The Economic Journal, **118** (*October*), 1520–1551. Published by Blackwell Publishing, 9600 Garsington Road, Oxford OX4 2DQ, UK and 350 Main Street, Malden, MA 02148, USA.

DEMOCRATISATION AND GROWTH*

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This article challenges cross-sectional findings that democracy has a negligible effect on growth. We employ a new dataset of political transitions during the Third Wave of Democratisation and examine the within effect of democratisation in countries that abandoned autocracy and consolidated representative institutions. The panel estimates imply that on average democratisations are associated with a 1% increase in annual *per capita* growth. The dynamic analysis reveals that: while during the transition growth is slow, in the medium and long run it stabilises at a higher level. This evidence favours development theories of democratic rule and Friedrich Hayek (1960)'s idea that the merits of democracy appear in the long run.

Leading politicians and commentators have argued that democratisation will bring prosperity and growth into 'pariah' and economically poorly performing countries.[1] Others, however, remain sceptical, pointing to the mixed and inconclusive empirical evidence. The old debate dating back to Plato and Aristotle, on which political regime is socially and economically optimal arises again. This debate is not purely academic and philosophical as it has important policy implications. In the last thirty years, the world has experienced an unprecedented move towards democratic institutions. Influential policy makers and scholars urge Western authorities to foster democratic movements in totalitarian countries; see *The Economist* article 'Philosophers and Kings' (June 19th 2003). Yet the question remains: 'Will democratisation bring economic growth?'

To assess the average growth effect of a successful democratic transition we analyse the evolution of annual real *per capita* GDP growth before and after incidents of permanent democratic reform in the 1960–2003 period. In our analysis we exploit a newly constructed dataset of permanent democratisations during the so-called Third Wave of Democratisation and the 1990s when many former socialist countries moved towards representative rule. The panel results reveal new evidence that contrast with the previous, mainly cross-sectional, work. First, conditioning on time-invariant country characteristics and global shocks, a permanent democratisation is associated with approximately a one half to one per cent increment in annual real *per capita* GDP growth. Second, a dynamic J-shaped effect emerges with considerable (though not

* This article is a major revision of an earlier paper titled 'Aristotle Was Right: Stable Democracy Fosters Growth'. The article was mostly written while the authors were doctoral students at the Economics Department of the London Business School. We are grateful to Antonio Ciccone, Wouter Denhaan, Jean Imbs, Morten Ravn and Richard Portes for detailed comments and support. We also thank Alexis Anagnostopoulos, Francesco Caselli, Simon Commander, Jan Fidrmuc, Denis Gromb, Christos Genakos, Enrico Perotti, Torsten Persson, Andrew Scott and Kostas Tatsiramos for useful comments and Daron Acemoglu for a fruitful discussion. Markus Baltzer offered excellent research assistantship. We also thank seminar participants at the 2004 European Winter Meetings of the Econometric Society, LBS, UCL, UPF, the CEPR/Insead Workshop on Institutions, Policies and Economic Growth, the 2005 Annual Congress of the European Economic Association and the Brunel/CEDI Workshop on Political Institutions and Economic Performance for useful suggestions. Comments from three anonymous referees of this JOURNAL, other referees and Jonathan Temple (the Associate Editor) helped us improve the article. All errors are ours.

[1] For example, former US Secretary of State Colin L. Powell argued that the re-establishment of democracy in Zimbabwe would quickly bring back prosperity (New York Times, 24–6–2004).

always significant) transition costs but sizable long-run gains. This parallels Bremmer's (2006) observation that 'closed' societies that 'open', experience an initial period of instability.

Following the development of the empirical growth framework (Barro, 1991; Mankiw *et al.*, 1992), many authors have augmented a cross-country growth regression with various subjective measures of political freedom. An overall assessment of this literature suggests that democracy has an economically small and statistically insignificant effect on economic growth; see, for example, the reviews of Przeworski and Limongi (1993) and Sirowi and Inkeles (1990). Parallel work has, however, established a strong link between the quality of institutions and long-run economic performance, e.g., Acemoglu *et al.* (2001), Hall and Jones (1999). Jointly this evidence therefore implies that while institutional enhancement significantly contributes to economic growth, democracy on its own seems to be immaterial. La Porta *et al.* (1999) summarise this somewhat surprising result: 'The relationship between democracy and economic success has been difficult to find in recent data.'

The empirical work from which this conclusion is drawn has several drawbacks (Durlauf *et al.* 2005, review the empirical growth literature and discuss the main findings and limitations).

First, previous work does not directly address whether a successful democratic transition is associated with higher growth. Rather, the literature utilises the cross-sectional variation to identify long-run patterns. Given, however, the policy question, we want to explore whether annual growth accelerates, declines or remains constant following the regime change. A related problem arises from omitted variables. Since a growth regression can only incorporate a limited number of independent variables, it is necessary to employ panel data techniques that control for omitted variables. We therefore add country fixed effects that capture (part of) the unobserved country-specific heterogeneity. Focusing on the within-country effects of democratisation enables us to account for time-invariant country characteristics such as geography, natural resources, social norms and colonisation that may affect both growth and political development.[2] In addition we control for time trends and business-cycle dynamics. The main message of our analysis is that in contrast to the cross-country association, the 'within' correlation between democracy and growth for countries that abandoned autocratic rule and established representative institutions is positive.

Second, although theory has called for a dynamic analysis, previous work has focused on unified correlations. The descriptive evolution of annual growth around the timing of democratisation, given in Figure 1, reveals an interesting pattern. Compared to the world average, annual output growth in democratised countries drops significantly during the democratic transition; yet after the consolidation of representative institutions growth fluctuates at a higher rate. The graph suggests that in the short run there may be non-negligible transition costs but in the long run growth stabilises at higher rates. Note that taking a five or ten-year average might obscure this information. We thus depart from the standard growth regression framework and employ both static

[2] This is not to say that 'fixed-effect' estimates are a panacea. Fixed-effects exacerbate problems arising from measurement error. Also, they do not solve the problem caused by the omission of relevant time-varying regressors.

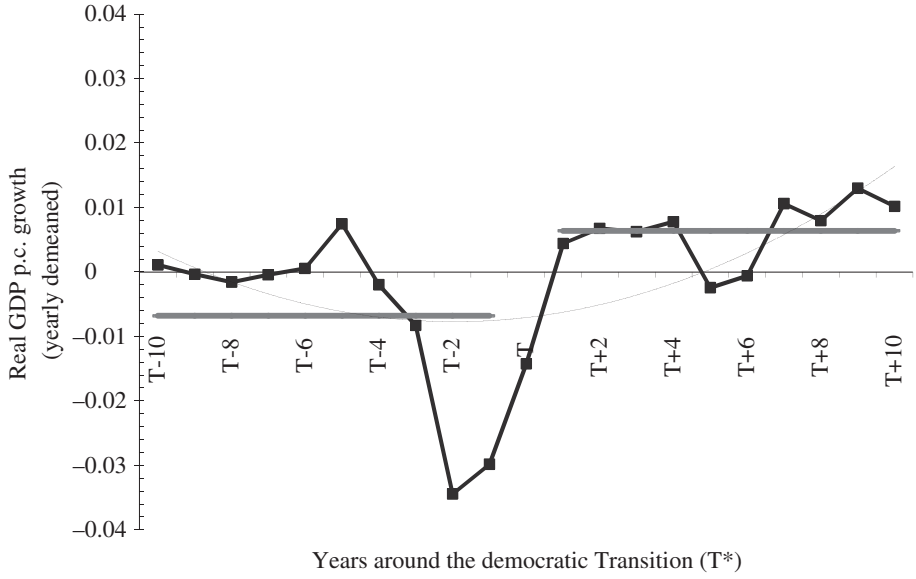

Fig. 1. *Real p.c. GDP Growth Around a Permanent Democratic Transition*
Figure 1 plots the evolution of time-demeaned (country growth rate minus the average growth rate for that year) average real per capita GDP growth in the ten years before and after a permanent democratic transition. Table 1 lists the democratisation countries and gives a short description of the transition.

and dynamic panel data methodologies with annual frequency observations.[3] This enables us to quantify both the short and long-run correlations of political liberalisation and growth. Friedrich Hayek (1960) eloquently summarised this point: 'It is in its dynamic, rather than in its static, aspects that the value of democracy proves itself. As is true of liberty, the benefits of democracy will show themselves only in the long run, while its more immediate achievements may well be inferior to those of other forms of government.' Our empirical results validate Hayek's intuition by showing that growth accelerates after a usually costly and volatile transition period.

Third, there are serious concerns regarding measurement error. Classical error-in-variables yields attenuated estimates and reduces the economic significance of results. This problem is particularly relevant in studies of democracy, which 'has meant different things to different people at different times and places' (Dahl, 2000, p. 3). The problem is even more severe in our context, since the various democratic measures tend to suffer from systematic biases (Munck and Verkuilen, 2002). Thus, most likely, measurement error does not take its usual classical form. There is now a considerable literature in political science that discusses the conceptual problems in defining and measuring democracy. To address this caveat we utilise a newly constructed dataset of permanent democratic transitions in the 1960–2005 period (Papaioannou and Siourounis, 2007). While our binary (and trichotomous) measure might still suffer

[3] Previous work has relied on cross-section or panel data techniques using 5 or 10 year period averages. See Attanasio *et al.* (2000) for a discussion on the merits of using annual observations rather than averages. Durlauf *et al.* (2005) discuss some of the limitations of using high frequency data. In our framework the use of annual data is mandated by our research objective.

from misclassification in some countries, it enables us to measure the effects of regime transitions more properly.

This article is related to a new wave of research that studies how institutions affect economic performance; for a review see Acemoglu, Johnson and Robinson (2005). From a methodological standpoint, the before–after within approach resembles analogous event-studies in macroeconomics. Wacziarg and Welch (2003) study the effect of trade liberalisation, and Bekaert *et al.* (2005) the aftermath of financial liberalisation on growth. Interestingly, a gap exists in studying the annual growth effects of a permanent democratic transition. In two parallel and independent papers Rodrik and Wacziarg (2005) and Persson and Tabellini (2006*a*) also explore the 'within' effect of democracy on growth. In addition, Roll and Talbott (2003) and Persson (2005) investigate the effect of democratic transitions on income, while Giavazzi and Tabellini (2005) explore interactions between political and economic reforms. Overall, these papers also provide positive within correlations between democracy and long-run growth. Our work differs from these studies, however, in key aspects. First, these studies do not identify permanent democratic transitions systematically but rather rely on *ad hoc* cutoffs in political freedom indicators to spot regime changes. Second, our study aims to explore the short- medium- and long-run effects of democratic transitions on growth systematically, controlling for potential anticipation effects and the volatile transition period. Third, we explore whether moderate reforms compared to major ones are associated with growth gains.

The rest of the article is structured as follows: the next Section outlines the theoretical arguments on how political liberalism affects growth and discusses previous empirical findings. In Section 2 we lay down the benchmark difference-in-difference econometric specification and discuss the features of our data. Section 3 presents the main before-after results of the average 'within' country growth effect on democratisation. In Section 4 we turn to the dynamic analysis, studying the evolution of output during stable democratic transitions. In Section 5 we give some further evidence and perform sensitivity checks. Section 6 concludes.

1. Theory and Previous Empirical Evidence

For analytical purposes, we distinguish between theories that emphasise the negative consequences of democratic institutions on growth ('sceptical' theories) and those that stress positive aspects ('development' theories). In addition, we discuss theories arguing that development and democracy may be driven by common institutional factors.

1.1. '*Sceptical*' *Theories*

'Sceptical' approaches emphasise the inefficiencies of representative government. Plato (n.d.), de Tocqueville (1835) and Huntington (1968) feared populist demands for consumption and expropriation. The 'public choice' tradition (Buchanan and Tullock, 1962) focused on the agency conflict between elected politicians and the public. For example, a democratic polity can yield inefficient outcomes by enabling various groups to compete for political influence. Besley and Coate (1998) synthesise a vast literature

that models the distortions caused by incumbent politicians running excessive deficits to guarantee re-election. The endogenous fiscal policy literature models the interaction between the polity type, income inequality and economic performance. 'Median-voter' models in the spirit of Alesina and Rodrik (1994) and Persson and Tabellini (1994), show that high levels of income inequality raise the demand for redistribution. If fiscal policy and taxation are selected by majority voting, then high inequality will lead to high taxes, lower investment and consequently slower growth. This equilibrium, however, does not necessarily apply to non-democracies, since the 'median voter' cannot enforce redistribution.[4] In line with this, Persson and Tabellini (1994) show that the negative correlation between inequality and growth is only present in democracies. Some proponents of the sceptical approach stress the need for a 'strong state with an iron hand that neglects populist demands and enforces developmentalist policies with its insulation from particularistic pressures, particularly those originating from large firms and unions' (Rao, 1984).

The economic success of the East Asian countries, which flourished under non-democratic regimes, offers an illustrative validation for this theoretical conjecture. The government in these countries neglected pressures for redistributive policies and safeguarded foreign investment (Rodrik, 2005*a*). Tavares and Wacziarg (2001) study the channels through which democracy influences growth and show that democracies are associated with low levels of private investment and high government spending, which in turn hurt economic success.

1.2. '*Development*' *Theories*

'Development' theories of democratic rule stress how representative institutions contribute to growth. Many positive channels have been put forward: first, redistribution need not play a negative role. This occurs when taxation revenues are used to subsidise education (Saint-Paul and Verdier, 1993; Bourguignon and Verdier, 2000) or mitigate capital market imperfections (Galor and Zeira, 1993). Second, democratic institutions can be more efficient by minimising transaction costs of sociopolitical organisation (Wittman, 1989). Olson (1993) argued that the electoral process solves commitment issues, while Sen (1999) points out the superiority of democratic rule in gathering and transmitting information. North (1990) summarises this Coasian approach '... The institutional structure most favourable to approximate such conditions (efficient markets of the neoclassical model) is a modern democratic society with universal suffrage.'

Probably the most widely known empirical finding in favour of the democratic process is Sen's observation that a famine has never occurred in a democratic society. Rodrik (1999) shows that democracies cope better with adverse economic shocks, while the Tavares and Wacziarg (2001) 'channel' analysis reveals a positive growth effect of democracy through human capital. Democracies may be growth enhancing because they are associated with lower political instability (Alesina and Perotti, 1996; Alesina, *et al.*, 1996) and lower output volatility (Quinn and Woolley, 2001).

[4] In Acemoglu and Robinson (2006), however, redistribution pressures are also present in autocracies. The ruling elite, thus, needs to implement social-welfare policies to prevent or postpone a revolution.

1.3. '*Institutional*' *Theories*

Acemoglu, Johnson, Robinson, and Yared (2005, 2006) argue that colonial institutions influenced both economic and political development. They advocate that although democracy and income may well be mutually reinforcing, the strong correlation between the two is mainly driven by hard-to-quantify variables related to colonial heritage and early institutions. Although our empirical model is estimated in changes (annual growth rates and abrupt changes in democracy), this conjecture highlights the importance of accounting with country fixed-effects for the impact of geography, the type of colonisation or the identity of the coloniser.

2. Econometric Specification and Data

2.1. *Estimation Strategy*

Our analysis is based on the following regression equation:

$$g_{i,t} \equiv \ln y_{i,t} - \ln y_{i,t-1} = \alpha_i + \eta_t + \delta \, Democ_{i,t} + \mathbf{X}'_{i,t-1}\boldsymbol{\Gamma} + v_{i,t}. \quad (1)$$

The dependent variable is the logarithmic growth rate ($g_{i,t}$) of annual real *per capita* GDP in country i in year t. Country-fixed effects (α_i) and year fixed-effects (η_t) control for time-invariant country characteristics and global trends respectively. The vector $\mathbf{X}'_{i,t-1}$ includes time-varying covariates, such as investment, government spending, income etc. The main variable of interest, $Democ_{i,t}$, is an indicator (dummy) variable that takes the value one in the year a permanent democratisation episode occurs and in all years following.

Regression (1) constitutes a difference-in-difference model, where democratisation countries are the 'treated' group, while non-reforming countries (always democratic, always autocratic and always in intermediate status) serve as the 'control' group. Due to the inclusion of country and year fixed-effects the coefficient δ measures the annual growth effect of democratisation in reforming countries compared to the general evolution of growth in non-reforming countries.

Difference-in-difference models are becoming increasingly popular in macro-economics because they address many (though not all) limitations of standard cross-country growth regressions. Most importantly, the specification accounts for time-invariant country characteristics, such as geography, natural resources, social norms and colonisation that may influence both economic and political development (as advocated by institutional theories). In addition, most standard growth covariates, such as investment and education, exhibit little within country variation and thus do not usually affect the estimate on the reform variable. Furthermore, the model also accounts for common global trends.

There are two important concerns with the difference-in-difference specification in (1). First, the unbiasedness of the estimator requires the strict exogeneity of the reform variable. Although there is a strong association between income and democracy, this correlation almost vanishes in differences (Acemoglu *et al.*, 2006). Thus classical reverse causality, although it cannot be ruled out, is less of a concern in this context. Most importantly for establishing causality, the democratisation variable should be random

(Rodrik, 2005*b*). This (non-selectivity) assumption is quite restrictive because democratic reforms do not occur randomly but are the outcome of a long process. How this might affect the estimates is unclear. If countries democratise when growth prospects are favourable, then the coefficient on the democratisation indicator will be biased upwards, capturing the positive trend. If however in anticipation of the regime transition the economy starts investing before the political change, then the bias will be downwards. To account for this in Section 5 we estimate variants of (1), allowing for flexible time-varying effects of democratisation on growth (Laporte and Windmeijer, 2005). An additional identifying assumption in (1) is that the same dynamics should govern the 'treated' and the 'control' group. Moreover conditional on country and year effects, the policy change measure ($Democ_{i,t}$) should be uncorrelated with other time-varying factors (that will be included in the error, $v_{i,t}$). We will thus control for time-varying observable factors, add regional trends and allow for income level differences. Yet, it should be stressed from the outset that in spite of the various model permutations and controls, it is quite hard to establish causality. For example democratisation may foster growth by enhancing institutional quality and structural policies. Unfortunately detailed institutional indicators are only available for recent years and thus cannot formally explore (and control for) this possibility.

Second, difference-in-difference estimators exacerbate the downward bias in the standard errors arising from positive residual autocorrelation. Thus, in the static models we follow the solution proposed by Bertrand *et al.* (2004) and adjust standard errors based on a generalised White-like formula, allowing for country-level clustered heteroscedasticity and autocorrelation. We also estimate dynamic panel versions of (1) controlling for growth persistence and income level differences. Besides accounting for autocorrelation, this approach also enables us to quantify the short- and the long-run effect of democratisation on growth and income.

Before we discuss how we construct the reform variable it should be stressed that using a binary indicator entails both benefits and drawbacks. There has been an active debate in political science on whether one should treat democratic transitions as events using dichotomous indicators. Huntington (1993) and Przeworki *et al.* (2000) are proponents of using dichotomous measures, while Dahl (1971) and Bollen and Paxton (2000) favour finer measures. We believe, however, that given our research objective of estimating the dynamic evolution of annual growth during democratic transitions, the use of binary indicators is more appealing. This follows the 'pragmatic approach' of Collier and Adcock (1999); see also Acemoglu and Robinson (2006). However, to account, for differences between democratic transitions we will also allow the effect of democratisation to differ depending on the intensity of reforms.

2.2. *Democratisation Data*

For the democratisation indicator variable we construct a new dataset of permanent democratic transitions during the Third Wave of Democratisation and the democratisation that followed the collapse of communism in the early 1990s. We detail our methodology in a companion paper (Papaioannou and Siourounis, 2007). Thus, here we only provide a brief description.

Our motivation in compiling this dataset was the absence of a detailed coding of regime transitions. Although various political freedom variables are available, none provides a specific coding of regime transitions. For example the two most widely used proxies of democracy, the Freedom House (FH) measures of civil liberties and political rights and the Polity Project composite democracy index, do not code democratic (or autocratic) transitions. These measures aim to capture the level of political freedom, not transitions. In addition recent work (Bollen and Paxton, 2000; Glaeser *et al.*, 2004) has identified some conceptual, aggregation and measurement problems with these indicators. Following recent contributions in conceptualising and measuring democracy (Munck and Verkuilen, 2002; Mainwaring *et al.*, 2000) for our coding of transitions we follow four general rules/questions:

(1) Were the legislative or presidential elections free and fair?
(2) Were civil liberties and political rights respected?
(3) Was the franchise inclusive for the majority of the population?
(4) Did the elected officials enjoy real governing capacity?

Our approach thus tries to balance between 'minimalist' definitional methods or broad methods that confound democracy with other institutional structures (Munck and Verkuilen, 2002).[5]

Our algorithm works as follows: first we located sizable changes in political freedom according to either the FH or the Polity indicator: when the 21 range Polity measure (ranging from -10 to $+10$, with smaller values indicating a lower level of political freedom) suddenly increases from a negative to a positive value and/or when the trichotomous FH political status characterisation jumps from 'not free' to either 'partly free' or 'free', and from 'partly free' to 'free'.

Second, we examine numerous political archives, historical resources and election databases, to identify the timing and characterise the nature of each transition precisely.[6] We also went over other datasets, such as the Przeworski *et al.* (2000) classification that, however, do not cover the 1990s and the Mainwaring *et al.* (2000) regime transition chronology in Latin America. The timing of democratisation is either at the first 'free and fair' elections or at the adoption of a new democratic constitution after a prolonged period of autocratic rule (typically the adoption of a new constitution and the elections take place within one or two years). Although there has been an active debate in political science on how to define democracy, free suffrage is in almost every definition we found. For example free, competitive and fair elections are at the core of Schumpeter's (1942) definition, which appears to be the most widely used. Schumpeter describes democracy as '...the institutional

[5] Regarding the political freedom variables we consider (and most often used), Munck and Verkuilen show that the Przeworki *et al.* (2000) measure is probably the most 'minimalistic' (narrow), while the Freedom House indicators are the most 'maximalistic'.

[6] Specifically we used: (1) The Freedom House and Polity Project country reports. (2) The Country Studies/Area Handbook Series of the Federal Research Division of the United States Library of Congress (2006). (3) The Central Intelligence Agency World Factbook. (4) The US Department of State 'Background Country Notes'. (5) Adam Carr's 'Psephos' Election archive. (6) 'Elections around the World' online data-set. (7) The Election Results Archive, collected by the Center on Democratic Performance at Binghamton University. (8) Zarate's Political Collection.

arrangement for arriving at political decisions in which individuals acquire the power to decide by means of competitive struggle for the people's vote'.

Third, we impose a five-year stability condition. As Huntington (1993) writes '...Stability is a central dimension in the analysis of any political system.' We therefore ignore brief spikes in the political freedom indicators, since a careful investigation shows that they represent political instability rather than an actual transition.[7]

Fourth, we distinguish between 'full' and 'partial' democratisation episodes. We designate 'full' status to countries where both the Polity indicator is greater than +7 and the FH status characterisation is 'free'. All remaining democratisation countries are recorded as 'partial'.[8]

We examine political institutions in 174 countries over the 1960–2005 period. We code 39 incidents as 'full' and 24 as 'partial' democratisations. We also identify 6 episodes of small improvements in the level of political freedom ('borderline' democratisation episodes). According to our coding only 3 countries experienced reverse transitions from relatively stable democracy to autocracy. Finally we group the non-reforming countries into three categories, *always democratic*, *always autocratic* and *always intermediate* status. Table 1 gives the country, the year of the regime change and a brief historical description of the event in all reforming countries.

2.3. *Other Data*

The dependent variable is the annual log difference in GDP *per capita*. The data come from World Bank's World Development Indicators (2005 edition) and cover a maximum of 166 countries in the 1960–2003 period. Supplementary Appendix Table 1 (see the Supporting Material or alternatively go to www.res.org.uk/economic/ta/tahome.asp) reports data coverage by country. The World Development Indicators is the source for most other growth controls, namely investment, trade, government consumption, life expectancy and income level; schooling statistics are retrieved from Barro and Lee (2001). The Data Appendix gives detailed variable definitions and sources.

3. Benchmark Estimates

We start by estimating the unconditional effect of political reforms on annual growth using static and dynamic panel models. Then we examine the effect of democratic reforms, controlling for standard growth covariates. Last, we compare the evidence using our event chronology with other approaches to identifying democratic transitions.

[7] Examples of brief spikes in the two democracy indicators that clearly do not represent the establishment of representative institutions, include Nigeria (in the early 1980s), Congo (in the early 1990s), Burkina Faso (in 1978–9), and Argentina (in the early 1970s). A sample selection problem might arise if democratic transitions are more likely to be short-lived if growth is weak. Yet this problem is unlikely to plague our estimates since most democratic transitions that reversed into autocracy were extremely short-lived.

[8] Huntington (1993) who favours binary democracy measures is sympathetic to trichotomous distinctions. Epstein *et al.* (2006) employ a three-way classification of political regimes to examine the effect of income on democracy.

Table 1

Democratisation Event Chronology

(*a*) '*Full*' Democratisation Episodes

Country and Year	Description
Argentina (1983)	First free and fair elections after a prolonged period of military dictatorship.
Benin (1991)	Adoption of new democratic constitution; free and fair elections.
Bolivia (1982)	Return to civilian rule. Military steps down. Reconvention of 1980 democratic constitution.
Brazil (1985)	First free and fair elections after a more than two decade long military rule.
Bulgaria (1991)	First post-communism free and fair general assembly elections.
Cape Verde (1991)	First post independence free and fair elections.
Chile (1990)	First free and fair presidential elections; Ending of two decade long military rule of Augusto Pinochet.
Croatia (2000)	First free and fair legislative and presidential elections since independence and the ending of the Bosnian War.
Czech Republic (1993)	Independence from Czechoslovakia. First post-communism constitution came into effect.
Dominican Republic (1978)	Return to civilian rule. Free and fair presidential elections.
Ecuador (1979)	Internationally deemed free and fair presidential elections after a prolonged period of military rule.
El Salvador (1994)	First free and fair elections after the end of a long-lasting civil war and military rule.
Estonia (1992)	Independence from USSR. Ratification of old (1938) constitution.
Ghana (1996)	Adoption of democratic constitution
Greece (1975)	New democratic constitution; parliamentary elections marked the return to civilian rule.
Grenada (1984)	First free and fair elections after the US invasion (in October 1983) and the ending of military rule.
Guyana (1992)	First post independence (1966) free and fair elections.
Honduras (1982)	Adoption of new democratic constitution after a prolonged period of oppressive rule. First democratically elected president takes office.
Hungary (1990)	First post communism free and fair presidential elections.
Korea, Republic of (1988)	Democratically elected government resumes office. Adoption of new democratic constitution.
Latvia (1993)	Independence from USSR. Ratification of old (1922) democratic constitution.
Lithuania (1993)	Independence form USSR. Free and fair elections. New democratic constitution.
Mali (1992)	New democratic constitution established a multi-party system. Free and fair legislative and presidential elections followed.
Mexico (1997)	For the first time since 1929 the Institutional Revolutionary party (PRI) lost the absolute power in the Lower House after the 1997 legislative elections.
Mongolia (1993)	New democratic constitution established a multi-party system.
Panama (1994)	Free and fair presidential and legislative elections after the US intervention.
Peru (1980)	Internationally declared free and fair legislative and presidential elections.
Philippines (1987)	Adoption of new democratic constitution; free and fair elections led to the overthrown of Marcos' regime.
Poland (1990)	First post communism, free and fair, presidential, legislative and local elections. Adoption of new democratic constitution.
Portugal (1976)	Return to civilian rule after a long-lived military regime (since 1926).
Romania (1990)	First post communism free and fair elections.
Sao Tome and Principe (1991)	First post independence (in 1975), free and fair legislative and presidential elections.
Senegal (2000)	Free and fair elections and end of one-party ruling
Slovak Republic (1993)	Independence form Czechoslovakia. First post-communism elections; a new democratic constitution came into effect.
Slovenia (1992)	First since gaining independence from Yugoslavia, free presidential and legislative elections. Adoption of a new democratic constitution.

Table 1
Continued

(*a*) '*Full*' Democratisation Episodes	
Country and Year	Description
South Africa (1994)	First free elections with universal participation brought in power Nelson Mandela and ended the Apartheid regime.
Spain (1978)	New democratic constitution came into effect after Franco's death.
Thailand (1992)	Military was forced to step down. Free legislative elections followed.
Uruguay (1985)	Army returned the power to the democratically elected president.
(*b*) '*Partial*' Democratisation Episodes	
Country & Year	Brief Description
Albania (1992)	Subsequent (in 1991 and 1992) elections marked the ending of the communist rule.
Armenia (1998)	Internationally deemed free and fair elections (1998).
Bangladesh (1991)	First post independence (1971) free and fair elections.
Djibouti (1999)	First post independence (1977) internationally declared free and fair elections.
Ethiopia (1995)	First multi-party elections after a long-lived communist era.
Georgia (1995)	Presidential and legislative elections of November and December (1995)
Guatemala (1996)	End of civil war; return to civilian rule.
Indonesia (1999)	First multi-party elections after the collapse of the Suharto regime.
Lesotho (1993)	Military abandons power and internationally deemed free and fair elections mark the return to civilian rule.
Macedonia, FYR (1991)	Independence from Yugoslavia. First constitution approved. National unity government formed.
Madagascar (1993)	Presidential elections after a twenty-year long military junta.
Malawi (1994)	Presidential elections since independence were held in May, 1994
Moldova (1994)	First free and fair legislative elections.
Mozambique (1994)	First post independence (1975) parliamentary and presidential elections.
Nicaragua (1990)	Free and fair elections after the Somosa dictatorship and the Santinistas revolution.
Nigeria (1999)	After consecutive coups and military interventions, internationally declared free and fair elections mark the return to civilian rule.
Paraguay (1993)	First presidential elections after decades of military rule.
Russia (1993)	Adoption of first post-communism constitution; free and fair Duma elections.
Serbia and Montenegro (2000)	Free and fair elections
Suriname (1991)	Return to civilian government after a one-party regime; free and fair elections.
Tanzania (1995)	First post independence, internationally deemed free and fair elections.
Turkey (1983)	First free and fair legislative elections after a military dictatorship.
Ukraine (1994)	Independence from USSR. Legislative elections followed.
Zambia (1991)	First post independence, free and fair elections. New democratic constitution came into effect.
(*c*) '*Borderline*' Democratisation Episodes	
Country & Year	Brief Description
Central African Republic (1993)	First free election after the oppressive Bokassa rule. The 1996 presidential elections were deemed free but marked by fraud allegations. Huge political instability is still present.
Comoros (1990)	Turmoil and short periods of democratic rule after 1990, deterioration after 1999

Table 1
Continued

(*c*) '*Borderline*' Democratisation Episodes	
Country & Year	Brief Description
Iran, Islamic Republic of (1997)	First multi-candidate elections were held. Political reforms took place but basic civil rights and political liberties have not been fully granted.
Nepal (1991)	First free and fair elections since the early 1960s.
Niger (1999)	Transition to civilian rule; presidential and legislative elections took place; although they were deemed free and fair, substantial political struggles are still present.
Pakistan (1988)	Legislative elections were held; restoration of the 1985 democratic constitution. In spite of free and fair elections in the 1990s, the military coup of 1999 blocked democratisation.

(*d*) '*Reversals*' in Autocracy	
Country & Year	Brief Description
Gambia (1994)	Military coup suspended the 1970 constitution.
Lebanon (1975)	Since the 1975, tensions, fraud, foreign pressure and direct involvement in politics have marked elections.
Zimbabwe (1987)	1987 Constitutional amendment increased the President's power resulting to fewer checks to the executive and questionable elections.

Table 1 reports the country, timing and a brief description of the democratisation events. Panel (*a*) reports '*Full*' democratisation episodes; in these countries democratic institutions have been fully consolidated according to our identification and both the Polity and Freedom House indicators. Panel (*b*) reports '*Partial*' democratisation episodes; in these countries a substantial democratic progress has occurred but neither our approach nor the Freedom House and the Polity indicators record a perfect democracy level. Panel (*c*) gives '*Borderline*' democratisation episodes; in these countries, democratic progress (reflected in both indices) has taken place, but protection level of civil liberties is still very low. Panel (*d*) gives '*Reversals*'; in these countries democratic rule followed by a coup or fraud elections.

3.1. *Unconditional Effects*

Static panel models. Table 2, columns(1)–(4), reports estimates of (1) using the maximum country sample (5,410 observations; 166 countries for up to 43 years). The OLS specification in column (1) yields a small and statistically insignificant coefficient on democratisation. This result is primarily driven by the cross country variation and, given the existing literature, comes as no surprise. In column (2) we control for global shocks adding time fixed-effects (η_t). The coefficient on the political liberalisation indicator has now increased to 0.50. Although the estimate is (marginally) insignificant (the p-value based on the clustered standard errors is 0.12), the time fixed-effects model shows that controlling for common global trends is increasing the effect of democracy. A likely explanation is that during the 1960s and early 1970s, growth was globally higher than in the late 1970s and 1980s when the Third Wave began. In column (3) we isolate the within effect of democratisation adding a vector of country dummies ($\boldsymbol{\alpha}_i$). The coefficient on democratisation is more than four times larger than the OLS estimate (0.89) and statistically significant at the 10% level. The difference-in-difference coefficient in model (4) where we control for both country and year

Table 2

Unconditional Effects of Permanent Democratisations

	OLS	Time FE	Country FE	Difference in Difference estimates (country FE and year FE)				
	All	All	All	All	20 obs.		20 obs.; no socialist	
Sample Countries	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Democratisation	0.2090	0.5043	0.8866	1.4411	1.0854	1.1575	0.6830	0.9594
p-value	(0.279)	(0.021)	(0.003)	(0.000)	(0.000)	(0.000)	(0.026)	(0.000)
p-value – clustered s.e.	(0.473)	(0.120)	(0.085)	(0.006)	(0.008)	(0.000)	(0.020)	(0.002)
Lagged (1) Growth					0.2536	0.2152	0.2308	0.1963
p-value					(0.000)	(0.000)	(0.000)	(0.000)
p-value – clustered s.e.					(0.000)	(0.000)	(0.000)	(0.000)
Lagged (2) Growth					0.0022	−0.0200	−0.0025	−0.0246
p-value					(0.940)	(0.506)	(0.940)	(0.459)
p-value – clustered s.e.					(0.942)	(0.533)	(0.942)	(0.531)
Lagged (3) Ln GDP p.c.						−4.6326		−4.3405
p-value						(0.000)		(0.000)
p-value – clustered s.e.						(0.000)		(0.000)
Regional trends	No	No	No	No	Yes	Yes	Yes	Yes
Adjusted R-squared	0.0010	0.0470	0.0873	0.1357	0.1873	0.220	0.1687	0.1988
Within R squared	—	—	0.0200	0.0620	0.1201	0.156	0.1039	0.1366
Countries	166	166	166	166	135	135	125	125
Observations	5,410	5,410	5,410	5,410	4,772	4,772	4,555	4,555

The dependent variable is the logarithmic growth of real per capita GDP. Democratisation is an indicator variable that takes on the value one in the year and all subsequent post democratisation years in countries that experienced a permanent democratic transition. Model (1) reports pooled cross-sectional OLS estimates in the maximum number of countries–years. Models (2), (4)–(8) include year constants. Models (3)–(8) include country constants. Models (5)–(8) include region-specific time trends (coefficients not reported). Models (5) and (7) control for growth inertia including two lags of the dependent variable. Models (6) and (8) also control for convergence including the three-year lagged log income level. Models (5)–(8) exclude countries with less than 20 observations of the dependent variable (to minimise the bias arising from the joint presence of country fixed-effects and the lagged dependent variable). Models (7) and (8) also exclude socialist countries. p-values based on general heteroscedasticity-adjusted standard errors and clustered by country standard errors are reported in parentheses below the coefficient estimates. Table 1 lists the democratisation countries and gives a short description of the transition. The Data Appendix gives variable definitions and sources. Supplementary Appendix Table 1 reports sample details.

fixed-effects implies an even larger average growth effect of democratisation of approximately 1.4%. The coefficient is now statistically different from zero at the 1% significance level.

Dynamic panel models. In columns (5)–(8) we estimate autoregressive specifications, controlling for growth persistence and income level differences. Although the joint presence of the country effects and the lagged dependent variable yields inconsistent estimates, the bias becomes negligible as the time dimension goes to infinity (Nickell, 1981). Recent Monte Carlo studies show that the bias sharply decays when the time horizon exceeds 20 periods. Judson and Owen (1999) estimate that the bias on the lagged dependent variable is around 1% to 2% of the true coefficient value when T is 30 and between 2% and 3% when T is 20. More importantly, the bias on the other explanatory variables (and consequently the democratisation dummy) becomes less

than 1%. We thus exclude from our sample those countries with less than 20 time-series observations.[9] To account for heterogeneity further we also include region specific time trends (T_j).[10] This enables us to control for regional dynamics and the non-stationarity nature of the democratisation dummy.[11] The estimate on the indicator variable continues to be positive and significant when we control for growth persistence (column (5)) and when we also account for income level (in (6)). A concern is whether the coefficient is picking up the market reforms that former socialist countries implemented in the 1990s. Thus, in models (7) and (8) we drop these countries from the estimation. This is also a useful sensitivity check, since the data quality for socialist countries before 1990 is questionable. The estimates imply a highly significant growth effect of democratisation of more than 1%.

This significantly positive within effect of democratisation on growth stands in contrast to the cross-sectional literature on political freedom and growth. The interpretation is, however, different. The estimates imply that in a given country that abandoned autocracy and consolidated representative institutions, annual growth accelerated after the transition by approximately 0.70%–1.10% faster relative to the absence of the regime change. Our estimates are quite similar to Persson and Tabellini (2006*a*)'s recent work that also examines the within growth effect of democratisation in the post-war period. The results are also in line with Persson and Tabellini (2006*b*)'s long-term analysis on the effect of democratic and autocratic transitions. Our pro-development result is also in line with Roll and Talbott (2003) and Persson (2005), who document significantly positive within effects of democracy on income level.

3.2. *Conditional Effects*

The empirical literature has considered numerous variables to explain cross-country growth differences. In Table 3 we report models that control for standard growth covariates, mainly to explore whether the significant effect of democratisation documented in the unconditional models, operates through capital accumulation or sound government and trade policies (In the Supplementary Appendix we plot the evolution of these variables in the years surrounding a successful democratic transition). Following Bond *et al.* (2004) we estimate the following autoregressive distributed lag model:

$$g_{i,t} = \beta g_{i,t-1} + \pi \ln y_{i,t-2} + \mathbf{\Gamma}(L)\boldsymbol{X}'_{i,t} + \boldsymbol{C}(L)\Delta\boldsymbol{X}'_{i,t} + \delta Democ_{i,t} + \zeta_j T_t + \alpha_i + \eta_t + \varepsilon_{i,t}. \quad (2)$$

To show that our results are not driven by the exact specification, we report estimates of a more parsimonious model, adding just one lag of annual *per capita* GDP growth and two lags of the control variables. This model also enables us to quantify the long-run effect of democratisation (as well as the other growth covariates) on income.

[9] Giavazzi and Tabellini (2005), Persson (2005), and Persson and Tabellini (2006*a*) similarly exclude countries with less than 20 annual observations.

[10] Following the World Bank's classification there are eight 'regions': East Asia and Pacific, Europe and Central Asia, Latin America and the Caribbean, Middle East and North Africa, South Asia, Sub-Saharan Africa, Western Europe, and Other High Income.

[11] Note that by construction $Democ_{i,t}$ exhibits a trending behaviour, since after a successful transition to democracy countries do not revert. Even if we had not imposed the stability requirement, reversals are very rare, so this problem is not resolved. Thus by adding the trends in the RHS we explicitly control for this concern.

Table 3

Conditional Effects of Democratisation

	(1)	(2)	(3)	(4)	(5)	(6)
Democratisation	0.7917	0.8397	1.0897	1.2573	0.7289	0.8329
p-value	(0.007)	(0.000)	(0.000)	(0.000)	(0.013)	(0.004)
p-value – AR(1) disturbances	(0.008)	(0.000)	(0.000)	(0.000)	(0.013)	(0.010)
Lag (1) Growth	0.0784	0.2259	0.1927	0.1059	0.1101	0.0632
p-value	(0.005)	(0.000)	(0.000)	(0.000)	(0.000)	(0.025)
p-value – AR(1) disturbances	(0.003)	(0.000)	(0.000)	(0.000)	(0.000)	(0.010)
Lag (2) Ln GDP p.c.	−4.2992	−3.1302	−4.0167	−3.7793	−4.5691	−4.1927
p-value	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
p-value – AR(1) disturbances	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)	(0.000)
Investment	0.1464					0.1254
p-value	(0.000)					(0.000)
p-value – AR(1) disturbances	(0.000)					(0.000)
Schooling		0.1459				
p-value		(0.364)				
p-value – AR(1) disturbances		(0.400)				
Life Expectancy			0.0581			−0.0100
p-value			(0.219)			(0.813)
p-value – AR(1) disturbances			(0.240)			(0.809)
Government consumption				−0.1288		−0.1107
p-value				(0.000)		(0.000)
p-value – AR(1) disturbances				(0.000)		(0.000)
Trade share					0.0405	0.0231
p-value					(0.000)	(0.001)
p-value – AR(1) disturbances					(0.000)	(0.000)
Long-run income effect	0.1842	0.2682	0.2713	0.3327	0.1595	0.1987
p-value	(0.01)	(0.03)	(0.00)	(0.00)	(0.02)	(0.01)
Long-run growth effect	1.0850	1.2919	1.2387	1.1184	1.1237	1.0675
p-value	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)	(0.00)
Regional trends	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R squared	0.2308	0.2096	0.1974	0.2193	0.1857	0.2642
Within R squared	0.1625	0.1375	0.1377	0.1458	0.1199	0.2035
Countries	124	97	125	123	123	122
Observations	4,307	3,784	4,661	4,382	4,420	4,183

Table 3 reports autoregressive distributed lag specifications. The dependent variable is the logarithmic growth of real per capita GDP. Democratisation is an indicator variable that takes on the value one in the year and all subsequent post democratisation years in countries that experienced a permanent democratic transition. In all models we control for growth inertia including lagged growth and also control for convergence including the two-year lagged log income level. Model (1) controls for investment, including two-year lagged investment rate and contemporaneous and lagged differenced investment (coefficients not reported). Model (2) controls for human capital, including two-year lagged schooling and contemporaneous and lagged differenced schooling (coefficients not reported). Model (3) controls human capital-health, including two-year lagged life expectancy and contemporaneous and lagged differenced life expectancy (coefficients not reported). Model (4) controls for government spending, including two-year lagged government consumption and contemporaneous and lagged differenced government consumption (coefficients not reported).
Model (5) controls for trade, including two-year lagged trade share and contemporaneous and lagged differenced trade share (coefficients not reported). Model (6) controls for lagged growth, two-year lagged income level, two-year lagged investment, life expectancy, government spending and trade share. The model also includes contemporaneous and lagged differenced values of all the controls (coefficients not reported). The Table reports a test and in parentheses p-values of the significance of: (1) the long-run effect of a permanent democratisation on growth, (2) the long-run effect of a permanent democratisation on the output level.
All models include country-specific and year-specific constants and region-specific time trends (coefficients not reported). p-values based on general heteroscedasticity-adjusted standard errors are reported in parenthesis below the coefficient estimates. The Table also reports p-values based on standard errors that allow for country-specific first-order serial correlation and heteroscedasticity. Table 1 lists the democratisation countries and gives a short description of the transition. The Data Appendix gives detailed variable definitions and sources. Supplementary Appendix Table 1 reports sample details.

Examining whether democratisation exerts a significantly positive effect on the output level is simply a test of $-\delta/\pi > 0$.[12] In spite of the rich lag specification, we might still not capture growth persistence adequately; thus in Table 3 we also report p-values based on standard errors that allow for panel-specific residual autocorrelation.

In column (1) we control for investment. The coefficient on democratisation retains significance at the 1% level, implying an annual growth effect of 0.8%. Due to some inertia in the dependent variable, the long-run effect of democratisation on annual growth is somewhat higher, around 1.0%–1.2%. The estimated speed of convergence (4.2%) suggests a long-run effect of democratisation on income level of approximately 18%.

In models (2) and (3) we control for human capital differences using average years of schooling and life expectancy at birth respectively. The coefficient on both human capital proxies is insignificant. Although this is not supportive of growth models stressing human capital, it is in line with panel studies revealing weak within correlations between schooling and growth (Krueger and Lindahl, 2001). Most importantly, the coefficient on $Democ_{i,t}$ is three standard errors greater than zero and quite similar in magnitude to the unconditional estimates reported in Table 2. Thus the effect of democratisation does not seem to come through human capital, which in any case has a negligible impact on growth once we control for country unobservables.

In columns (4) and (5) we control for fiscal and trade policies respectively. In line with previous work, trade enters with a significantly positive estimate, while government consumption enters with a negative coefficient. The coefficient on the political liberalisation indicator is at least two standard errors above zero in both model perturbations. In column (6) we control jointly for all growth covariates. The estimated effect of democratisation on growth continues to be highly significant, implying a short-run annual growth effect of 0.8%.

The models in Table 3 show that the effect of democratisation on growth does not appear to work through capital accumulation or through sound fiscal/trade policies (which somewhat improve after the consolidation of democracy). This suggests that either these controls do not adequately capture the theoretical concepts of human capital, high spending, and trade or that besides the standard-documented channels democratisation impacts growth through other mechanisms, notably institutional improvement. Unfortunately, we cannot say much more on the channels, since the usual control variables exhibit very small within variation. In addition some of the controls are contaminated by measurement error, which is magnified in (first or mean) differences.

3.3. *Alternative Datasets*

We now turn to alternative methods for identifying and timing democratic transitions. This enables us to compare our estimates with parallel work that also examines the

[12] We also considered the stationarity properties of all the variables, performing the Im *et al.* (2003) unit root test for heterogeneous panels. For the dependent variable we can reject the null hypothesis of non-stationarity (with and without trend), at any conventional significance level. For the log level of GDP the test fails to reject non-stationarity in both versions. Panel cointegration tests (Pedroni, 1999) between investment, schooling, life expectancy, trade share, government consumption and income indicate that these variables may be cointegrated with non-unique cointegrating vectors. Given the poor reliability of these tests, we present results from a range of specifications that are theoretically grounded and at the same time do not violate the time series properties of the corresponding processes.

within effect of democracy on growth and investigate the role of our democratisation chronology.

3.3.1. *Polity*

Recent studies investigating the within effect of democracy rely on the composite Polity index (Persson, 2005; Giavazzi and Tabellini, 2005; Persson and Tabellini, 2006*a*). Similarly to these studies we code a regime change when the 21-range measure (from −10 to +10) jumps from a negative to a positive value and remains there for five years. (In Supplementary Appendix Table 1 we report the regime classification). When there are consecutive jumps, we use the latter date. For example in Greece the Polity index jumps from −7 to +1 in 1974 and in 1975 to +8. We thus record democratisation in Greece in 1975. For countries experiencing a reverse transition from democracy to autocracy, the indicator equals one in the democratic and zero in the autocratic years. Identifying democratic transitions in this way changes the sample compared to our event chronology. The coverage is narrower since the Polity does not cover certain small countries. Compared to our chronology there are some differences, mainly, however, on the exact timing of reforms. For example using the Polity index Chile experienced a democratic transition in 1989, while according to our classification democratisation occurred in March 1990 (when the first post-Pinochet Presidential Elections took place).

In Table 4 columns (1)–(4) we report estimates using the Polity-based democratisation chronology. The OLS coefficient in model (1) is indistinguishable from zero; when we add country and year fixed-effects, however, the estimate turns highly significant (at the 1% level), implying an annual growth effect of 0.82% (column (2)). This supports our evidence that while in the cross-section there is no association between democracy and growth, the within correlation is positive and significant. The coefficient on the democratisation indicator variable retains significance when we control for growth persistence and income in column (3) and when we control for all other growth covariates in column (4) (Model (3) is identical to specification (8) in Table 2; Model (4) is identical to specification (6) in Table 3).

The estimates are thus quite similar when we use ours and the Polity-based classifications. Persson and Tabellini (2006*a*) and Giavazzi and Tabellini (2005) report similar estimates (approx. 0.75%) on the effect of democratisation on growth. However, Rodrik and Wacziarg (2005) reach somewhat different results of a smaller and, in general, insignificant effect of democratic transitions on growth. The main reason for these differences is that Rodrik and Wacziarg use the Polity Project's '*polity change*' variable to identify democratic transitions. This variable, however, by construction does not aim to capture incidents of democratic (or autocratic) transitions but rather identifies the year-country when the Polity index jumps by 3 points. Thus, many minor efforts towards democratisation or temporary incidents of political instability in autocracies are recorded as democratisations. To give some examples, according to this criterion Cambodia experienced a democratic transition in 1972 (when the Polity index jumped from −9 to −5), Chad democratised in 1994 (when the index jumped from −7 to −3), Iran in 1982 (the index jumped from −10 to −6) and Mexico in 1977 (the index jumped from −6 to −3). Overall, according to this criterion there were more than 200 transitions in the period under consideration. Thus, this approach

Table 4

Measurement Error and Alternative Datasets

	Polity				Freedom House				Golder			
	OLS	DID	Dynamic DID		OLS	DID	Dynamic DID		OLS	DID	Dynamic DID	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Democratisation	0.094	0.8207	0.7431	0.5483	0.1720	0.5857	0.8077	0.7670	0.1309	0.5713	0.4171	0.3372
p-value	(0.588)	(0.001)	(0.000)	(0.030)	(0.393)	(0.056)	(0.009)	(0.010)	(0.477)	(0.057)	(0.186)	(0.280)
p-value – clustered s.e.	(0.746)	(0.001)	(0.002)	(0.043)	(0.575)	(0.119)	(0.014)	(0.031)	(0.672)	(0.104)	(0.244)	(0.329)
Regional trends	No	No	Yes	Yes	No	No	Yes	Yes	No	No	Yes	Yes
Conditioning set	No	No	Autoreg/Inc	Full	No	No	Autoreg/Inc	Full	No	No	Autoreg/Inc	Full
Adjusted R-squared	0.0001	0.1514	0.1991	0.2531	0.0001	0.1148	0.2040	0.2911	0.0001	0.1265	0.2039	0.2021
Within R squared	–	0.0548	0.1380	0.1939	–	0.0370	0.1398	0.2232	–	0.0500	0.1374	0.2010
Countries	119	119	112	109	133	133	124	121	134	134	125	122
Observations	4,478	4,478	4,190	3,860	3,901	3,901	3,727	3,480	4,535	4,535	4,583	4,198

The dependent variable is the logarithmic growth of real per capita GDP. Democratisation is an indicator variable that takes on the value one in the year and all subsequent post democratisation years in countries that experienced a permanent democratic transition. In columns (1)-(4) we identify democratic transitions using the median value of the Polity composite democracy index. In columns (5)-(8) we identify democratic transitions using the Freedom House political rights and civil liberties measures. In columns (9)–(12) we identify democratic transitions using the Golder (2005) chronology. See the text for more details. Supplementary Appendix Table 1 reports the regime characterisation according to each of these three methods for all sample countries.

Models (1), (5), and (9) report pooled cross-sectional time-series OLS estimates. All other models include country and year fixed-effects (coefficients not reported). Models (3), (4), (7), (8), (11), (12) include region-specific time trends (coefficients not reported). Estimation is performed in all but socialist countries. Models (3), (4), (7), (8), (11), (12) also exclude countries with less than 20 observations of the dependent variable (to minimise the bias arising from the joint presence of country fixed-effects and the lagged dependent variable). Models (3), (7), and (9) control for growth inertia and convergence, including two lags of the dependent variable and the three-year lagged log income level (these models are analogous to model (8)–Table 2). Models (4), (8), and (12) control for lagged growth, two-year lagged log income level, two-year lagged investment, life expectancy, government spending and trade share. The models also include contemporaneous and lagged differenced values of all the controls (these models are analogous to model (6)–Table 3). p-values based on general heteroscedasticity-adjusted and clustered by country standard errors are reported in parentheses below the coefficient estimates.

p-values based on general heteroscedasticity-adjusted and clustered by country standard errors are reported in parentheses below the coefficient estimates. Table 1 lists the democratisation countries and gives a short description of the transition. The Data Appendix gives detailed variable definitions and sources. Supplementary Appendix Table reports sample details.

confounds democratic transitions, which reflect real change of power to representative governments, with incidents of political instability, mainly in autocratic countries.

3.3.2. *Freedom House*

We next use the Freedom House (FH) database (2006) to identify democratic transitions. Using the FH measures to code regime transitions are far from ideal, since these move rather slowly; furthermore for many years most countries are classified in an intermediate 'partially free' status. In addition Munck and Verkuilen (2002) and Mainwaring *et al.* (2000) show that the FH method appears to be systematically biased against socialist regimes, left-wing governments and countries not open to international trade.[13] We code a permanent regime change when the FH status characterisation jumps from 'Not Free' to either 'Free' or 'Partially Free' and from 'Partially Free' to 'Free'. We also require that the index remains at the new regime status for five years. In episodes of reverse transition the indicator equals one in the democratic period and zero in the non-democratic years. (In Supplementary Appendix Table 1 we report the regime classification).

Table 4, columns (5)–(8), reports estimates using the FH-based democratisation classification. The OLS estimate is small (0.17) and statistically insignificant. The within estimate, however, in model (6) is considerably larger (0.59), although only marginally significant (the p-value based on the clustered standard errors is 0.12). The dynamic specifications in columns (7) and (8) yield significant estimates suggesting an annual growth effect of approximately 0.7%–0.8%.

3.3.3. *Golder dataset*

Last we use Golder's (2005) database of regime characterisation. Although Golder's main research objective is to examine differences in elections across democratic and autocratic regimes, he also provides an update (till 2000) of the regime classification of Przeworki *et al.* (2000), which stopped in 1990. Golder classifies a regime as democratic if those who govern are selected through contested elections. In addition, he requires that a political party cannot be in power forever. As Acemoglu and Robinson (2006) note, however, this definition puts some widely accepted democratic countries, such as Botswana and Japan, in the group of always autocratic nations. In addition Golder does not systematically check whether the elections were open, free and impartial. Actually one of his main findings is that elections are quite common in autocracies. Thus the Dominican Republic is classified as always democratic in the 1960s and 1970s, since elections were held in 1970 and 1974. However, in both elections President Joaquin Balaguer's power was not seriously contested, since 'the only viable, broad-based opposition party, boycotted both elections to safeguard the well-being of those who would have been their candidates' (US Library of Congress Country Reports). Likewise Brazil's transition to democracy is recorded in 1979, even 'though the head of state was chosen by the state and ratified by an electoral college designed to ensure subservience to the military's choice' (Mainwaring *et al.*, 2000). Analogously Guatemala is classified

[13] An additional limitation of the Freedom House index is unavailability in the 1960s (it starts in 1972). Thus, models (5)–(8) are estimated in the period 1972–2003. We also estimate the same specifications in the 1960–2003 period using the Polity database to impute the Freedom House values for the 1960s. The results are quite similar.

as almost always democratic 'even though gross violations of civil and political liberties make these elections un-free at best, if not a total sham. Parties of the left were excluded from competition, and the army and paramilitary carried out widespread killing of suspected leftists and labor leaders' (Mainwaring *et al.*, 2000). Furthermore, this classification examines solely electoral outcomes and does not check whether there was a wide international and/or domestic acceptance of the new political regime. Thus, the Republic of Congo is classified as experiencing a democratic transition after the multi-party Presidential elections of 1992. However, disputes over the subsequent 1993 legislative polls led to civil conflict that caused the central government to collapse.

Table 4, columns (9)–(12) report estimates using the Golder database, imposing a five-year stability condition as before. In line with our evidence so far, OLS yields a statistically insignificant and close to zero estimate (0.13). When we add country and time fixed-effects to isolate the within effect of democratic reforms on growth conditional on general global trends, the coefficient on democratisation increases to 0.57. Although the coefficient is significant only at the 10% level, this change shows that in contrast to the between correlation, the within correlation between democracy and growth is positive. The coefficient turns insignificant when we control for income level differences (column (11)) or other growth covariates (column (12)). The insignificant estimates, compared to ours or the Polity coding, are in line with measurement error yielding some attenuation.

3.3.4. *Discussion*

The results in Table 4 show why our estimates differ from previous work that primarily explored the between country variation. No matter which data-source we consider, the effect of democratisation on growth is larger in the 'within' models than in the simple OLS. When we use our democratic transition coding (Tables 2–3), which aims to minimise measurement error, the panel estimates indicate a robust positive effect of democratisation on growth of approximately 0.9% at an annual basis. This significant within correlation is also present when we use the median value of the Polity index to identify democratic transitions. This result is in line with studies showing that among the numerous political freedom indicators the Polity measure is the least problematic, and is also in line with Persson's (2005) observation that identifying reforms using jumps around the median value of the Polity index is 'in accord with conventional views of political history'.[14] When we employ the regime classification of the Freedom House project the difference-in-difference estimates are also significantly larger than OLS. Yet when we use the Golder (2005) dataset the results are weaker.

4. Timing of the Effect of Democratisation

The association between democratic transitions and growth might, however, not be monotonic. For example, in many countries democratisation occurred during or immediately after a crisis (Haggard and Kaufmann, 1995). Growth might be higher

[14] Persson (2005) also acknowledges that this cut-off is arbitrary but notes that identifying transitions in this way captures major institutional changes. He estimates that around these transitions the Polity index jumps considerably, on average by 8.5 units.

after the transition even in the absence of political reforms. We therefore need to control for the transition years and the recovery period, since this can yield an upward bias to the coefficient on democratisation (this is similar to the Ashenfelter's dip critique in the programme evaluation literature). To quantify the dynamic effects of democratisation and control for lags or leads of the effect of reforms, we defined dummy ('pulse') variables for four, non-overlapping, three-year spaced periods around the transition and a dummy variable isolating the long-run effect of democratisation. Our specification reads:

$$g_{i,t} = \alpha_i + \eta_t + \delta_1 D^1_{i,t} + \delta_2 D^2_{i,t} + \delta_3 D^3_{i,t} + \delta_4 D^4_{i,t} + \delta_5 D^5_{i,t} + v_{i,t}. \quad (3)$$

$D^1_{i,t} = 1$ in the fifth, fourth and third pre-democratisation year; $D^2_{i,t} = 1$ in the second and first pre-democratisation year and at the transition year (T^*); $D^3_{i,t} = 1$ at the first, second and third post-reform years; $D^4_{i,t} = 1$ at the fourth, fifth and sixth post-reform year; and $D^5_{i,t} = 1$ at the seventh and all subsequent post-reform year. Each dummy equals zero in all other years than those specified. Thus, the base period is the non-democratic years, excluding the transition and anticipation period (i.e. from T^*-5 backwards). This approach accounts for probable anticipation effects (captured by $D^1_{i,t}$), the usually volatile transition (with $D^2_{i,t}$), and ensures that our estimates are not capturing the recovery from the crises that in many instances coincided with democratisation (with $D^3_{i,t}$ and even $D^4_{i,t}$) (Laporte and Windmeijer, 2005). Table 5 presents the results. In column (1) we report unconditional effects performing the estimation in the maximum sample. In columns (2)–(4) we control for growth persistence and income differences, excluding socialist countries (column (2)), countries with less than 20 yearly observations (column (3)) and both (column (4)). In column (5) we control for all growth covariates.

Anticipation and Transition. The $D^1_{i,t}$ indicator aims to account for potential positive effects of democratisation before the transition. It is possible, for example, that firms and individuals start investing, because they can foresee the collapse of the authoritarian regime. In addition, the non-democratically elected government may implement growth enhancing policies to gain legitimacy and stay in power. δ_1 is positive although statistically indistinguishable from zero in all models. This suggests that anticipation effects, though possibly present, are not of primary importance. Turning to the transition pulse variable $D^2_{i,t}$, we find inconclusive estimates. In column (1) δ_2 is negative and significant at the 5% level, implying some considerable regime transition costs of 1.70%. The coefficient, however, turns insignificant in models (2)–(5). This suggests that transition costs were mainly present in socialist countries where democratisation coincided in almost all cases with economic crises (Fidrmuc, 2003). In addition, there are sizable differences in the transition path, yielding imprecise estimates. Some countries, for example, moved to representative government with minimal costs (e.g. Greece, Dominican Republic), while others democratised in periods of turmoil (for example Peru and Nicaragua; see the Supplementary Appendix Figures). Yet the negative coefficient on the transition indicator is in line with Bremmer's (2006) observation that societies that modernise their economies may experience an initial volatile transition period.

Short/Medium run. The estimates of δ_3 imply some considerable short-run growth gains of transitions. According to our preferred model (4), growth is on average 1.2%

Table 5

Timing of the Effect of Democratisation

	All	No socialist	20 obs.	20 obs; No socialist	
	(1)	(2)	(3)	(4)	(5)
D1: Pre Democratisation [T*−5, T*−4, T*−3]	0.6676	0.6235	0.3230	0.7178	0.3628
p-value	(0.218)	(0.152)	(0.526)	(0.107)	(0.432)
p-value – clustered s.e.	(0.318)	(0.175)	(0.600)	(0.127)	(0.410)
D2: Transition [T*-2, T*-1, T*]	−1.7015	0.2640	−1.0453	0.2480	−0.1523
p-value	(0.007)	(0.604)	(0.087)	(0.470)	(0.756)
p-value – clustered s.e.	(0.050)	(0.065)	(0.171)	(0.410)	(0.774)
D3: Short-run Democratisation [T*+1, T*+2, T*+3]	1.4737	1.1781	1.0667	1.2144	0.5398
p-value	(0.003)	(0.005)	(0.029)	(0.005)	(0.221)
p-value – clustered s.e.	(0.030)	(0.016)	(0.084)	(0.017)	(0.346)
D4: Medium-run Democratisation [T*+4, T*+5, T*+6]	1.2180	0.7009	0.7658	0.7246	0.6187
p-value	(0.009)	(0.087)	(0.091)	(0.084)	(0.129)
p-value – clustered s.e.	(0.053)	(0.161)	(0.145)	(0.155)	(0.227)
D5: Long-run Democratisation [T*+7, onwards]	1.3745	1.1641	1.1979	1.1536	0.8721
p-value	(0.000)	(0.003)	(0.003)	(0.004)	(0.032)
p-value – clustered s.e.	(0.010)	(0.013)	(0.022)	(0.016)	(0.119)
Controls	No	Autoreg/Inc	Autoreg/Inc	Autoreg/Inc	Full
Regional Trends	No	Yes	Yes	Yes	Yes
Adjusted R squared	0.1386	0.2046	0.2206	0.1983	0.2633
Within R squared	0.0659	0.1375	0.1571	0.1368	0.2028
Countries	166	134	135	125	122
Observations	5,410	4,673	4,772	4,555	4,183

The dependent variable is the logarithmic growth of real per capita GDP. D1 is a dummy ('pulse') variable that takes on the value one in the fifth, fourth, and third pre democratisation year and zero otherwise. D2 is a dummy ('pulse') variable that takes on the value one in the second, first pre-democratisation year and on the transition year and zero otherwise. D3 is a dummy ('pulse') variable that takes on the value one in the first, second and third post democratisation year and zero otherwise. D4 is a dummy ('pulse') variable that takes on the value one in the fourth, fifth, and sixth post democratisation year and zero otherwise. D5 is a dummy variable that takes the value one in the seventh and all subsequent (eighth, ninth etc.) post democratisation year, and zero otherwise. All models include country and year fixed-effects (constants not reported). Models (2)–(5) also include region-specific time trends (coefficients not reported). Models (2), (3), and (4) control for growth inertia and convergence, including two lags of the dependent variable and the three-year lagged log income level. Model (6) controls for lagged growth, two-year lagged log income level, two-year lagged investment, life expectancy, government spending and trade share. The model also include contemporaneous and lagged differenced values of all the controls (these models are analogous to model (6)–Table 3). p-values based on general heteroscedasticity-adjusted and clustered by country standard errors are reported in parentheses below the coefficient estimates. Table 1 lists the democratisation countries and gives a short description of the transition. The Data Appendix gives detailed variable definitions and sources. Supplementary Appendix Table 1 reports sample details.

higher in the three years following the transition, compared to the non-democratic years well before the transition. The medium-run effects of democratisation, as captured by $D^4_{i,t}$, are somewhat smaller, around 0.7%, and only marginally significant. These estimates are similar to Rodrik and Wacziarg (2005) that transitions have a positive annual growth effect during the first five post-transition years of around 0.9%. The results, however, may just capture business cycle movements related to crises during the transition phase.

Long run. Most importantly, Table 5 shows that democratisations seem to have sizable long-run benefits. The coefficient estimates on $D^5_{i,t}$, which quantifies the effect of democratisation on growth after the seventh post-transition year are significant at standard confidence levels, implying a long-run democratisation gain of approximately one extra percentage point at an annual basis. This result supports Hayek's (1960) idea that the merits of democracy will only come in the long run. It is also in line with Persson and Tabellini (2006*b*) and Gerring *et al.* (2005) argument that countries experience higher growth as they accumulate democratic capital.

Discussion. The results in Table 5 formalise the descriptive evidence in Figure 1. Democratisations tend to occur during recessions in many cases and possibly coincide with the downturn of the business cycle. There seems to be an immediate increase in growth performance after the transition. Then growth fluctuates for some years but, most importantly, after the consolidation of democracy (roughly after the fifth, sixth and seventh post-transition year) growth stabilises at a higher rate than the pre-transition period. Given, however, the limited number of transitions and the heterogeneity of regime changes, the 'pulse' variables are not very precisely estimated. In addition there are many ways to study growth dynamics with (3). For example, if we were to compare the post-reform indicator variables ($D^3_{i,t}$, $D^4_{i,t}$ and $D^5_{i,t}$) with the pre-reform indicator ($D^1_{i,t}$) that equals one in the years just before the transition, then the differences are smaller (and in some models insignificant). This hints that after the consolidation of democracy, growth resumes at the *peak* of the business cycle under the autocratic rule.

5. Further Evidence – Sensitivity Checks

5.1. *Full and Partial Democratic Reforms*

Given the recent move to representative rule in many non-democratic countries, it is interesting to explore whether moderate reforms are associated with better performance. Figures 2 and 3 plot the evolution of (time-demeaned; i.e. accounting for time fixed-effects) growth around the democratic transition. This is done separately for the 'full' and 'partial' democratisation group of countries. Figure 3 illustrates that countries that implemented partial reforms were experiencing below global mean annual growth rates before the transition; however, after switching to democracy these countries on average experienced higher growth rates than the rest of the world. The descriptive statistics thus offer some optimism for countries that implement democratic reforms, even if these do not bring perfect protection of political freedom. In Table 6 we formally examine this question, allowing the effect of democratisation to differ among 'full' and 'partial' reforming countries. Column (1) gives unconditional estimates in the

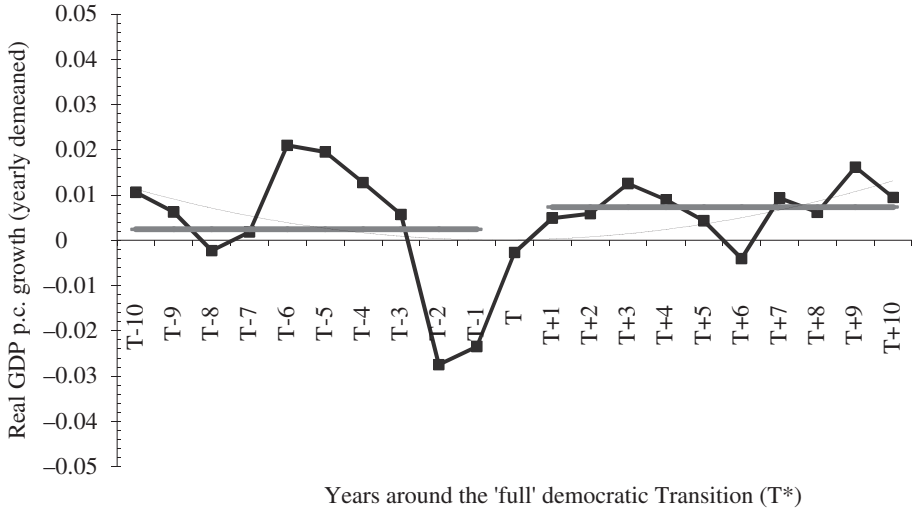

Fig. 2. *Real p.c. GDP Growth Around 'Full' Democratisation Episodes*

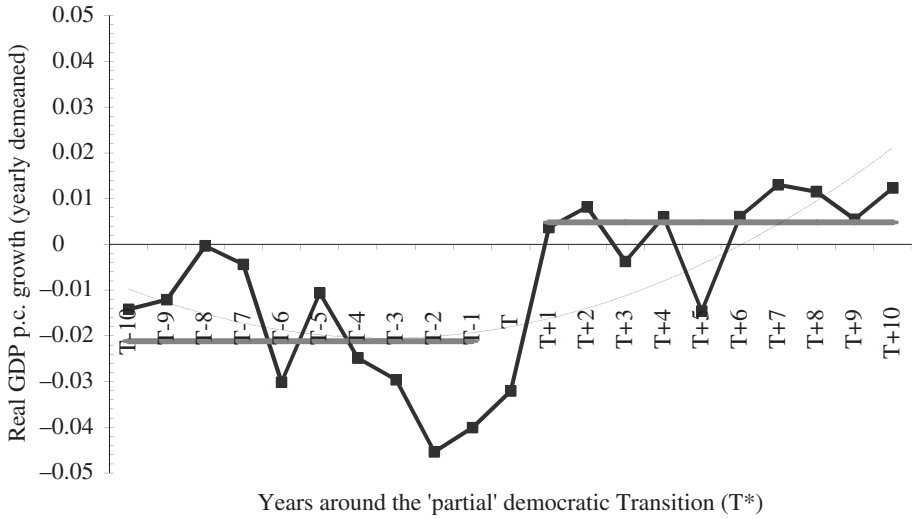

Fig. 3. *Real p.c. GDP Growth Around 'Partial' Democratisation Episodes*

Figures 2 and 3 plot the evolution of time-demeaned (country growth rate minus the average growth rate for that year) average real per capita GDP growth in the ten years before and after a 'full' and a 'partial' permanent democratic transition respectively. Table 1 lists the democratisation countries and gives a short description of the transition.

maximum sample of countries and years (this model is comparable to Table 2, column (4)). The coefficient on the 'full' democratisation indicator variable is 0.72, though only marginally significant (p-value based on clustered standard errors is 0.11). The coefficient on 'partial' democratisation is, however, highly significant (at the 1% level), indicating a large economic effect of almost 3%. This result resembles Barro's (1996, 1997) finding that growth accelerates when a country moves from total autocracy to intermediate levels of political freedom.

Table 6

Democratisation and Intensity of Reforms

	Intensity of Reforms			All Types of Transitions		
	(1)	(2)	(3)	(4)	(5)	(6)
Full Democratisation	0.7188	1.1528	1.0774	0.7356	1.1737	1.0682
p-value	(0.038)	(0.000)	(0.001)	(0.035)	(0.000)	(0.001)
p-value – clustered s.e.	(0.107)	(0.001)	(0.006)	(0.102)	(0.001)	(0.007)
Partial Democratisation	2.9232	0.5742	0.3874	2.9354	0.6058	0.3701
p-value	(0.000)	(0.310)	(0.450)	(0.000)	(0.280)	(0.471)
p-value – clustered s.e.	(0.008)	(0.260)	(0.531)	(0.008)	(0.241)	(0.553)
Borderline Democratisation				0.6512	0.6321	0.0077
p-value				(0.283)	(0.317)	(0.990)
p-value – clustered s.e.				(0.341)	(0.469)	(0.989)
Reverse Transition				−1.3520	−0.3820	−1.1940
p-value				(0.107)	(0.652)	(0.195)
p-value – clustered s.e.				(0.008)	(0.508)	(0.086)
Other controls	No	Autoreg/Inc	Full	No	Autoreg/Inc	Full
Regional trends	No	Yes	Yes	No	Yes	Yes
Adjusted R squared	0.1376	0.1988	0.2643	0.1376	0.1984	0.2642
Within R squared	0.0642	0.1367	0.2033	0.0646	0.1365	0.2036
Countries	166	125	122	166	125	122
Observations	5,410	4,555	4,183	5,410	4,555	4,183

The dependent variable is the logarithmic growth of real per capita GDP. Full Democratisation is an indicator variable that takes on the value one in the year and all subsequent post democratisation years in countries that experienced a 'full' democratic transition (Panel (*a*)–Table 1). Partial Democratisation is an indicator (dummy) variable that takes on the value one in the year and all subsequent post democratisation years in countries that experienced a 'partial' democratic transition (Panel (*b*)–Table 1). Borderline Democratisation is an indicator (dummy) variable that takes on the value one in the year and all subsequent post democratisation years in countries that experienced a 'borderline' democratic transition (Panel (*c*)–Table 1). Reverse Transition is an indicator (dummy) variable that takes on the value one in the year and all subsequent years in countries that experienced a reverse transition from relatively stable democracy to non-democratic rule (Panel (*d*)–Table 1). All models include country and year fixed-effects. Models (2), (3), (5), and (6) also include region-specific time trends (coefficients not reported). Models (1) and (4) report unconditional estimates in the maximum number of countries. Models (2) and (5) control for growth inertia and convergence, including two lags of the dependent variable and the three-year lagged log income level (these models are analogous to model (8)–Table 2). Models (3) and (6) control for lagged growth, two-year lagged log income level, two-year lagged investment, life expectancy, government spending and trade share. The models also include contemporaneous and lagged differenced values of all the controls (these models are analogous to model (6)–Table 3). Models (2), (3), (5), and (6) exclude countries with less than 20 observations (to minimise the bias arising from the joint presence of country fixed-effects and the lagged dependent variable). p-values based on general heteroscedasticity-adjusted and clustered by country standard errors are reported in parentheses below the coefficient estimates. Table 1 lists the democratisation countries and gives a short description of the transition. The Data Appendix gives detailed variable definitions and sources. Supplementary Appendix Table 1 reports sample details.

In model (2) we control for growth persistence and income level differences, dropping socialist countries and countries with less than 20 annual observations from the estimation (this specification is comparable to Table 2, column (8)). When we control for income-level convergence the coefficient on 'full' dominates that for 'partial' reforms. This result is robust to the inclusion of other growth covariates as shown in column (3) (this specification resembles that of Table 3, model (6)). Although this is in line with the pro-development evidence given so far, we need to note some important caveats: first, there are some endogeneity concerns, since richer countries implemented larger reforms (like Chile or Portugal) while poorer nations only 'partially' liberalised their polity (like Bangladesh or Zambia). Second, most 'partial'

reforms occurred in the 1990s. Consequently we do not have enough post-reform observations. Third, given the conceptual challenges in defining democracy, the line of separation between 'full' and 'partial' democratisations is not always crystal-clear. Yet, acknowledging that in low-income countries democratic institutions are less likely to emerge and consolidate (Barro, 1999; Papaioannou and Siourounis, 2004), we believe that these results provide some optimism for countries that implement moderate reforms.

5.2. *All Transitions*

In the Tables where we employ our event chronology, we only study regime changes from autocracy to democracy. It is possible, however, that a reverse transition from democracy to autocracy might also yield growth gains, since countries abandon a regime if economic performance is poor. If growth accelerates after the transition from democracy to autocracy, then our previous results are challenged, since in this case, a transition of any kind is associated with faster growth. In Table 6 columns (4)–(6) we augment the empirical specification with an indicator variable that equals zero in the democratic years and one after the adverse regime transition from relatively stable democracy to autocracy. We find few such (relatively stable) adverse reversals during the period of observation, namely Gambia, Lebanon and Zimbabwe (a brief description of political developments in these countries is given in Table 1; one could also add Pakistan, Fiji, Somalia and Sierra Leone to the list). In all specifications the coefficient on the reverse transition dummy is negative and, in some models, significant. This suggests that countries that switched from democratic institutions to autocracy experienced slower, rather than faster growth.[15] This result, which adds to previous evidence of Minier (1998) and recent work by Persson and Tabellini (2007), who documented significant output losses following a regime change to autocracy, reinforces the pro-democracy findings; it also reassurs that our estimates do not pick up a positive effect to any type of regime change.

In columns (4)–(6) we add an indicator variable that equals one in the democratic years for those countries that implemented small democratic reforms but which the level of political freedom and civil liberties is still low (borderline democratisations). The estimate on the borderline democratisation indicator is positive, although statistically insignificant. Given the small number of observations (six countries, which mostly democratised in the mid-1990s; see Table 1) we cannot properly assess the effect of these small steps towards representative rule on growth. Yet the evidence shows that small reforms are not followed by slower growth.

5.3. *Sample Sensitivity Check*

For countries that democratised in the late 1990s we do not have many post-reform observations to compare with the previous autocratic period. We thus re-estimated all models excluding countries with less than 10 post-reform observations (and

[15] Given the small sample we also examined the pattern of growth in these countries in detail. Statistical tests of mean and volatility equality in growth rates further support 'development' theories.

alternatively placed these countries in the control group of non-reforming nations). Table 7 reports various specifications following this adjustment. At the same time we continue to drop socialist countries and countries with less than 20 annual observations from the estimation. The results are similar to these reported previously. Models (1)–(3) show that the coefficient on the democratisation dummy continues to be

Table 7

Further Sensitivity Checks

	Benchmark Before-After Effect			All Types of Transitions		
	(1)	(2)	(3)	(4)	(5)	(6)
Democratisation	0.7575	0.8851	0.7817			
p-value	(0.021)	(0.005)	(0.013)			
p-value – clustered s.e.	(0.057)	(0.008)	(0.039)			
Democratisation – Full				0.6277	1.0887	1.0828
p-value				(0.162)	(0.001)	(0.001)
p-value – clustered s.e.				(0.071)	(0.004)	(0.011)
Democratisation – Partial				1.1726	0.5058	0.1439
p-value				(0.077)	(0.440)	(0.812)
p-value – clustered s.e.				(0.059)	(0.396)	(0.840)
Democratisation - Borderline				0.9465	0.7008	0.0673
p-value				(0.322)	(0.273)	(0.911)
p-value – clustered s.e.				(0.140)	(0.421)	(0.907)
Reversals to Autocracy				−0.3225	−0.3072	−1.1528
p-value				(0.660)	(0.716)	(0.217)
p-value – clustered s.e.				(0.713)	(0.583)	(0.103)
Other controls	No	Autoreg/Inc	Full	No	Autoreg/Inc	Full
Regional trends	Yes	Yes	Yes	Yes	Yes	Yes
Adjusted R squared	0.1255	0.2004	0.2673	0.1253	0.2001	0.2674
Within R squared	0.0530	0.137	0.2044	0.057	0.1373	0.2051
Countries	118	118	115	118	118	115
Observations	4,482	4,289	3,910	4,482	4,289	3,910

The dependent variable is the logarithmic growth of real per capita GDP. In columns (1)-(3) Democratisation is an indicator (dummy) variable that takes on the value one in the year and all subsequent post democratisation years in countries that experienced a permanent democratic transition. In columns (4)–(6), Full Democratisation is an indicator (dummy) variable that takes on the value one in the year and all subsequent post democratisation years in countries that experienced a 'full' democratic transition (Panel (*a*)–Table 1). Partial Democratisation is an indicator (dummy) variable that takes on the value one in the year and all subsequent post democratisation years in countries that experienced a 'partial' democratic transition (Panel (*b*)–Table 1). Borderline Democratisation is an indicator (dummy) variable that takes on the value one in the year and all subsequent post democratisation years in countries that experienced a 'borderline' democratic transition (Panel (*c*)–Table 1). Reverse Transition is an indicator (dummy) variable that takes on the value one in the year and all subsequent years in countries that experienced a reverse transition from relatively stable democracy to stable non-democratic rule (Panel (*d*)–Table 1).

In the estimation we exclude socialist nations, countries with less than 20 observations of the dependent variable, and reforming countries with less than 10 post democratisation observations. All models include country and year fixed-effects (constants not reported). Models (2), (3), (5), and (6) also include region-specific time trends (coefficients not reported). Models (1) and (4) report unconditional estimates. Models (2) and (5) control for growth inertia and convergence, including two lags of the dependent variable and the three-year lagged log income level (these models are analogous to model (8)–Table 2). Models (3) and (6) control for lagged growth, two-year lagged log income level, two-year lagged investment, life expectancy, government spending and trade share. The models also include contemporaneous and lagged differenced values of all the controls (these models are analogous to model (6)–Table 3). p-values based on general heteroscedasticity-adjusted and clustered by country standard errors are reported in parentheses below the coefficient estimates.

Table 1 lists the democratisation countries and gives a short description of the transition. The Data Appendix gives detailed variable definitions and sources. Supplementary Appendix Table 1 reports sample details.

highly significant, suggesting an annual growth effect of approximately 0.75%. Models (4)–(6) yield similar estimates as those in Table 6. When we do not control for income level differences (i.e. column (4)), the estimates reveal that both 'full' and 'partial' reforms are associated with significant growth gains, with partial reforms having a larger impact. When we control for income level, only the 'full' democratisation indicator enters with a significant point estimate.

6. Conclusion

The relationship between the type of polity and economic performance is amongst the oldest and most controversial topics in social science. Although there has been a burgeoning theoretical and empirical research on the relationship between political liberalism and economic performance, both the economics and the political science literature lack a comprehensive event analysis of the effects of democratisation on growth. In this article we analyse the evolution of growth before and after incidents of permanent democratic transitions. In contrast to the previous literature that examined the democracy-growth nexus with cross-sectional approaches, we explore the within-country growth effects of democratisation. To quantify the effect of a successful democratisation, we focus on countries that liberalised their polity during the so-called Third Wave of Democratisation. Using annual frequency data and employing panel data techniques that control for unobserved time-invariant country-specific characteristics and general time trends, we show that democratisation leads to almost a 1% increase in real annual *per capita* GDP growth. Our analysis also reveals that during the transition growth drops substantially. Yet, after this transition it stabilises at a higher rate.

These findings offer support to 'development theories' of democratic government that stress the beneficial aspects of representative institutions. The J-curve result is also in line with Bremmer's (2006) observation that societies that open up usually experience an initial period of instability. From a policy perspective, the results suggest that besides the social values of political liberty, even moderate democratic reforms can yield sizable growth gains. In addition, if anything, reverse transitions from democratic to non-democratic government are associated with slower (rather than higher) growth.

The results, however, do not imply that democracy is a panacea. Our methodology and research objective was to quantify an average within country growth effect of democratisation and contrast it with the previous cross-sectional work. Clearly, country-specific deviations from the average exist (see for example the detailed country-graphs in the Technical Appendix). Influential scholars, such as Huntington (1993), have argued, for example, that democratic norms might not be suitable for all countries. In line with this interpretation Persson and Tabellini (2007) present tentative evidence that the effect of political freedom on growth is quite heterogenous. It should also be stressed that we did not distinguish between different types of autocracy (e.g. left or right wing dictatorships; personalistic versus bureaucratic regimes) and democracy (presidential or parliamentary). Furthermore the gains from political liberalisation may be larger if they are accompanied by economic reforms or occur in countries that already have in place well-functioning institutions and/or are more educated. Finally our analysis examined growth in countries that not only moved to representative government but also managed to consolidate democratic institutions. Our analysis

showed that many democratisations took place during recessions. It might well be the case that successful transitions are those where growth resumes. In this case, possibly, it is growth that consolidates the democratic process rather than political reforms causing growth. Thus, the key issue of causality in the democracy-growth nexus remains open. We believe that given the ongoing debate on the potential merits and drawbacks of political openness in the Middle East, Asia and Africa the issue of causality, albeit challenging, deserves future research.

Data Appendix: Variable Definitions and Sources

GDP growth: Real *per capita* GDP growth is defined as the annual logarithmic change of real *per capita* GDP. To make the coefficients more easily interpretable we multiply the variable by 100. Source: World Bank World Development Indicators CD-ROM (2005 Edition). [Series name: NY.GDP.PCAP.KD].

Income: Natural logarithm of real *per capita* GDP. GDP *per capita* based on purchasing power parity (PPP). Data are in current international dollars. Source: World Bank World Development Indicators CD-ROM (2005 Edition). [Series name: NY.GDP.PCAP.KD].

Investment: Gross capital formation (formerly gross domestic investment) relatively to annual GDP. Gross capital formation consists of outlays on additions to the fixed assets of the economy plus net changes in the level of inventories. Source: World Bank World Development Indicators CD-ROM (2005 Edition). [Series name: NE.GDI.TOTL.ZS].

Schooling: Average years of schooling in the population aged 25 and above. The data correspond by construction to five-year averages. A simple linear interpolation was used to convert them in annual basis. Source: Barro and Lee (2001) [Series name: tyr].

Life Expectancy: Number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life. The data has some arbitrary gaps. A linear interpolation is used to fill in these gaps. Source: World Bank World Development Indicators CD-ROM (2005 Edition). [Series name: SP.DYN.LE00.IN].

Government Consumption: General government final consumption expenditure (general government consumption) measured as a share of GDP. Source: World Bank World Development Indicators CD-ROM (2005 Edition). [Series name: NE.CON.GOVT.ZS]

Trade: The sum of exports and imports of goods and services measured as a share of gross domestic product. Source: World Bank World Development Indicators CD-ROM (2005 Edition). [Series name: NE.TRD.GNFS.ZS]

Socialist: Indicator variable for countries influenced by socialist legal institutions. Source: La Porta *et al.* (1999).

Technical Appendix

Additional Supporting information may be found in the online version of this article:
Supplementary Appendix Table 1: Political Regime Datasets
Detailed Country Graphs
Supplementary Appendix Figure 1: Investment
Supplementary Appendix Figure 2: Life Expectancy
Supplementary Appendix Figure 3: Trade Share
Supplementary Appendix Figure 4: Government Consumption
Supplementary Appendix Figure 5: Schooling Years
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Submitted: 17 November 2005
Accepted: 10 October 2007

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