Yet Another Look at the Modernisation Hypothesis: Evidence from Latin America

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February 8, 2012

Abstract

We investigate in this paper whether the modernisation hypothesis holds in Latin America and our sample includes nine Latin American countries that re-democratised in the last 40 years or so. The data set covers the period between 1970 and 2007, and the results, based on dynamic panel data analysis (we use the Fixed Effects, Fixed Effects with Instrumental Variables, DIF-GMM and SYS-GMM estimators), suggest that the modernisation hypothesis holds in the region, or that income and development in general play a positive role on democracy. We also test for the critical junctures hypothesis, or whether particular historical structural changes play any role in contemporaneous democratisation in the region, however we are not able to provide any concrete evidence in favour of it. Essentially, we suggest that a certain level of development is an important condition for democracy to mature and survive, which—in times of a new democratisation wave taking place in societies with different levels of development—is a suggestive observation.

Keywords: Modernisation hypothesis, democracy, development, Latin America.

JEL Classification: O10, O54, P16.

I. Introduction and Summary

Latin America has been known for some time now for numerous political transitions from (mostly right wing) dictatorships to more democratic regimes, macroeconomic instability (some countries experienced debt crisis and also high rates of inflation in the 1980s), delayed stabilisation processes (in the spirit of Alesina and Drazen (1991)) and, at least recently, no come back to less democratic regimes during this latest democratisation wave which has affected the region in the last forty years or so. Moreover, the region has been known for a certain, relatively above the average, degree of economic inequality.

Against this eventful background, and also with the current wave of democratisation being experienced by some Arab countries in mind, we investigate whether the modernisation hypothesis holds (or whether democracy needs a precondition to mature and survive, which is basically a certain level of income and development already in place) as proposed by Lipset (1959), in a region which has experienced its own recent wave of democratisation in the late 1970s, 1980s and early 1990s. It is worth stressing at this stage that this latest wave of democratisation in Latin America was not its only one, nor its first one. In fact, democratic institutions were implemented in the region a number of times before, however democracy had been far from stable in Latin America in its more distant past.

In addition, we test for the critical junctures hypothesis, or whether democracy (or lack of it) in the region is being determined by a particular shock, or structural change, which affected the region in the very distant past. For that, we follow the previous literature (Acemoglu, Johnson, Robinson and Yared (2008 and 2009)) and make use of a proxy for institutional quality, in this case constraints on the executive right after independence, in an attempt to understand the role of the institutional build up after independence in the 19^{th} century on contemporaneous democracy in the region. This is of some importance because there were crucial differences within the American continent in terms of institutional quality right after independence. For instance, the United States shortly after independence already presented, according to the Polity IV files, fairly effective constraints on the executive, whilst

most of the Latin American countries did not fare at all impressively on that respect.

To conduct the analysis we use data from nine Latin American countries which re-democratised at some point in the last forty years or so, and given data availability, we cover the period between 1970 and 2007. For the empirical analysis we make use of dynamic panel data analysis. More specifically, we use the Fixed Effects, Fixed Effects with Instrumental Variables, First Difference and SYSTEM Generalised Method of Moments estimators.

In terms of results, firstly we find some evidence that the modernisation hypothesis actually holds in the region, or that income, or development in general, play an important positive role on democracy. Secondly, we do not find any conclusive evidence for the critical junctures hypothesis, or that the institutional change happening right after independence in the region has had any impact on contemporaneous democratisation.

The subject has, in one way or another, always attracted the attention of the profession (economists and political scientists alike), and, as mentioned above, Lipset (1959) is considered to be the first paper on the subject. Essentially the paper sets the social requisites, or the set of conditions necessary for democracy to mature, which are wealth (income), urbanisation and education. Incidentally, the paper also suggests that democracy would only mature and thrive in Latin America with more development in general.

More recently, Barro (1999), using a sample of 100 countries between 1960 and 1995, and the SUR estimator, reports an effect of income per capita on democracy, or some evidence for the modernisation hypothesis. On the other hand, Acemoglu, Johnson, Robinson and Yared (2005) using data covering the period between 1965 and 2000, find no evidence supporting the role of education on democracy when allowing for fixed effects (or for particular idiosyncrasies within the sample used) in their regressions.

On the contrary, Epstein, Bates, Goldstone, Kristensen and O'Halloran (2006), using Tobit and Markov regressions, and a cross-section of countries, are able to report some evidence in favour of the modernisation hypothesis. Furthermore, Glaeser, Ponzetto and Shleifer (2007) provide some descriptive evidence of the role of education on democracy between 1960

and 2000 in a panel of countries, and then a theoretical model on the importance of skills, socialisation and civic engagement (all attributes related to human capital formation) for democracy to survive and mature.

On a different vein, Acemoglu, Johnson, Robinson and Yared (2008 and 2009) use panel estimators to suggest this time that there is no link between income and democracy when allowing for fixed effects in different sets of samples covering the last 100 years or so. They also regress the constraints on the executive right after independence alongside income against democracy in an attempt to disentangle the historical institutional differences affecting different former colonies, and they report that the historical variable is important, and that income is still not significant on democracy. All in all, they report some evidence in favour of the critical junctures hypothesis and very little evidence for the modernisation story.

Moreover, Benhabib, Corvalan and Spiegel (2011) using data for the 1955-2000 period and the Vanhanen's index for democracy, which is unbounded and that allows for the fact that democracy is in constant change and evolution over time, are able to report that the modernisation hypothesis holds in their panel; and Murtin and Wacziarg (2011) using a historical data set covering the period between 1870 and 2000, panel estimators and a new variable for education (as a substitute for the Barro-Lee data set), are able to report that primary schooling and income are positively associated with democracy[1].

Essentially, the literature presents us with interesting controversies which can only enrich the debate about the role of income and development on democracy. Given the above, and bearing in mind the fact that there are always waves of democratisation affecting different parts of the world with different levels of development, so the need to better understand those processes, the value added of this paper to the literature is that we make use of a sample of Latin American countries (all sharing some developing countries characteristics, but with their own idiosyncrasies), which went through structural political and economic changes (not to mention severe shocks) in the last forty years or so. This is interesting in

itself because with this sample we can disaggregate and comparatively further our knowledge on how democracy and development have been behaving and interacting with each other in recent times in the region. Furthermore, we use different dynamic panel data estimators, which tackle different empirical issues, to make sure that our results are robust. It is therefore believed that we are able to provide some interesting evidence to specifically understand the recent history of Latin America, instead of treating the region either as an outlier to be removed from the sample, or as a dummy variable.

The remainder of this paper is as follows: in the next sections we describe the data set, the empirical methodology used, and then we present and discuss the main results obtained. We then conclude and offer some future research avenues that can be pursued from here.

II. Empirical Analysis

A. A Look at the Data

The data set covers the period between 1970 and 2007, and nine Latin American countries which transitioned from political dictatorship to full democracy at some point in the late 1970s (Ecuador), 1980s (Argentina, Bolivia, Brazil, Chile, Peru and Uruguay), and early 1990s (Guyana and Paraguay).

The variable used to measure democracy is the rather popular, and normalised (ranging from zero to one), polity variable from the Polity IV data set ($POLITY$) which is basically the difference between the democracy and autocracy indices. Information on GDP per capita (GDP) comes from the Penn World Table, and in this case it is expected, according to the modernisation hypothesis, that income might play an important positive and significant role on democracy. In addition, and again in accordance with the main hypothesis being tested here, we use the variable urbanisation ($URBAN$) which comes from the World Development Indicators provided by the World Bank. In this case we expect that more urbanised societies tend to be also more developed and therefore more democratic.

Moreover, we include the Polity IV variable constraints on the executive ($XCONST$)

right after independence, which works as a proxy for institutional quality, or checks and balances, to test for the critical junctures hypothesis. What is expected here is that at those particular critical historical moments at the beginning of the 19^{th} century those countries in the sample experienced deep structural changes which would, depending on the quality of the institutions adopted, affect democratisation much later on in time, for the better or for the worse[2].

To briefly illustrate the main hypothesis to be tested, in Figure One we plot the behaviour of democracy ($POLITY$) and income (GDP), averaged series, against time. Essentially, the first panel illustrates the behaviour of democracy in the region, and we can visualise the steady democratisation wave affecting the region in the last forty years or so. It can also be seen that in the 1970s there was a mild backdrop to less democratic regimes, which presumably illustrates well the Argentinian political instability at the time. Moreover, the second panel illustrates how income per capita has been behaving in the region since the 1970s, and apart from the positive trend, we can also see the 'lost decade' in the 1980s. All in all, although some important troughs occurred during the period, which provide us with important variation, in general terms both variables have been displaying positive trends in the region in the last forty years, which is a suggestive eye-ball evidence at this stage in the sense that both variables have been, in fact, moving in the same direction.

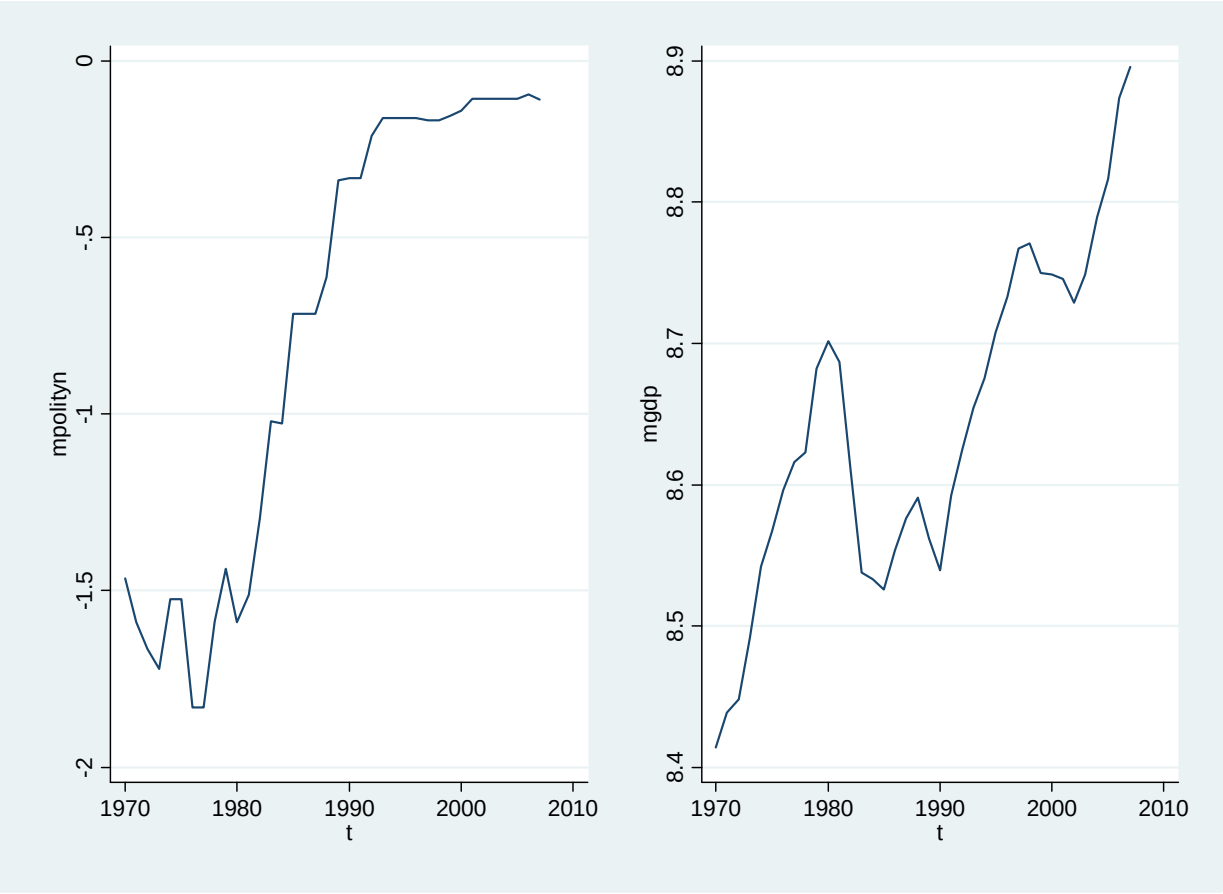

Figure 1: Democracy ($POLITY$) and income per capita (GDP), Latin America, 1970-2007. Sources: Polity IV and Penn World Table files.

In addition, we provide in Table One the correlation matrix, and what we can see (without implying any causality at this juncture) is that there are positive and statistically significant correlations between democracy and income (which somehow confirms the positive trends shown in Figure One), and between democracy and urbanisation. The correlation between income and urbanisation is positive, as one would expect in developing and developed societies alike. Also of some interest, the correlation between constraints on the executive shortly after independence and contemporaneous democracy is negative, which descriptively suggests that the low levels of institutional quality in the distant past might have had a detrimental effect on the development of democracy much later on in time in the region.

Table 1: The Correlation Matrix: Latin America, 1970-2007.

	POLITY	GDP	XCONST	URBAN
POLITY	1			
GDP	0.15*	1		
XCONST	-0.17*	-0.58*	1	
URBAN	0.21*	0.88*	-0.69*	1

Sources: Polity IV and Penn World Table files. * represents significance at the 5% level.

Finally, in Figure Two we provide the OLS regression line between democracy and income per capita. The regression line is suggesting, and somehow confirming the previous descriptive evidence, a positive (economic this time) relationship between our two main variables of interest, or that the modernisation hypothesis, which suggests that a particular level of income is a pre-requisite for democracy to thrive, might well be valid in the region, at least for this latest wave of democratisation affecting Latin America.

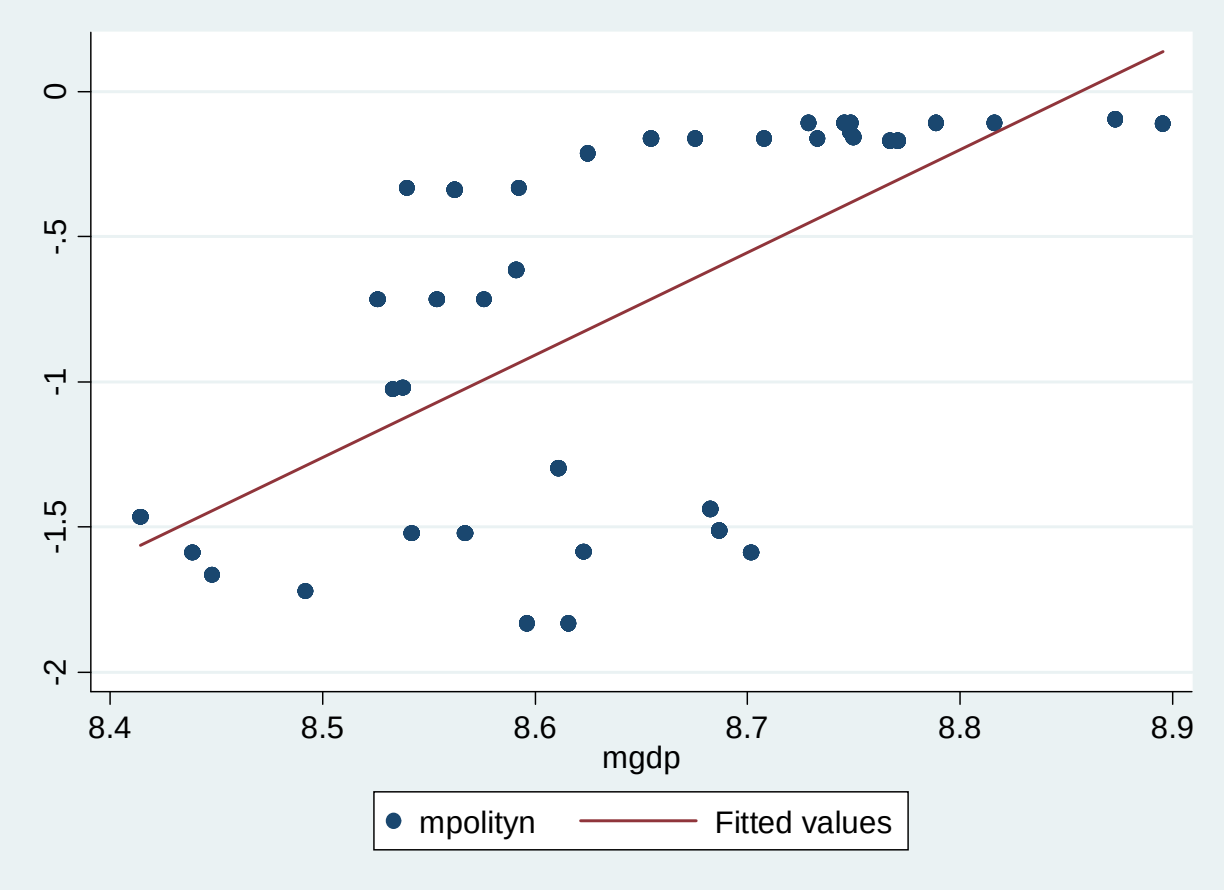

Figure 2: OLS regression line, democracy and income per capita, Latin America, 1970-2007. Sources: Polity IV and Penn World Table files.

In essence, the above preliminary descriptive evidence, with all its known caveats, suggests that in one way or another democracy and income have been positively related to each other in the region, at least in recent times which capture the latest democratisation wave being experienced in Latin America. To put it another way, the modernisation hypothesis, which suggests that democracy needs a certain level of development to survive, seems to be alive and well in the region.

B. Methodology

In terms of empirical strategy, since we have a panel of nine Latin American countries ($N = 9$) covering the period between 1970 and 2007 ($T = 38$), we follow the previous

literature and make use of dynamic panel (time-series) data analysis.

Firstly, we use the one-way Fixed Effects (FE) estimator with robust standard errors for the correlation of residuals over time, which assumes heterogeneity of intercepts (a reasonable assumption in such a diverse panel of countries), and which makes use only of the within ($\bar{y}_i - \bar{y}$) variation in the data, which purges the correlation between the unobserved heterogeneity and the regressors. Essentially, the FE estimator under $T \to \infty$, not only minimises the Nickell bias present in short T dynamic panels, but also reduces statistical endogeneity and provides consistent estimates of the expected values.

Secondly, although we attempt to use—given data availability—the most common variables in the literature, one would argue that omitted variables, measurement error, and even some sort of (statistical or economic) endogeneity might be present. Therefore, we initially make use of the Fixed Effects with Instrumental Variables (FE-IV) estimator which provides asymptotically consistent and efficient estimates as $T \to \infty$, with the first and second lags of income per capita as our identifying instruments for GDP and lagged GDP respectively (the growth literature suggests that democracy, income and growth rates are somehow related)[3].

Furthermore, controlling for the number of instruments—and for what we instrument—to avoid overfitting (Bond (2002) and Roodman (2009)), we carefully make use firstly of the Generalised Method of Moments (GMM) estimator proposed by Arellano and Bond (1991) First-Difference GMM (DIF-GMM) which is based on the idea of using lags in levels ($y_{it-2}, ..., y_{i1}$) as instruments for the first-differenced model. Moreover, we take into account the fact that persistent series might lead to weak instruments (and to a non-negligible small sample bias) and make use of the GMM estimator that combines the usual moment conditions for the DIF-GMM model above, with those extra conditions for the model in levels (Δy_{it-1}), SYSTEM (SYS), or the SYS-GMM estimator proposed by Arellano and Bover (1995), and Blundell and Bond (1998). Basically we instrument for the lagged dependent variable with levels dated $t-3$ and earlier, a standard assumption, and then again for GDP. We therefore use these two GMM estimators, collapsing the lag range with robust standard errors and

the small-sample correction provided by Windmeijer (2005) to avoid "too good to be true" standard errors.

All in all, the above-mentioned dynamic panel estimators take into account not only the fact that those countries in the sample share particular characteristics, but also the fact that such a panel is, no doubt, heterogenous (some of the countries in the sample are more developed than others, or more or less urbanised than others). Moreover, some of these estimators take into consideration the possibility of omitted variables and measurement error biases, and (statistical and economic) endogeneity and persistence issues, which are always advantageous for our purposes here. The estimated differenced DIF-GMM dynamic equation is as follows,

$$(1)\ \Delta POLITY_{it} = \alpha \Delta GDP_{it} + \beta \Delta URBAN_{it} + \gamma \Delta XCONST_{it} + \delta \Delta POLITY_{it-1} + \Delta \upsilon_{it},$$

where $POLITY$ is the Polity IV proxy for democracy, GDP is income per capita, $URBAN$ is the share of urban population, $XCONST$ accounts for constraints on the executive right after independence and $POLITY_{it-1}$ is the lagged dependent variable.

C. Results and Discussion

In this section we initially test for the modernisation hypothesis on its own, and then secondly we also test for the critical junctures hypothesis.

In Table Two we firstly report the fixed effect estimates of GDP and $URBAN$ on $POLITY$. More specifically, in the first column of the first panel we report the role of contemporaneous income on democracy and the estimate is positive and statistically significant. In the second column we allow for some lagged adjustments and regress the first lag of income against democracy and the estimate is again positive and significant. In both cases the variable $URBAN$ displays the expected positive signs against democracy.

Moreover, in the third and fourth columns of the upper panel we make use of the FE-

IV estimator, and the contemporaneous and lagged GDP estimates are again positive and statistically significant against $POLITY$. The urbanisation variable displays the same sort of positive and significant role on democracy as reported before. Also worth mentioning, the identifying instruments are statistically significant and the F test indicates that the regressors are jointly different from zero in the first-stage regressions (available on request). In addition, in all cases the lagged dependent variable, $POLITY_1$, is positive and significant, confirming the fact that democracy (or any political regime in general) tends to become persistent over time.

In the second panel of Table Two we report the DIF-GMM (first and second columns) and SYS-GMM (third and fourth columns) estimates respectively. The DIF-GMM estimates of contemporaneous and lagged income per capita are positive and mostly significant. The size of these estimates are bigger than previously, presumably because of the external variation provided by the set of instruments used. The SYS-GMM estimates are positive, however not statistically significant. The $URBAN$ estimates are not entirely clear cut this time, however not significant either. As before, the lagged dependent variable presents positive and significant estimates, highlighting the persistence of political regime characteristics over time. The Arellano and Bond test for second-order serial correlation and the Sargan test for overidentification do not suggest any proliferation of instruments in these cases.

Table Two: FE and GMM Estimates

	Dynamic Models			
POLITY	FE	FE	FE-IV	FE-IV
GDP	.373 (6.60)		.348 (2.53)	
GDP_1		.331 (6.32)		.296 (2.02)
URBAN	.813 (3.15)	.799 (3.01)	.818 (3.07)	.797 (2.83)
$POLITY_1$	.788 (35.09)	.792 (32.62)	.790 (24.80)	.788 (23.54)
F test	819.49	789.33	473.43	429.57
POLITY	DIF-GMM	DIF-GMM	SYS-GMM	SYS-GMM
GDP	1.59 (2.60)		1.26 (1.33)	
GDP_1		1.93 (1.74)		.653 (1.17)
URBAN	2.81 (0.73)	1.35 (0.28)	-3.71 (-1.72)	-.530 (-0.13)
$POLITY_1$	.498 (4.69)	.429 (2.66)	.513 (2.69)	.701 (8.09)
m2 (p)	0.27	0.26	0.26	0.26
Sargan (p)	1.00	1.00	1.00	1.00

T-ratios in parentheses. Number of observations: $NT = 342$. $POLITY$ is the proxy for democracy, GDP is income per capita, $URBAN$ is the share of urban population and $XCONST$ is the constraints on the executive. FE is the Fixed Effects, FE-IV is the Fixed Effects with Instrumental Variables, and the DIF-GMM and SYS-GMM are the First Difference and System Generalised Method of Moments estimators.

In the first panel of Table Three we report the FE and FE-IV contemporaneous and lagged estimates of income per capita on democracy, and all estimates are positive and statistically significant as well as the $URBAN$ estimates. In addition, in order to test for the critical junctures hypothesis, we now include constraints on the executive right after independence ($XCONST$) on the right hand side of those equations, and although those estimates present a negative sign (suggesting that the institutional body implemented shortly after independence was not ideal for the development of democracy in the region), they are not statistically significant. The lagged dependent variable keeps its positive and significant

role, or its persistence over time. It is worth mentioning that for the FE-IV estimates, the identifying instruments are statistically significant in the first-stage regressions, as well as the F-test for joint significance.

In the second panel of Table Three we report the DIF-GMM and SYS-GMM GDP estimates on $POLITY$, and the DIF-GMM estimates are positive and mostly statistically significant. The variable $URBAN$ does not present entirely convincing estimates, however they are not significant either. More importantly at this stage, the variable $XCONST$ does not present any sign of being statistically significant, just as before. The lagged dependent variable maintains its positive and significant role, which confirms the fact that political regimes tend to become entrenched over time. Also worth mentioning, the Arellano and Bond, and Sargan tests do not present any sign of proliferation of instruments in these cases either.

Table Three: FE and GMM Estimates

	Dynamic Models			
POLITY	FE	FE	FE-IV	FE-IV
GDP	.414 (5.00)		.395 (2.75)	
GDP_1		.376 (5.16)		.347 (2.24)
URBAN	.786 (2.78)	.768 (2.62)	.790 (2.96)	.769 (2.73)
XCONST	-.067 (-1.11)	-.066 (-1.10)	-.065 (-1.10)	-.068 (-1.10)
$POLITY_1$	.793 (31.58)	.797 (29.67)	.794 (24.76)	.791 (23.58)
F test	643.62	643.33	355.75	322.99
POLITY	DIF-GMM	DIF-GMM	SYS-GMM	SYS-GMM
GDP	1.47 (3.47)		1.23 (1.39)	
GDP_1		1.84 (1.52)		.641 (1.20)
URBAN	2.23 (0.63)	1.07 (0.22)	-3.20 (-1.31)	-.286 (-0.07)
XCONST	.165 (0.46)	.077 (0.19)	.224 (0.51)	.083 (0.30)
$POLITY_1$	.473 (4.71)	.422 (3.03)	.466 (3.99)	.680 (8.04)
m2 (p)	0.34	0.34	0.36	0.27
Sargan (p)	1.00	1.00	1.00	1.00

T-ratios in parentheses. Number of observations: $NT = 342$. $POLITY$ is the proxy for democracy, GDP is income per capita, $URBAN$ is the share of urban population and $XCONST$ is the constraints on the executive. FE is the Fixed Effects, FE-IV is the Fixed Effects with Instrumental Variables, and the DIF-GMM and SYS-GMM are the First Difference and System Generalised Method of Moments estimators.

In a nutshell, these dynamic panel estimates suggest that the modernisation hypothesis holds in Latin America, or to put it differently, as predicted by Lipset (1959), a certain minimum level of income and development has been of paramount importance in keeping democracy alive and well in the region for the last forty years or so. Coincidentally enough, income in the region is higher than in the first half of the 20^{th} century, or even right after WWII, and before this latest wave of political liberalisation, democracy had never set foot

in the region for such a long time as currently. Also of importance, when we test for the critical junctures hypothesis, put forward by Acemoglu, Johnson, Robinson and Yared (2008 and 2009), we are not able to provide any hard evidence for the prediction that a particular structural change or shock happening in the past would affect the development of democracy later on in time. In fact, we manage to provide even more evidence for the modernisation hypothesis, which is of considerable importance for a region that has been clearly maturing economically and politically in recent times[4].

III. Final Observations

In this paper we have investigated the modernisation hypothesis, yet again we admit, however this time specifically the latest Latin American wave of democratisation affecting the region in the last forty years or so. The results, based on dynamic panel (time-series) data analysis, indicate that the modernisation hypothesis, which highlights the importance of income and development for democracy to mature and survive, is alive and well in the region, so far. In addition, we test for the critical junctures hypothesis, or the role of the institutions implemented right after independence in those countries and whether they would play any role in later democratisation processes, however we are unable to find any concrete evidence for it.

The importance of this study is that we have been able to specifically study the Latin American case, with all its developmental idiosyncrasies, without having to incur in generalisations which are not always warranted (in particular about the role of constraints on the executive right after independence), nor to treat the region either as a dummy or as an outlier to be removed from the sample. With that we have been able to further our comparative understanding of the recent history of the region in terms of development and democracy during an eventful period of its history, which might also be of use to understand the importance of income on the current wave of democratisation affecting particular Arab countries. All in all, the modernisation hypothesis holds in Latin America and there is no reason to

believe that it will not hold in other regions, as long as a particular level of development is in place.

Future research can be extended to further disaggregations and comparisons. For instance, the wave of democratisation which affected Sub-Saharan Africa shortly after independence in the 1960s can be studied as well as the transition economies from eastern Europe which have been through important political and economic structural changes in the last twenty years or so. Moreover, needless to say that understanding the current Arab Spring is of paramount importance, and the analysis conducted here can be extended to that particular group of countries when data becomes available in the future. Finally, the role of education is also important, however we still lack annual data on education attainment in the region, which somehow precludes us on carrying such a study for Latin America.

Essentially, perhaps the main lesson from the above analysis is the need for a return to the basics in terms of understanding democratisation processes, and the role and relevance of economic development in keeping democracy alive. This is interesting in itself, since the lesson, or the main implication, coming from the results is the fact that democracy seems to be a political arrangement which thrives only when there is a particular level of development already in place. All in all, it seems that there is very little added-value in implementing particular democratic institutions in places which are simply nor ready for the complexities of a new political regime, and the experiences of Sub-Saharan African in the 1960s and Iraq now unfortunately come to mind.

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Notes

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[1]See Vanhanen (2000) for the alternative measure for democracy, Morrisson and Murtin (2009) for the alternative data set on educational attainment, or Barro and Lee (2010) for an updated version of the Barro-Lee data set.

[2]Argentina got independence in 1816 and the data cover the period between 1825 and 1863, Bolivia in 1825 and the data are for 1825-1863, Brazil in 1822 and the data are for 1824-1861, Chile in 1818 and the data are for 1818-1855, Ecuador in 1830 and the data are for 1830-1867, Guyana in 1966 and the data are for 1966-2003, Paraguay in 1811 and the data are for 1811-1848, Peru in 1821 and the data are for 1821-1858, and Uruguay in 1818 and the data cover the period between 1830-1867.

[3]See Barro (1996) or Besley, Persson, and Sturm (2010) for two important efforts on democracy and growth.

[4]We also populate, for robustness purposes, these regressions with additional control variables, however the results are quantitatively and qualitatively equivalent to those reported above. In addition, we run regressions without income, only with $XCONST$ on the right hand side, and we still can not find any evidence for the critical junctures hypothesis. Available on request.