	-1.79 (0.78)	0.32 (0.61)	0.37 (0.66)	0.39 (0.69)
D3	1.14 (0.61)*	1.10 (0.55)**	1.16 (0.65)*	1.51 (0.62)*

<sup>11</sup> For further details see Bertrand et al. [20].

<sup>12</sup> Following Papaioannou and Siourounis [2] we compute clustered standard errors to allow for the possibility of spatial correlation across sections. To save space, results have not been reported but are available upon request.

<sup>13</sup> See Lipset [24] and Barro [10].

D4	0.78 (0.61)	0.54 (0.55)	0.59 (0.69)	1.07 (0.61)*
D5	0.91 (0.57)	1.04 (0.61)*	1.10 (0.83)	1.72 (0.65)***
Controls	NO	YES	YES	YES
Observations	5444	4582	4582	4206
Number of countries	170	124	124	122
Country Fixed effects	YES	YES	YES	YES
Time Fixed effects	YES	YES	YES	YES

**Table 3:** Papaioannou and Siourounis [2] Regressions. Panel Data Regressions (annual), 1960 – 2003. Dependent variable is the growth rate of real GDP per capita (not adjusted for PPP). White period standard errors in parentheses. \* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%. Note: All Columns exclude borderline democratizations. Columns 2-4 include lagged growth, and two-year lagged income. Columns 2-4 also exclude all the Formerly Socialist countries and countries with less than 20 obs. Column 4, includes two-year lagged government, investment and trade.

The coefficient estimates for D2 is only negative and significant when the specification includes only the democratization variables. This conforms with the findings of PS where they suggest that some transitional costs took place after reforms. For the parameters D3 and D4 we also find similar results as in PS. In all specifications these coefficients are positive but not always significant. The main difference between our results and the ones produced by PS is the coefficient estimates on D5. They consistently show that D5 is positive and statistically significant, implying that the benefits of democratization upon growth come in the long run. However, our results are not always consistent with this finding. We suspect that this is because of the different growth rate we are employing. We hope that our methodology will better explore this issue.

Estimation Method	Fixed Effect	Fixed Effect	Fixed Effect	Fixed Effect
DEM-2	-2.21 (0.95)**	-2.08 (0.92)	-2.12 (0.89)**	-1.77 (0.95)*
DEM-1	-1.76 (1.23)	0.89 (0.86)	0.76 (0.83)	0.92 (0.92)
DEM0	-0.82 (0.95)	0.55 (0.70)	1.17 (0.72)	1.41 (0.81)*
DEM1	1.50 (0.73)**	1.74 (0.74)**	1.62 (0.79)**	2.33 (0.81)*
DEM2	0.57 (0.79)	0.60 (0.56)	0.60 (0.67)	1.02 (0.73)
DEM3	1.36 (0.66)**	0.90 (0.75)	0.98 (0.77)	1.44 (0.86)*
DEM4	1.69 (0.62)**	1.33 (0.57)**	1.60 (0.68)**	1.96 (0.76)**

DEM5	0.42 (0.75)	0.25 (0.56)	1.28 (0.55)**	1.38 (0.73)*
DEM6	0.44 (0.75)	0.08 (0.66)	0.98 (0.62)	0.57 (0.79)
DEM7	0.96 (0.51)**	0.87 (0.43)**	1.14 (0.50)**	1.47 (0.63)**
Controls	NO	YES	YES	YES
Observations	5130	4356	3628	2301
Number of countries	159	119	117	76
Country Fixed effects	YES	YES	YES	YES
Time Fixed effects	YES	YES	YES	YES
Regional Trends	NO	NO	YES	YES
R-squared (within)	0.06	0.13	0.20	0.17

**Table 4:** Panel Data Regressions (annual), 1960 – 2003. Dependent variable is the growth rate of real GDP per capita (PPP). White period standard errors in parentheses. \* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%. Note: All Columns exclude borderline democratizations. Columns 2-4 exclude all the Formerly socialist countries. Columns 3-4 include lagged growth, two-year lagged income, two-year lagged government, investment, trade and exclude countries with less than 20 obs. Column 4 excludes all the countries that were democratic throughout the sample period.

Table 4 presents the results from our baseline specification. As described earlier, we regress economic growth on our democratization measure, utilizing cross-sectional annual data from 1960 to 2003. Column 1 considers the first specification when the only regressors are the democratization dummy variables. Column 2 repeats the specification of column 1 but excludes all the former socialist countries due to their very special conditions of democratization. Columns 3 and 4 allow for other regressors such as investment, trade, government, and the log of real GDP per capita.

We first examine the coefficients DEM-2 and DEM-1 which allow growth to differ before democratization occurs. In column 1 of Table 4, the coefficient on DEM-2 is negative and statistically significant. This implies that economic growth was relatively low 2 years before a transition. This finding raises concerns as to whether a democratization event is exogenous or is driven by an economic downturn. The good news is that the coefficient estimates for DEM-1 and DEM0 are statistically insignificant. However, in columns 2-4 when we exclude all the former socialist countries and add other control variables into the regressions, the negative sign on these parameters disappears. Perhaps the formerly socialist countries experienced greater transitional costs when democratized. Regardless, though, we find no strong evidence that growth was lower (or higher) before democratizations occurred.

In column 1 of Table 4, we find a positive and significant coefficient on DEM1 and DEM3. However, only the coefficient estimates for remain significant in all the following specifications. Although Papaioannou and Siourounis [2] suggest short-run growth benefits of democratization, our approach provides a more insightful

understanding of such effects. More specifically, we provide some evidence that on average growth benefits come very soon. Column 4 shows similar results when we allow the “control” group to change by excluding all the countries that were always democratic throughout our sample period.

Despite the encouraging results, one should be careful interpreting these coefficients. Consider the estimates from column 1. The coefficient on DEM0 is -0.69. The growth rate for the countries that democratized drops by 0.69 in the year of the transition. In contrast, the coefficient on DEM1 suggest an increase in growth of 1.14 percentage points. However, some of this probably stems from a “recovery” from the negative effects of the prior year.

For our annual windows, the largest coefficients are those of DEM4 suggesting that growth reaches its highest point a few years after democratization occurs. The coefficient upon the long-run dummy DEM7 is also large and positive. As in PS, we find strong long-run effects from democratization.

Estimation Method	Fixed Effect	Fixed Effect	Fixed Effect	Fixed Effect
DEM_F-1	-2.22 (1.43)	0.07 (1.01)	0.69 (0.79)	0.77 (0.81)
DEM_F0	-0.89 (1.01)	0.85 (0.92)	0.52 (1.01)	0.62 (0.98)
DEM_F1	1.88 (0.91)**	2.11 (0.90)**	1.99 (0.93)**	2.08 (0.96)**
DEM_F3	1.60 (0.77)**	1.71 (0.88)**	1.56 (0.85)*	1.69 (0.87)*
DEM_F7	1.02 (0.51)**	1.12 (0.55)**	1.46 (0.51)**	1.55 (0.61)**
DEM_P-1	-1.58 (1.88)	-0.26 (1.25)	0.14 (1.21)	-0.21 (1.40)
DEM_P0	-2.46 (1.56)	-1.12 (0.98)**	0.30 (1.04)	-0.04 (1.26)
DEM_P1	0.68 (1.08)	0.50 (0.98)	-0.10 (1.31)	0.20 (1.49)
DEM_P3	1.94 (1.10)*	0.65 (0.97)	0.12 (1.09)	0.42 (1.27)
DEM_P7	2.81 (1.13)**	1.31 (0.68)*	0.60 (0.72)	0.77 (0.85)
Controls	NO	YES	YES	YES
Observations	5130	4599	3954	2618
Number of countries	159	128	117	76
Country Fixed effects	YES	YES	YES	YES
Time Fixed effects	YES	YES	YES	YES

Regional Trends	NO	NO	YES	YES
R-squared (within)	0.04	0.05	0.15	0.12

**Table 5:** Panel Data Regressions (annual), 1960 – 2003. Dependent variable is the growth rate of real GDP per capita (PPP) White period standard errors in parentheses. \* significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%. Note: All Columns exclude borderline democratizations. Columns 2-4 exclude all the formerly socialist countries. Columns 3-4 include lagged growth, two-year lagged income, two-year lagged government, investment, trade and exclude countries with less than 20 obs. Column 4 excludes all the countries that were democratic throughout the sample period. To save space, we only report part of the coefficient estimates.

We now examine whether the benefits of democratization come from “partial” or “full” progress towards democracy. To account for this distinction we repeat our baseline specification but replace the democratization variables DEM<sub>2,7</sub> with the variables DEM<sub>F,2,7</sub> and DEM<sub>P,2,7</sub>, denoting full and partial democratizations specifically<sup>14</sup>. Table 5 presents these results. To save space, we only report part of the coefficient estimates. In the first column of Table 5, we only include the democratization variables. The results show that the effects of democratization differ depending upon the type of the transition. Although the coefficient estimates for DEM<sub>F,1</sub> and DEM<sub>P,1</sub> are negative, they are statistically insignificant. The coefficient estimates for DEM<sub>F,3</sub> and DEM<sub>P,3</sub> are positive and significant at 10% and 5%, respectively. In columns 1 through 4 of Table 5, the parameter on DEM<sub>F,1</sub> is large, positive and statistically significant. In column 1, when no other controls are included, the coefficients on DEM<sub>P,7</sub> and DEM<sub>F,7</sub> are also positive and significant suggesting that both partial and full democratizations enhance growth in the long-run. Column 2 repeats the specification in column 1 but excludes the former socialist countries due to their very special conditions of democratization. Interestingly, the coefficient on DEM<sub>P,7</sub> drops in magnitude and becomes marginally significant (at the 10% level). In columns 3 and 4 the coefficient DEM<sub>P,7</sub> becomes insignificant and drops even more in magnitude. On the contrary, the coefficient estimate on DEM<sub>F,7</sub> is positive and highly significant. Similarly, in column 3, the results remain robust when we control for lagged growth, two-year lagged income and two-year lags of investment, trade and government consumption. These findings suggest that countries that “fully” democratized grew on average 1.46 percentage points faster in the long-run (see column 3).

Estimation Method	Fixed Effect	Fixed Effect	Fixed Effect	Fixed Effect
DEM-1	-2.19 (1.43)	-0.5 (0.91)	-0.36 (1.02)	1.79 (1.18)
DEM0	-2.11 (1.11)*	0.86 (0.71)	0.72 (0.78)	0.62 (1.61)
DEM1	0.16 (0.95)	0.91 (0.74)	1.09 (0.79)	3.09 (1.56)**
DEM <sub>7</sub>	1.34 (0.72)*	0.66 (0.45)	0.55 (0.61)	2.79 (0.88)**

<sup>14</sup> The subscript “-2,7” denotes the ten dummies DEM-2 through DEM<sub>7</sub>.

DEM <sub>-1</sub> *SSA	1.20 (1.31)	2.02 (1.50)	2.34 (1.60)	
DEM <sub>0</sub> *SSA	1.90 (1.81)	0.08 (1.71)	0.09 (01.78)	
DEM <sub>1</sub> *SSA	1.77 (1.94)	1.93 (2.08)	2.01 (2.07)	
DEM <sub>7</sub> *SSA	2.18 (1.08)**	2.78 (0.95)**	2.93 (1.26)**	
DEM <sub>-1</sub> *LAC	1.03 (1.95)	1.32 (1.30)	2.31 (1.05)**	
DEM <sub>0</sub> *LAC	-0.79 (1.73)	-0.87 (1.26)	-1.20 (1.35)	
DEM <sub>1</sub> *LAC	1.59 (1.73)	0.72 (1.34)	2.11 (1.75)	
DEM <sub>7</sub> *LAC	0.35 (1.44)	0.51 (1.04)	0.80 (1.43)	
DEM <sub>-1</sub> *LAC	-0.70 (1.62)	-0.43 (1.81)	0.19 (1.91)	
DEM <sub>0</sub> *EAP	1.84 (1.73)	1.54 (1.25)	0.39 (1.60)	
DEM <sub>1</sub> *EAP	0.10 (1.68)	0.28 (2.03)	0.61 (1.74)	
DEM <sub>7</sub> *EAP	1.72 (2.10)	1.26 (1.04)	0.70 (2.02)	
Observations	5130	3954	2618	1172
Number of countries	159	117	77	35
Country Fixed effects	YES	YES	YES	YES
Time Fixed effects	YES	YES	YES	YES
Regional Trends	NO	NO	YES	YES
R-squared (within)	0.04	0.15	0.13	0.14

**Table 6:** Panel Data Regressions (annual), 1960 – 2003. Dependent variable is the growth rate of real GDP per capita (PPP). White period stand. errors in parentheses. significant at 10%, \*\* significant at 5%, \*\*\* significant at 1%. Note: All Columns exclude borderline democratizations. Columns 2-4 include lagged growth, two-year lagged income, two-year lagged government, investment and trade. Columns 2-4 also exclude all the Formerly Socialist countries and countries with less than 20 obs. Column 3 excludes all the countries that were democratic throughout the sample period. Column 4 considers only the Sub-Saharan African countries.

Table 6 considers the other set of questions we raised in the introduction, namely whether the timing differs across regions. Using the specification in (2), we interact the democratization dummies [DEM<sub>2,7</sub> with the regional dummies (SSA, EAP, and LAC). Column 1 contains only the democratization variables and the interactive

terms. Columns 2 and 3 include other controls such as lagged growth, two-year lagged income, investment, government and trade. What one should note from these results is the coefficient estimate on the interactive term DEM<sub>7</sub>\*SSA. It is consistently positive and statistically significant. Past researchers argue that the effects of democratization upon growth are greater in Sub-Saharan African countries than in other regions [17] and Sylwester [13]. Our results can directly speak to these findings. Not only do we confirm that democratization in Africa is associated with faster growth, but we also show that the benefits of democratization in Africa will come in the long-run. Also, Papaioannou and Siourounis [2] suggest that democratization is growth enhancing in the long-run. Our analysis shows that this finding is mainly driven by the Sub-Saharan African countries. One explanation for this could be that the effects of democracy on economic growth are stronger for ethnically heterogeneous countries [18-25].

In column 4 of Table 6, we run equation (1) but focus on Sub-Saharan African countries. Our previous results become even stronger since the coefficient estimate for DEM<sub>7</sub> is also positive and very highly significant (at the 1%). The coefficient on DEM<sub>1</sub> is also positive and large in magnitude. Possibly, these findings stem from the fact that economic institutions in these countries were relatively weaker prior democratization; thus, the absence of political structures served as an immediate basis for the democratization effects to take place.

As a robustness check, we estimate equation (2) but we replace the set of dummies DEM<sub>2,7</sub> with the dummies DEM<sub>F</sub><sub>2,7</sub> and DEM<sub>P</sub><sub>2,7</sub>. Moreover, we interact DEM<sub>F</sub><sub>2,7</sub> and DEM<sub>P</sub><sub>2,7</sub> with regional dummies (SSA, LAC, EAP, WE). Again, only the coefficient estimates for Sub-Saharan Africa remain significant. Table 7 provides the results. Column 1 does not allow for any additional explanatory variables. Column 2 allows for other growth covariates. In both columns, the coefficient on DEM<sub>F</sub>1 is not statistically significant. On the other hand, the coefficient estimates on DEM<sub>P</sub>1 are 2.60 and 2.23, respectively. Implications from the above finding suggest that the merits from democratization come from the first initial steps of the process in the short-run. That is, moderate reforms provide greater immediate benefits for the African countries in particular. On the contrary, the coefficient on DEM<sub>P</sub>7 is not statistically significant. The positive association between partial democratization and growth disappears in the long-run. Instead, in columns 1 and 2, the coefficients upon DEM<sub>F</sub>7 are positive, statistically significant and economically large. The above finding reveals a positive association between fully democratizing Sub-Saharan African countries and long-run economic growth.

Correlations	GROWTH	DEM	GDP	GOV	INVEST	TRADE
GROWTH	1					
DEM	0.01	1				
GDP	0.09	-0.006	1			
GOV	-0.09	-0.07	0.24	1		
INVEST	0.21	0.03	0.22	0.23	1	
TRADE	0.04	0.03	0.22	0.38	0.35	1

**Table 7:** Panel B: Correlation Matrices.

Generally, we show that moderate democratic reforms in sub-Saharan Africa are associated with (high) short-run growth benefits. Thus, we have evidence to support Barro's [6] finding that moderate democratic reforms can speed up growth. However, for the Sub-Saharan Africa case, we show that these effects are only present in the short-run. Moderate democratic reforms do not guarantee growth benefits in the long-run. Instead, for growth to be sustained, democracies need to solidify and consolidate the democratic process. Examples of Botswana and Mauritius could support our findings.

## Conclusions

This paper examines whether the effects of democratization upon growth could differ across regions or over time. Using a difference-in-difference specification and annual panel data from 1960 to 2003, we allow effects from democratization to change from year to year. We report several interesting findings. First, democratizations are not associated with high transitional costs. We find no evidence that economic growth decreases during and immediately following democratization. These results contrast arguments from Kaplan [15] and Zakaria [16] that these types of political change (at least on average) can be sufficiently disruptive so as to lower economic growth. Instead, we find that democratizations are often associated with immediate growth benefits. We also find no strong evidence that democratizations followed economic downturns. While this serves as a supporting factor on our choice to treat democratization as exogenous to past growth, future work will more carefully address this issue [26-29].

Similarly, we confirm the results by PS in that democratization raises growth in the long-run. Taking a step further, we examine whether the short and long-run effects of democratization are similar across world regions. We find that democratization enhances long-run growth more in sub-Saharan Africa than in other regions. These results coincide with those from Rodrik and Wacziarg [17] but with a much different empirical specification. Therefore, the findings from PS are likely to be driven by democratization in Sub-Saharan Africa.

Finally, we show that African countries that proceed with moderate democratic reforms are likely to experience faster growth than countries in other regions. However, moderate reforms are less likely to enhance economic growth in the long run. Instead, we show that long-run growth benefits become stronger as democracies solidify. From the policy perspective, the international community should take steps to support strengthening and promoting democracy especially in Africa where the payoffs to such reforms could be relatively higher than in other regions. Of course, this is much easier said than done. Perhaps we should closely focus to identify the aspects of democracy that are more relevant to this particular region. We leave this for future work.

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