

This article was downloaded by: [Armijo, Leslie Elliott]

On: 15 January 2010

Access details: Access Details: [subscription number 918623667]

Publisher Routledge

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Democratization

Publication details, including instructions for authors and subscription information:

<http://www.informaworld.com/smpp/title~content=t713634863>

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Online publication date: 15 January 2010

To cite this Article Armijo, Leslie Elliott and Gervasoni, Carlos(2010) 'Two dimensions of democracy and the economy', *Democratization*, 17: 1, 143 – 174

To link to this Article: DOI: 10.1080/13510340903453708

URL: <http://dx.doi.org/10.1080/13510340903453708>

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Two dimensions of democracy and the economy

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(Received 24 March 2009; final version received 5 October 2009)

Does democracy influence economic policymaking and outcomes? Our study investigates the implications of Dahl's two dimensions of democracy ('polyarchy'): contestation/competition and inclusion/participation. We hypothesize that increases in democratic competition inspire policy incrementalism, thus lowering growth volatility and generating fewer deep crises. Meanwhile, increases in substantive democratic inclusion – genuine political voice, or democratic participation in the presence of a minimum of contestation – should increase the political weight of relatively poor voters, who have a differentially strong aversion to deep growth crises. A statistical analysis of 149 countries for 1961–98 finds greater democracy associated with fewer years of sharply negative growth ('crisis'), with both democratic contestation and substantive inclusion contributing to this outcome. Our conclusions question the wisdom of designing economic policy institutions that are intentionally insulated from the democratic process.

Keywords: Democracy; growth; economic crisis; inclusion; political economy

Introduction

Does democracy influence growth? Despite much interest, the waters remain muddy. We will argue that democracy leads to macroeconomic moderation, partly because regular but bounded partisan electoral competition yields compromise and more transparent, public-regarding choices by incumbents (the argument from democratic contestation), but also because wide suffrage and participation give politicians strong electoral incentives to please lower-income median voters by avoiding economic volatility and deep downturns, which typically hurt poorer groups most (the argument from substantive democratic inclusion).

The paper seeks to be innovative in three ways. First, we hope to rebalance the mix between theory and sophisticated empirics in contemporary political

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economy by seriously querying the underlying causal logics as well as advancing the statistical findings from prior scholarly work. Second, our theoretical model emphasizes both the contestation/competition component of democracy and its inclusiveness/participation aspect. While the analysis of democracy's two dimensions is familiar to political scientists, it has not yet to our knowledge been integrated with the literature on economic growth. Finally, while most previous econometric investigations have focused on predictors of higher or lower average (mean) growth, or of growth volatility, our dependent variable is crises of economic growth.

An initial section introduces our topic. The second and third sections suggest that much existing literature implicitly highlights either a contestation pathway or an inclusion pathway from democracy to economic outcomes. The fourth and fifth present then statistically evaluate our DCSI model. The statistical evidence is largely consistent with our predictions, although under one of the several robustness checks we perform the results fall below conventional significance levels. We conclude with brief comments on policy relevance.

Democracy and growth

What do we mean by democracy? A long tradition in political science associates rule by the people with a set of consensual procedures for selecting rulers and mediating on-going contestation over public policy.¹ Democracy thus implies regular partisan electoral competition open to all citizens within agreed-upon rules, and the institutionalized accountability of leaders to citizens. It is in this sense that ancient Athens, a slave-holding society with a miniscule male electorate, was a justly famed democracy. Another tradition associated with the formal political economy literature conceptualizes democratization as a choice forced on reluctant elites faced with widespread popular mobilization for redistribution that they are unable to repress, rather than as a solemn contract between ruler and ruled.² This second framing implies that democracy sometimes may be uncomfortably close to mob rule, unmediated by institutions or laws. Still other scholars would fold additional attributes into democracy's core definition: guarantees of civil liberties; specific institutional checks and balances such as an independent judiciary; civilian control of the military; enduring and regularized channels of interest-aggregation and articulation (political parties); or even private property rights.³

We adopt the Dahlian stance that democracy's two irreducible dimensions are those of institutionalized competition and wide political inclusion. Robert Dahl convincingly argued that the majority of the myriad characteristics variously considered essential for democracy (or a closely related but less ideal condition Dahl baptized 'polyarchy') cluster along two dimensions: first, open electoral *competition* for high office within predictable and transparent institutions regulating political contestation and the subsequent exercise of power, and second, wide citizen *participation* in national politics, especially via the right to run for public office and

near universal suffrage with secret ballots.⁴ Coppedge, Alvarez, and Maldonado's recent analysis of several democracy datasets finds that most empirical indicators in practice also cluster into these two dimensions.⁵

What good is democracy? Government by and for the people is frequently argued to be of value for intrinsic reasons, as all humans should have a say in choosing the laws and men that govern them.⁶ Others claim that democracy has crucial instrumental virtues: it ameliorates undesirable social and ethnic cleavages and aids in conflict-resolution, enables the wealthy to live more or less peaceably with the poor, and reduces inter-state war.⁷ With the dramatic increase in the numbers of democratic countries in the final quarter of the twentieth century,⁸ it also has been natural to consider the macroeconomic consequences of democracy. Democracy thus has been added to the list of independent variables investigated for their possible implications for economic growth, which previously had included levels and rates of change in investment, education, physical infrastructure, external openness, and technological innovation.⁹ Notwithstanding the attractiveness of the idea that democracy and growth are mutually supportive, this has been difficult to demonstrate empirically, with ambiguous conclusions from many large-N studies.¹⁰ One influential study found that, 'In the end, total output grows at the same rate under both [democracy and autocracy], both in poor countries and in wealthier countries.'¹¹ Doucouliagos and Ulubasoglu cautiously concluded that 'democracy's net effect on the economy does not seem to be detrimental'.¹²

Democracy and growth researchers also have specified their dependent variable in multiple ways. Most of the earlier models proposed a direct link between democracy and the *level* of economic growth, but as noted the empirical evidence has been elusive. More recent researchers have had better statistical success with the thesis that *democracies have more moderate, stable, and consistent growth*. Macroeconomic moderation may be conceptualized in at least three ways. First, democracies may have less volatile growth: the standard deviations of growth around each country's individual mean are notably lower than is the case for autocracies.¹³ Second, democracies as a group may have less dispersion of their growth rates. Most 'miracles' (average GDP growth larger than 7% over 10 years or more) as well as most 'disasters' (average growth less than 1% over 10 years or more) occur in dictatorships.¹⁴ Third, as is shown in this paper, democracies may experience notably fewer or less extreme crises of growth.¹⁵

To develop our ideas, we group previous 'political institutions and growth' research into six theoretical models, as in Table 1. Core causal theses, not individual researchers, distinguish the models. Each model's logic is distinct, but the six are not necessarily mutually exclusive, and some scholars make multiple arguments. Not all of the authors we reference believe themselves to be researching 'democracy', yet we judge that their disparate research agendas can be understood via a common Dahlian framework, which explicitly informs our seventh model.

Table 1. Theoretical models of democracy and growth.

Model	Thesis	Prediction	Comments
<i>Contestation models</i>			
Rule of Law	Transparency and sanctions inhibit corrupt or capricious politicians	Higher growth	Executive constraints imply at least informal contestation
Veto Players	More veto players yield greater policy stability	Lower growth volatility	Highlights checks and balances, but unclear on exogenous crises
Partisan Mutual Adjustment	Rotation in office fosters moderation and incrementalism	Lower growth volatility	Contestation creates cooperative incentives and expectations
<i>Inclusion models</i>			
Economic Populism	Median voter prefers excessive redistribution	Lower growth	Suggests need for politically-insulated policymaking
Cautious Voter	Risk-averse median voter leads incumbent to shun risk also	Lower growth volatility	Explains policy moderation, but vague on response to exogenous crises
Selectorate Theory	Large winning coalition impels more public and fewer private goods	Higher growth	Obscures difference between substantive and merely symbolic inclusion
<i>Joint model</i>			
Democratic Contestation and Substantive Inclusion	Contestation constrains leaders' capriciousness, while wide inclusion empowers the poor, hurt most by crises	Lower growth volatility Fewer/shorter growth crises	Only model theorizing implications of both contestation and substantive inclusion

Democracy as institutionalized political contestation

Three approaches profiled here emphasize qualities related to institutionalized democratic *contestation*. Their essential insight is that all societies contain multiple social groups with diverse policy preferences. In democracies, predictable and reasonably transparent institutions regulate and limit competition over high office among individuals drawn from and proposing to represent these groups, usually via political parties. Contestation among candidates never becomes a free-for-all without rules. Moreover, and crucially, an incumbent chief executive

is subject to on-going institutional constraints on his/her policy decisions and personal conduct, the ultimate constraint being the next election.

In studies illustrating what we call the *Rule of Law* (RL) model, dictators do not behave as citizens' loyal agents – instead, they use their offices to enrich themselves and their friends. By contrast, democratic institutions constrain political incumbents and provide regulatory predictability.¹⁶ A free press exposes politicians' self-dealing. Enforceable laws protect citizen rights and private property, encouraging investment. Checks and balances, including an elected legislature and independent judiciary, lead to greater transparency and less capriciousness in policymaking. Those who are dissatisfied can pursue change within the system, rather than regime change by force, which results in lower growth. The prediction is that the rule of law increases growth and/or makes it more stable.

A number of RL theorists, mostly policy-oriented economists, insist they are not describing democracy, but rather a separable dimension known as 'good institutions', that can exist equally well under either democracy or authoritarianism.¹⁷ Among the most influential are Acemoglu and Robinson and their collaborators.¹⁸ They argue *inter alia* that good or poor institutions established during European colonization were causally related to the subsequent development of both democracy and strong economic growth. In particular, Acemoglu and Robinson see the lack of 'constitutional and social limits on politicians' and elites' power' as a reason for poor economic outcomes.¹⁹ We suggest that where incumbent leaders are effectively constrained by law and institutions, politically included elites enjoy at least proto-contestation rights.²⁰ In one of their most relevant papers, Acemoglu and Robinson use as their measure of institutions the 'constraints on the executive' variable from the Polity IV dataset (instrumented through an indicator of settler mortality in colonial times).²¹ Yet Gleditsch and Ward elsewhere show that the 'executive constraints' indicator is the main determinant of the overall democracy scores of the Polity IV database.²² Acemoglu and Robinson's 'good institutions' are, conceptually and empirically, rather close to representative institutions.

In the *Veto Players* (VP) model, the challenge of policymaking is that of coordination among multiple independent decision-makers, each of whom must consent in order to enact a public policy shift.²³ Veto players may be individuals, such as a popularly elected president, or collective actors, such as an elected legislature. The greater the number of veto players, the less likely is a change in current policy. Authoritarian regimes usually have fewer veto players than democracies; the limiting case is an absolute dictatorship in which the incumbent's decisions do not require the consent of anyone. Policy is more stable (less changeable) in democracies, generating consistent macroeconomic outcomes.²⁴ One awkwardness is the VP model's assumption that capricious politicians provide the only significant source of growth volatility. In fact, while centralized and mercurial policymaking is one source of growth volatility, an inability to shift policies in response to a changed external environment is another.²⁵

Our third model is Chandra and Rudra's *Partisan Mutual Adjustment* (PMA), in its turn a formalization and extension of ideas about democratic policymaking elaborated by Lindblom.²⁶ The PMA logic illustrates Przeworski's succinct observation that '[d]emocracy is a system in which parties lose elections'.²⁷ Every incumbent rationally expects that the opposition will sometime succeed him/her in office. The iterated nature of the game teaches cooperation and inspires policy moderation, as partisan incumbents accommodate the opposition, anticipating similarly restrained treatment for themselves later. The PMA model also posits a gradual value shift among politicians, as eventually the *processes* of cooperation, policy moderation, and incrementalism come to be understood as political virtues in their own right. Policy moderation in turn leads to low volatility and predictability in macroeconomic outcomes.

The association of democracy and less volatile growth outcomes in the statistics presented by authors associated with all three contestation models is quite robust, including for the subset of developing countries.

Democracy as substantive political inclusion

Three additional approaches conceptualize the independent variable principally in terms of wide democratic *inclusion*, although definitions of, and expectations from, political participation vary notably. The *Economic Populism* (EP) approach associates inclusive democracy with pressures for indiscriminate redistribution, and hypothesizes negative implications for growth.²⁸ The model's primary empirical referents have come from 'populist' experiences in Latin America, when polities formerly governed by a small elite have seen the presidency captured by a leader whose electoral base includes previously subordinate and excluded groups and classes.²⁹ The transition to mass democracy results in excessive redistribution and macroeconomic imbalances, as incumbents respond to burgeoning demands from their new constituents. Moreover, since higher income citizens are assumed to have a higher marginal propensity to save than do less wealthy individuals, savings and investment decline, causing lower growth. In some of this literature, the association of democracy in poor and unequal countries with macroeconomic irresponsibility even enters as a basic postulate. The implicit policy recommendation is for technocratic, politically insulated policymaking.

Both models five and six, in contrast, anticipate that wide and substantive political inclusion will improve macroeconomic outcomes. Illustrating a model we term the *Cautious Voter* (CV), Quinn and Wooley expect systematic differences between the preferences of ordinary voters and those of politicians.³⁰ Voters prefer predictable, low-adrenaline lives, and reward incumbents who deliver predictability. However, politicians are usually risk-takers, as this personality characteristic helps them emerge as leaders. In autocracies, politicians' risk-taking propensities are unconstrained by the need to please voters: leaders may indulge their preferences for bold, often arbitrary, policies that tend to be either very successful

(high growth) or very unsuccessful (low or negative growth). Once deposed, autocrats cannot expect another chance at power, which further inclines them toward risky, high-cost strategies to retain office. In contrast, democratic incumbents need to win future popular elections, so rationally choose safe, predictable policies that are likely to deliver stable but unexceptional growth. The model predicts that democracies should converge around positive but moderate mean growth, while autocracies bifurcate into miracles and disasters. The empirical findings of the CV researchers – democracy predicts lower growth volatility – are convincing, although there may be more to say about *when* and *why* the median voter prefers caution. For example, prospect theorists suggest that crises are precisely the situations in which voters demand risk-taking.³¹ Successful governments respond promptly to exogenous shocks.

Model six is the Selectorate Theory (ST) of Bruce Bueno de Mesquita and his colleagues.³² Acknowledging important similarities between ST and our model, here we focus on key differences. Bueno de Mesquita *et al.* do not consider either of their principal independent variables to be a direct measure of ‘democracy’, yet their conceptualizations of both overlap key aspects of democratic inclusion. The selectorate, S, refers to ‘those people in a country who have an institutionally granted right or norm that gives them a say in choosing the government’ and who are ‘the population eligible to participate in politics’, mainly because they possess the right to vote.³³ The selectorate also represents the group from which political leaders may be drawn. However, and crucially, membership in the selectorate does *not* imply substantive political voice; in some cases politicians are *not* accountable to the selectorate at all. In terms of S, the Western industrial democracies, the Soviet Union, and contemporary China are all coded as highly (and equally) inclusive polities. We conclude that for Bueno de Mesquita *et al.* the right to vote, the basis for selectorate membership, is understood principally in terms of symbolic political participation.

The selectorate is contrasted to the winning coalition, W, which means those members of S whose continued support is necessary to keep the incumbent in office.³⁴ Since an incumbent faces ‘the threat of removal if her support coalition falls below the size of the winning coalition’,³⁵ the incumbent is *de facto* accountable to the members of W, even in the absence of formal institutions of checks and balances. ST’s causal logic then turns on the relationship between W and S. A large selectorate implies that many people identify with and are loyal to the political system. Yet it is *only* W whose support keeps the leader in office. A small W leads rational incumbents to supply private goods (patronage, corruption benefiting friends), as these private goods provide cheaper political support returns to the leader. But where W is large, absolutely or in relationship to S, then incumbents find they cannot govern simply to benefit a few cronies, and instead must generate public goods, the only way to satisfy their politically essential supporters. A high W/S ratio yields good governance.

We appreciate ST’s profound insight that wide political accountability generates pressures on the incumbent to supply a greater proportion of public goods,

including growth. Yet we think it odd to give theoretical or practical importance to the right to vote in uncompetitive elections that imply no on-going citizen oversight or input into public policy choices. Moreover, while the theoretical conceptualizations of both S and W turn on the breadth of political inclusion, the indicators used in the statistical tests include *no* measures of either suffrage or voter turnout. For example, W is a composite measure, 3 of whose 4 components come from the Polity IV democracy dataset,³⁶ which measures mostly the contestation aspect of democracy, as discussed below.³⁷

A more complete theoretical model: democratic contestation and substantive inclusion

We propose a seventh model of democracy and the economy. We begin with standard political economy assumptions. Incumbents wish to retain office, which in democracies depends on pleasing voters. Citizens desire to maintain or improve their material circumstances, and normally prefer leaders whose policies further their economic welfare. Since diverse social groups fare differently under specific economic policy packages, and thus have unlike preferences, the socioeconomic composition of politically included social groups matters for public policy. The Democratic Contestation and Substantive Inclusion (DCSI, pronounced ‘Dixie’) model has three propositions.

First, our definition of the independent variable, democracy, explicitly includes both Dahlian dimensions, which may vary independently. By democratic competition/contestation we mean partisan competition in a predictable and transparent institutional environment characterized by regular, competitive, and open elections. Contestation also implies the existence of on-going post-election constraints on the chief executive, including legal limits on the ruler’s power and the presence of an independent and politically empowered opposition ready to contest a subsequent election. Wide substantive political inclusion/participation is the second crucial component of democracy. Politically included persons may vote – and also may organize, run for office, express demands to leaders, and impose costs on politicians who spurn their core preferences, up to and including toppling the incumbent by withdrawing electoral and other types of political support. Full democracy requires both high political competition *and* universal adult suffrage.³⁸

Second, expansions in democratic political contestation should yield lower volatility of economic growth. Here we synthesize and endorse much previous theorizing. We expect that institutionalized constraints on the executive and the rule of law, each a core component of regular democratic competition, will dampen erratic policymaking. Both incumbents and challengers must work within the system, and there are limited possibilities for large post-inaugural policy shifts. Checks and balances represented by such institutions as a separately elected executive and legislature, bicameralism, an independent judiciary with the power to rule on the constitutionality of laws, and other instances of systemic ‘veto players’ also push toward incrementalism in democratic policymaking. Finally, rotation in

office will promote policy bargaining and gradual rather than wholesale shifts in policies between partisan governmental administrations. For all of these reasons, incumbents' policy *choices* will tend to be more stable under conditions of active democratic competition. In turn, policy *outcomes*, including macroeconomic outcomes, also will be steadier than under authoritarian rule. (We note that previous work has established that the mean growth rates of democratic countries cluster around moderate positive growth, while autocracies either boom or bust.³⁹ Under these circumstances, lower growth volatility in democracies implies fewer crises – and vice versa.)

Third, expansions in substantive democratic political inclusion should yield fewer deep crises of economic growth. This is the novel aspect of our theory, so we explain the logic in some detail. We emphasize that our model expects macroeconomic consequences *only from political participation or inclusion that implies real political voice*, not from merely symbolic political incorporation. Mass voting in single-party dictatorships such as the Soviet Union, or contemporary Libya or North Korea, does not imply substantive political inclusion of the majority. A minimum of prior democratic contestation is prerequisite for substantive political inclusion.

The argument from greater substantive democratic inclusion to fewer deep economic crises follows two distinct but mutually reinforcing logical pathways. Pathway one turns on a simple class analysis. Democracies with wide political inclusion are more likely than democracies with limited participation to extend political voice to the poor. The scope of political inclusion over time typically encompasses successively lower income and status groups, as defined by occupation, class, literacy, ethnicity, race, or gender. For example, in eighteenth- and nineteenth-century England initially only the landed aristocracy received democratic participation rights, followed decades later by wealthy merchants, and subsequently by middle-income groups. Most early democracies in Western Europe and the European offshoots first enfranchised their industrial working classes only near the end of World War I.⁴⁰ Informal mechanisms of political exclusion also reduce democratic participation disproportionately among lower socioeconomic strata. In sum, the more citizens are *de jure* enfranchised and *de facto* participate, the poorer the median voter is expected to be.

The poor should have a much stronger preference than the wealthy for avoiding crises. Economic downturns inflict most damage on those with lower savings, less insurance, lower ability to borrow, and for whom even a temporary fall in income may spell disaster.⁴¹ Moreover, in many developing countries the bulk of crisis-related government transfer payments, including welfare, unemployment compensation, and even disaster relief, goes to middle income citizens, not to the poorest. The poor are extremely anxious to avoid fluctuation in their incomes, as one bad monsoon or crop failure can push them into bankruptcy, loss of their land, or even starvation. Subsistence farmers often resist agricultural innovations, which may involve increased risk.⁴² Middle and upper income groups are thus more willing than the poor

to accept some increments of growth volatility, and even occasional years of negative growth, in exchange for higher mean growth.

We therefore expect that expanded political inclusion, given prior nontrivial levels of political contestation, will magnify voter resistance to deep economic crises. As the set of politically relevant actors expands from elites, to include middle-income groups, and eventually the great majority of adult residents, the median voter's preference for avoiding crisis should increase. Leaders accountable to a mass constituency become progressively less willing to sacrifice the incomes of ordinary households in the service of advantaging influential elite interests or pursuing the reigning economic or political ideology, however enticing.

A second pathway from expanded political inclusion to fewer deep economic crises focuses on the practicalities of economic management under conditions of intrinsically limited resources. The wider the scope of the set of substantively included political actors – that is, the set of those whose continuing support the incumbent needs in order to retain office – the stronger the incentive for the chief executive to produce a higher ratio of public to private goods.⁴³ Private goods are defined as scarce resources whose enjoyment is limited to a specific individual or group; others are excluded. However, public goods are by definition available to all; no one can be excluded. Thus in elite polities with only a small group of politically relevant actors, it may be rational for the king, dictator, or president to extract resources from society, using them to support the royal household and provide favors and subsidies (private goods) to key supporters. The leader need not care if the country as a whole is exploited and remains poor, because it is *only* the support of this small elite that the leader needs either to obtain or to retain office.⁴⁴ This phenomenon can occur even in a competitive democracy that enfranchises only a small elite. Late nineteenth- and early twentieth-century Latin American republics, many of which had periods of genuinely contested elections but with extremely limited suffrage, provide numerous examples of crisis-prone, crony capitalist polities. However, as the set of politically included citizens expands it becomes impossible to provide private goods (which are more expensive on a per capita basis) to all, given limited state resources. Instead, incumbents have a clear electoral incentive to try to win the loyalty of the majority by their skill in providing public goods. Minimizing crises is a quintessential public good, and one especially valued by poorer citizens.

Important historical cases illustrate how expansions in political inclusion generate pressures for policy moderation and crisis avoidance. For example, the harsh macroeconomic disciplines of the prewar gold standard, easily tolerated by societal elites, were no longer politically viable once the major capitalist democracies adopted universal male suffrage.⁴⁵ Similarly, Drèze and Sen observe that independent India, which constituted itself as a mass democracy in 1947, has allowed endemic low-level hunger, to which the population is accustomed, but moves aggressively against acute famine, which is reported by a free press, arousing public outrage.⁴⁶ India tolerated mediocre yet positive and stable growth (the

‘Hindu rate of growth’) for long periods, yet the government acted forcefully in a crisis. Meanwhile, autocratic China permitted millions to starve in a grand, failed experiment in forced agricultural collectivization – but later pushed through radical, yet risky, programs that reduced chronic hunger.

In sum, our DCSI model suggests conceptualizing democracy as both competition/contestation and inclusion/participation, and ‘bad’ economic outcomes in terms of crises. We expect that democratic processes of institutionalized partisan competition will result in fewer crises of the type caused by erratic, self-serving incumbents. We also anticipate that politicians in widely inclusive, mass democracies will be more constrained than those in more narrowly based democracies to avoid or ameliorate crises (whether arising from policy mistakes or exogenous shocks) in order to win and retain the favor of their median voters. ‘Crisis’ means a truly awful economic outcome. In principle, our dependent variable could be modeled *inter alia* as extreme income inequality, recurrent famines, or excessive deaths from predictable natural disasters, but here we use crises of economic growth. On the whole, ‘good’ growth is reliable growth, even when mean growth per capita is moderate rather than high. High growth volatility, the dependent variable in several of Table 1’s models, is one way to conceptualize ‘bad’ growth. A profound economic crisis, operationalized below as a year of strongly negative per capita product growth, is another. Recessions produce job losses, job insecurity, lower salaries, profits, and asset values, and welfare losses affecting large proportions of the electorate. Economic crises also bode ill for political stability and regime survival.⁴⁷

The DCSI model yields two testable hypotheses.

Hypothesis 1: The more democratic contestation to which political leaders are exposed, the fewer and shorter will be the instances of crises of growth.

Hypothesis 2: The larger the proportion of the adult population that possesses substantive political voice – in other words, is politically included in the context of a minimum level of democratic contestation – the fewer and shorter will be the instances of crises of growth.

A statistical model of the relationship between democracy and economic crisis

This section uses statistical evidence to evaluate our hypotheses. We employ three different strategies. First, we model crises as a function of the most widely used index of democracy in large-N, cross-national studies (the Polity scale, largely a measure of contestation), and an indicator of inclusion of our own design. If the hypotheses are correct, then both measures should be jointly negative and significant, after controlling for other determinants of crises. Second, we compare a model in which the Polity score (and controls) are the predictors to an alternative model, which employs a recently produced ‘participation-enhanced’ version of Polity. If inclusion contributes to reducing the chances of crises, then this second model

using both dimensions of democracy should perform better than the previous one. Finally, we take advantage of a dataset recently made available by Coppedge, Alvarez, and Maldonado,⁴⁸ containing estimates of both contestation and inclusion for most countries over the 1950–2000 period, to test whether inclusion (assuming a minimum democratic contestation) has an independent effect on the probability of crisis.

Polity, the measure of contestation for the first two tests, comes from the Polity IV database, and is the average ‘Polity score’ of the previous five years.⁴⁹ The Polity score ranges from –10 (strongly autocratic) to 10 (strongly democratic), with each country-year coded according to the regime in place on December 31. It has a bimodal distribution, with most country-years being either clearly autocratic or clearly democratic. The Polity index does not include any direct indicators of the breadth of participation. Its components highlight diverse aspects of democratic contestation, posing a challenge for testing our theory.⁵⁰

Most available quantitative indicators of the breadth of political inclusion are based on either formal suffrage rights or voter turnout. We have preferred voter turnout for three reasons. First, by the start of the postwar period covered by our economic data, virtually all democracies formally had adopted universal suffrage, so there was little variation among cases. Second, even among countries with near universal *de jure* inclusion, the *de facto* right to vote has varied considerably. Many countries have erected a wide array of informal barriers to suffrage, including organized intimidation, high voter registration costs, inconvenient polling locations and dates, and differential provision of voter information across demographically dissimilar constituencies. Institutional choices such as non-mandatory voting, weekday voting, majoritarian electoral systems, and the unavailability of postal voting have also been associated with significantly lower turnout among democracies.⁵¹ And we know that politicians are more responsive to citizens who actually vote.⁵² A third reason to favor turnout over suffrage as a measure of democratic inclusion is that democracies with higher voter turnout rates – whatever the reasons behind these variations in turnout – appear more likely to incorporate poorer citizens and to pursue policies they might be expected to favor.⁵³ Increases in voting participation have been shown to result in more votes for left parties and in increased welfare spending.⁵⁴

The challenge of using voter turnout was that we wished to capture only substantive political participation, excluding from our sample voting in show elections held by authoritarian, one-party states. With this in mind, we examined two additional democracy datasets.⁵⁵ Paxton *et al.* developed a measure that in practice dichotomizes countries into those with no elections and those with near universal suffrage, the latter set including such non-democracies as China, Iraq, and North Korea.⁵⁶ This did not suit our needs. Vanhanen’s (2000) *Participation*, based on electoral turnout, does make graded differences among countries, and has the advantage of considering actual practice instead of only legal requirements. Yet once again dictatorships with elections, including Cuba and Syria, are judged highly inclusive. We therefore designed an indicator, *High Inclusion*, which

applies Vanhanen's variable only to country-years that are indisputably democratic (competitive) according to Polity IV. This dummy is coded 1 when, for five consecutive years, turnout is greater than 50% of the total population of the country⁵⁷ and the Polity score is greater than seven, thus identifying country-years that have been both consistently competitive and highly inclusive in the recent past. Our first test models economic crises as a function of both Polity and High Inclusion.

The second test resorts to a recent democracy database produced by Bruce E. Moon and collaborators,⁵⁸ who construct a 'Participation Enhanced Polity Score' (PEPS1), defined as the Polity Democracy score times a measure of actual voting turnout, minus the Polity Autocracy score. PEPS1 is thus the standard Polity score modified to penalize low turnout democracies. (If electoral participation is 100%, then PEPS1 equals the Polity score). As it incorporates both the competition and inclusion dimensions of democracy, PEPS1 should be a better predictor of crisis than the Polity-based Democracy. We constructed *Polity(PEPS)*, the five-year lagged version of PEPS1.

To conduct the third empirical test of the hypotheses we use the new democracy dataset from Coppedge, Alvarez, and Maldonado⁵⁹ (hereafter CAM). These authors factor analyse up to 15 existing democracy indicators and discover, for a large sample of 191 countries observed between 1950 and 2000, two and only 'two persistent dimensions of democracy: contestation and inclusiveness'.⁶⁰ This dataset includes cross-temporally comparable factor scores for both dimensions. As the authors explain, inclusiveness is often high in uncompetitive regimes such as the USSR. As our theoretical expectation is that inclusion reduces the probability of a crisis *only* when the regime also is reasonably competitive, the statistical expectation is not that inclusion will obtain a negative sign when entered additively in the model, but that it will have a negative marginal effect when contestation is middling to high. In other words, we expect that, other factors being equal, an interactive term between inclusion and contestation will have a negative and significant coefficient. Thus, models based on the CAM data contain the factor scores for the two dimensions, *Contestation(CAM)* and *Inclusiveness(CAM)*, and the interaction between the two.

Our next task was construction of a dependent variable measuring macroeconomic crisis. Our DCSI model predicts that, *ceteris paribus*, democracies will be less likely to experience strongly negative economic outcomes, such as famines, hyperinflations, or deep recessions. We focus on recessions, because the data to measure them are readily accessible. They also occur relatively frequently, giving us much-needed variance on the dependent variable. In contrast to the indicator of crisis used by Acemoglu *et al.* in their cross-sectional analysis – the magnitude of the largest single output drop experienced by a country during their entire period of study⁶¹ – our measure is a dummy variable identifying all country-years of severe recession. Unlike other manifestations of macroeconomic moderation, crises are best thought of as an inherently discrete event: a country is either in crisis or it is not. What matters in terms of our theory is not whether a country-year registers 1% or 10% growth, but whether growth is above or below

a (negative) threshold. Thus ‘crisis’ should be modeled dichotomously, although theory cannot provide the specific cutoff value.

We assembled a Time-Series-Cross-Section (TSCS) dataset of 149 countries and 38 years (from 1961 to 1998),⁶² and employ two operationalizations of our dependent variable. *Recession(-3%)* equals 1 if annual per capita GNP growth $\leq -3\%$, and 0 otherwise. *Recession(-7%)* identifies acute depressions by using a substantially more demanding cutoff of -7% per capita GNP growth.⁶³ A total of 15.96% and 7.47%, respectively, of the observations are crises according to these two indicators. Recessions never happen in many countries in our sample, such as Australia, Egypt, Italy, and the USA, but (by the -3% criterion) occur more than a fourth of the time elsewhere, including in Argentina, Chad, Haiti, Iran, Syria, and Zambia. We relate economic crisis in a given year to the average political regime in the previous five years.⁶⁴ This lag recognizes that public policies may take months or years before affecting economic outcomes.

To obtain a reasonable estimate of the effects of the contestation and inclusiveness variables on the probability of crisis, we control for other independent variables that affect economic growth. Observing that economic volatility is higher in developing than in developed countries, we controlled for GDP per capita. Moreover, as crises may be more likely at intermediate levels of development and industrialization, we add a quadratic term to allow for the possibility of such an inverted U-shaped relationship, operationalizing level of development using both GDP per capita in thousands of 1995 US dollars ($GDPp/c$) and its square ($[GDPp/c]^2$). Noting that smaller, more open economies, as well as commodity exporters, are typically more likely to suffer the effects of exogenous shocks, we add controls for the (logged) magnitude of the gross domestic product at 1995 market prices in millions of US dollars (GDP), merchandise trade (exports+imports) as a percentage of GDP ($Trade/GDP$), and commodity exports (agricultural raw materials, food, fuels, ores, and metals) as a percentage of merchandise exports (*Commodity Exports*). We also include the logarithm of gross domestic investment (*Investment*)⁶⁵ and *World Growth* (average annual world GNP growth per capita). Fearon’s *Ethnic Fractionalization* is a final control, as high ethnic heterogeneity may predict lower growth.⁶⁶ The Appendix presents descriptive statistics for all variables.

Model estimation and results

Given the task of analysing TSCS data with binary dependent variables, the choice of an appropriate technique was not straightforward. Until recently political scientists typically analysed such data applying logistic regression to the pooled cross-sections, thus effectively disregarding problems of serial and contemporaneous correlation, and of panel heteroskedasticity. This led to incorrect, and often overly optimistic, standard errors.⁶⁷ Wawro has claimed that ‘almost no applications exist in political science . . . [of] panel data methods for dichotomous dependent variables’.⁶⁸ The econometrics literature suggests three possible

approaches: a) fixed-effects logit models, b) random-effects logit or probit models, which are a type of generalized linear mixed model (GLMM), and c) population-averaged or generalized estimating equations (GEE) models. The fixed and random effects logit models are subject-specific in the sense that within-unit correlation is handled by using the repeated observations for each 'subject' (each country) to generate different intercepts and/or slopes for each cross sectional unit.⁶⁹ Fixed-effects models have the advantage of avoiding biases arising from time invariant omitted variables, but at the cost of disregarding both the information from units with no variance in the dependent variable, and that contained in cross sectional differences. This would amount to excluding, for example, the 27 nations that never had an annual decline in per capita GNP larger than 3% during the years studied. In some of the models we present below, fixed effects imply losing as many as 725 observations and 48 countries (or 28.8% and 38.1% of all observations and countries, respectively). This large information loss results in considerably less precise estimates and in all likelihood introduces sample bias, as the countries that drop out are unlikely to be a random sub-sample (for example, in our data they are disproportionately high income democracies, most of which have not suffered crises). In its turn, the random-effects model postulates case-specific intercepts that are treated as a normal variable and incorporated into a composite error term.⁷⁰ Slopes are generally constrained to be the same for all cross-sectional units, although GLMMs allow for random case-specific slopes. However, these models make the strong assumption that the units' random-effects are uncorrelated with the independent variables. If this is not true, then the estimated slopes are biased. Moreover, random-effects models are more appropriate when the data come from a random sample of a large population than when, as here, the units of analysis constitute practically the whole population.

Unlike fixed and random-effects models, population-averaged (or GEE) models do not resort to unit-specific effects to deal with the typically high temporal dependence present in TSCS data. They instead incorporate within-unit dependence through an error correlation matrix that can be either fully estimated from the data (when T is small) or estimated with constraints specified by the researcher on substantive grounds.⁷¹ We prefer the GEE approach here because our inferences of interest are not about individual countries, but instead pertain to general characteristics of the population at large: all countries. GEE models have other advantages: they do not require any (often unreasonable) assumptions about the distribution of the dependent variable, do not require that units are measured on the same occasions, and are robust to the misspecification of the within-subject correlation matrix. Finally, they do not disregard information, as fixed-effects models do, nor do they need to assume independence between the units' random effects and the independent variables. On almost all the relevant criteria, population-averaged (GEE) models appear superior for our research problem.⁷²

Table 2 shows results for the first dependent variable, *Recession*(-3%), using GEE with a logit link and an autoregressive (AR1) within-country error correlation

structure. Given the possibility of legitimate disagreements with our estimation choices, we also briefly report results from GEE models with a stationary and an independent correlation structure, and from fixed and random-effects models.⁷³ The results clearly support our hypotheses that both increases in contestation, as measured by Polity, and in inclusion, as measured by High Inclusion and Polity (PEPS), predict fewer economic crises. In model 1 Polity is negative and highly significant, lending support to Hypothesis 1. In model 2 both Polity and High Inclusion are negative and highly significant. Moreover, and as predicted by Hypothesis 2, participation is associated with fewer crises even after controlling for democracy's competition dimension. In model 3 the 'participation enhanced' Polity(PEPS) is highly significant and, as expected, considerably larger in absolute value than Polity in model 1. For the comparison to be rigorous, however, the coefficients need to be standardized. The X-standardized coefficients for Polity(PEPS) and Polity are -0.535 and -0.459 , respectively, confirming that Polity(PEPS) has a larger effect even after taking into account its smaller standard deviation.⁷⁴ Of all the country-years that model 1 predicts as crisis (using a probability of 0.5 as a cutoff), 48.5% are actually crises, while the success rate for model 3, which uses Polity(PEPS) instead of Polity, is 56.1%. Because these two models are non-nested, the significance of the difference between the coefficients cannot be statistically tested. We carry out a test for comparing non-nested regressions by running an 'encompassing model', that is, by estimating a model in which both variables appear on the right-hand side.⁷⁵ Results (model 4) are as expected: the coefficient for Polity(PEPS) remains negative and clearly significant, while the coefficient for Polity is statistically indistinguishable from zero. In sum, crises are predicted by democratic contestation (model 1), and still better predicted when participation is explicitly modeled, either as a separate variable (model 2) or as part of a composite democracy variable (model 3).

The controls perform as anticipated, with some exceptions. Intriguingly, level of development does not appear to affect the probability of crisis after other factors are controlled for. We find only weak evidence for an inverse U-shaped relationship between GDP per capita and crises: the coefficients always have the correct sign (positive for the linear term and negative for the quadratic term), but are consistently far from statistical significance. The three measures of differential structural vulnerability to exogenous shocks show mixed results. The absolute size of the economy (GDP) and the degree of openness of the economy (Trade/GDP) generally have the expected sign (negative and positive, respectively), yet reach (weak) significance only in models 4 and 7, respectively. Models 1, 2, 3, and 4 exclude Commodity Exports, because this variable has a high proportion of missing values, resulting in reduction of the effective sample size and probably larger sample bias. To check the robustness of the previous findings, models 5, 6, and 7 do include Commodity Exports, though between 699 and 774 observations, and 11 to 15 countries, are lost due to missing data. Not surprisingly, we confirm that commodity exporters have more crises. Yet notwithstanding this additional control and the larger standard

Table 2. The determinants of economic crises (*Recession*-3%), 1961–98. Logit (GEE) estimation.

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
Polity	-0.060*** (0.014)	-0.052*** (0.012)		0.070 (0.052)	-0.049*** (0.016)	-0.041*** (0.015)	
High Inclusion		-1.400*** (0.533)				-1.243** (0.556)	
Polity(PEPS)			-0.079*** (0.018)	-0.161** (0.065)			-0.070*** (0.020)
GDPp/c	0.015 (0.039)	0.054 (0.042)	0.028 (0.039)	0.042 (0.040)	0.004 (0.045)	0.042 (0.046)	0.015 (0.044)
[GDPp/c] ²	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)	-0.001 (0.001)
GDP (log)	-0.080 (0.060)	-0.099 (0.061)	-0.098 (0.061)	-0.111* (0.063)	0.009 (0.077)	-0.014 (0.078)	-0.005 (0.081)
Trade/GDP	0.004 (0.003)	0.003 (0.003)	0.003 (0.003)	0.003 (0.003)	0.006 (0.004)	0.005 (0.004)	0.006* (0.004)
Commodity Exports					0.011** (0.005)	0.011** (0.005)	0.008* (0.004)
Investment (log)	-1.031*** (0.169)	-1.045*** (0.168)	-1.118*** (0.183)	-1.104*** (0.178)	-1.284*** (0.254)	-1.297*** (0.256)	-1.533*** (0.251)
World Growth	-0.225*** (0.037)	-0.232*** (0.037)	-0.212*** (0.040)	-0.210*** (0.040)	-0.261*** (0.047)	-0.266*** (0.047)	-0.258*** (0.051)
Ethnic Fractionalization	0.923*** (0.310)	0.807*** (0.297)	0.777** (0.309)	0.821** (0.335)	0.651 (0.426)	0.529 (0.413)	0.516 (0.406)
Constant	2.030*** (0.637)	2.361*** (0.641)	2.324*** (0.733)	2.248*** (0.706)	1.242 (1.082)	1.653 (1.088)	2.244** (0.989)
N (Observations)	3,283	3,283	3,112	3,007	2,509	2,509	2,413
N (Countries)	135	135	124	124	120	120	113

Note: Entries are GEE (AR1) logit regression coefficients (robust standard errors in parenthesis). * $p \leq 0.10$; ** $p \leq 0.05$; *** $p \leq 0.01$.

errors resulting from the smaller sample, all of the political regime indicators remain negative and highly significant, if somewhat smaller in absolute magnitude. In all models both Investment(log) and World Growth have a strongly negative and highly significant association with economic crisis. Finally, the coefficients for Ethnic Fractionalization are always positive, but significant only in models 1, 2, 3, and 4. Even in the presence of these fairly comprehensive controls, all of the political regime variables perform well: higher levels of democratic contestation prevent crises and/or make them shorter, and this outcome is more pronounced in competitive regimes with high levels of electoral participation. All political regime effects are highly significant, and remain so when using the more demanding indicator of crisis, Recession(-7%) (results not shown).

Results using the CAM data are shown in Table 3. The interaction between inclusiveness and contestation in model 1 is negative as expected, and significant

Table 3. The determinants of economic crises (*Recession[-3%]*), 1961–98. CAM estimates of contestation and inclusiveness. Logit (GEE) estimation.

Variables	Model 1	Model 2	Model 3	Model 4
Contestation (CAM)	-0.321*** (0.100)	-0.323*** (0.099)	-0.307** (0.138)	-0.315** (0.133)
Inclusiveness (CAM)	-0.092 (0.125)	-0.085 (0.123)	-0.089 (0.155)	-0.097 (0.150)
Inclusiveness (CAM) * Contestation (CAM)	-0.229* (0.121)	-0.220** (0.108)	-0.221 (0.158)	-0.226 (0.146)
GDPp/c	0.011 (0.041)		0.017 (0.041)	
[GDPp/c] ²	-0.000 (0.001)		-0.001 (0.001)	
GDP (log)	-0.076 (0.054)	-0.069* (0.042)	-0.029 (0.068)	
Trade/GDP	0.004 (0.003)	0.004 (0.003)	0.005 (0.004)	0.005 (0.003)
Commodity Exports			0.009** (0.004)	0.010** (0.004)
Investment (log)	-1.000*** (0.154)	-1.012*** (0.151)	-1.256*** (0.222)	-1.279*** (0.207)
World Growth	-0.239*** (0.035)	-0.229*** (0.036)	-0.269*** (0.044)	-0.253*** (0.045)
Ethnic Fractionalization	0.765*** (0.266)	0.763*** (0.263)	0.441 (0.356)	0.451 (0.361)
Constant	2.297*** (0.597)	2.243*** (0.591)	2.105** (0.928)	1.769** (0.772)
N (Observations)	3,769	3,796	2,791	2,814
N (Countries)	139	140	126	127

Notes: Entries are GEE (AR1) logit regression coefficients (robust standard errors in parenthesis).
* $p \leq 0.10$; ** $p \leq 0.05$; *** $p \leq 0.01$.

(at the 0.10 level). Once the insignificant control variables with t-statistics under one are excluded (model 2), the interactive term achieves significance at the 0.05 level. Moreover, when *Recession(-7%)* is the dependent variable, the significance of this term improves considerably (p-values of 0.047 and 0.015 for models 1 and 2, respectively). The magnitude of the coefficient remains practically the same in models 3 and 4, which control for commodity exports, but the larger standard errors associated with the smaller N makes them fall below conventional significance levels (when the dependent variable is *Recession(-7%)*, however, the interaction effect is significant at the 0.05 level). The additive terms *Contestation(CAM)* and *Inclusiveness(CAM)* are both negative in all models (although only the former is significant), indicating that when the one of them is zero (as CAM variables are factor scores, zero is approximately the mean) an increase in the other diminishes the probability of a crisis. The magnitude of most theoretical interest, the effect of inclusion conditional on contestation (after controlling for all other variables in the model), is depicted in Figure 1 along with the corresponding 90% confidence interval.⁷⁶ It is clear that as the level of contestation (represented on the X axis) increases, the logit coefficient for inclusion becomes more negative. At middling and high levels of contestation, the area of the confidence interval is almost entirely in the negative sector of the graph. Thus, it is practically certain that the effect of inclusion on the chances of crisis is negative when there is a minimally competitive regime in place, and that this effect is stronger at higher levels of competition.

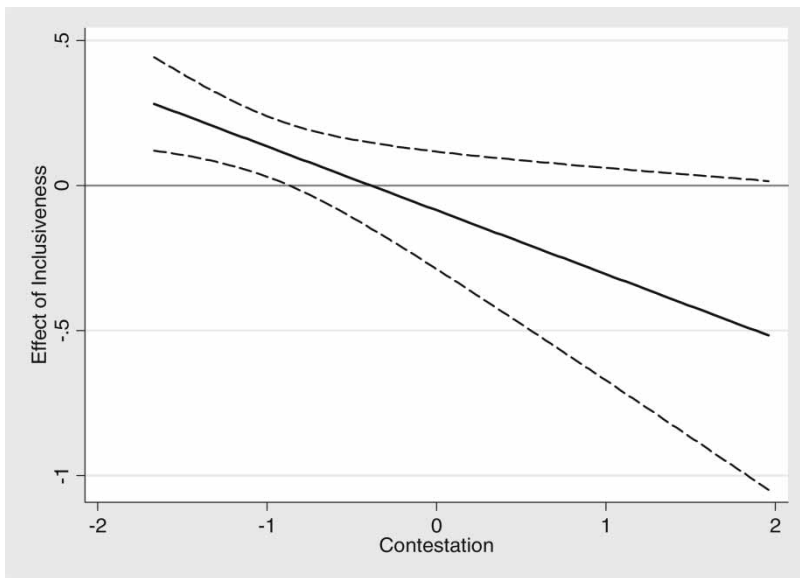


Figure 1. Estimated effect (Logit coefficient) of inclusiveness on the probability of a crisis, by contestation (and 90% confidence interval).

Is inclusion also substantively significant? Figure 2 shows the predicted probabilities of crisis under Table 2's different operationalizations of democracy, conservatively using the smaller coefficients in models 6 and 7 rather than the larger ones in models 2 and 3. The thick solid line in the lower-right corner represents the expected probability of a recession for country-years that are highly inclusive, while the thick dashed line represents the remaining country-years. Control variables were set at their means. Since by definition High Inclusion requires levels of Polity greater than 7, the solid line covers only the 8 to 10 range on the horizontal axis. As the Polity score goes from its most autocratic to its most democratic (from -10 to 10), the likelihood of crisis dives. Fully autocratic countries (average in all other factors) experience a crisis about one in six years (probability of crisis = 17.5%). The expectation for a highly competitive but not highly inclusive democracy is of a crisis every 12 years (probability = 8.5%). In highly inclusive democracies (thick solid line), the expected frequency of crisis drops further to once in only 38 years (probability = 2.6%). The thin solid line represents Polity(PEPS) from model 7, and shows a steeper slope than Polity: full autocracies may anticipate a crisis every five to six years (18.0%), more than three times more frequently than democracies that score high in *both* contestation and participation, which experience deep recessions only once in about 20 years (5.1%). Democracies, other things being equal, are substantially more successful than autocracies at avoiding or ending economic crises, especially when they are highly inclusive.

Our results are robust to alternative estimation techniques. We reran models 1 through 3 and 5 through 7 (from Table 2) using four estimators: GEE logit with a stationary(6) correlation structure, GEE logit with an independent correlation

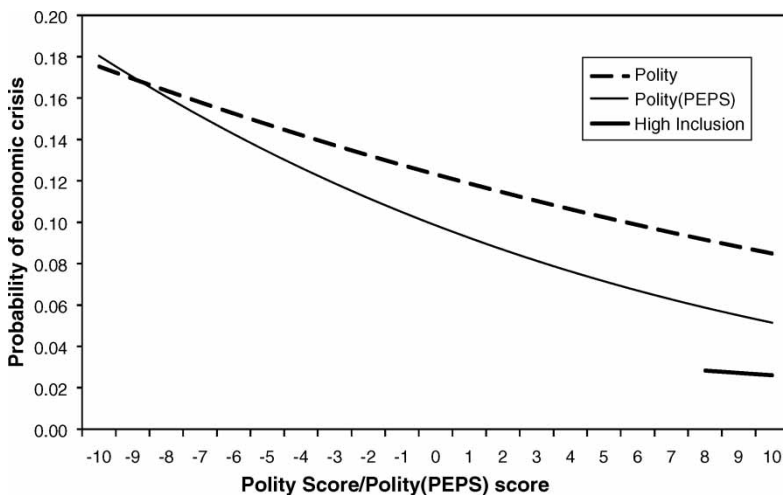


Figure 2. Predicted probabilities of recession (control variables set at their means).

structure, random-effects logit, and fixed-effects logit.⁷⁷ For easy comparison, Tables 4 and 5 also include the coefficients from Table 2. Table 4's upper panel corresponds to our statistical model 2, and its lower panel to models 1 and 3. For model 2, the coefficients remain negative and significant in all regressions, with the sole exception of the fixed-effects model, where the coefficients for Polity and High Inclusion remain negative but fall below conventional significance levels (p-values = .127 and .314, respectively). The Polity and High Inclusion coefficients are of similar size across all the GEE and the random-effects estimators (and smaller in absolute size when estimated through fixed-effects). In models 1 and 3, the coefficient for Polity is always negative and significant, even with fixed-effects. Nonetheless, and as expected, the coefficient for Polity(PEPS) is both more significant and larger in absolute value in all models.

Table 5 presents the same analysis for models 5, 6 and 7. All coefficients have the expected sign and most are significant. The only slopes that fail to achieve significance are those in models 5 and 6 under fixed effects (note that these coefficients are similar in size to those in other models, but the standard errors are of course larger). For model 7 even the conservative and less precise fixed-effects estimator results in a negative and significant coefficient,

Table 4. Effects of polity, high inclusion, and Polity (PEPS) on economic crisis (*Recession [-3%]*), 1961–98. Models 1, 2 and 3. Alternative estimation techniques.

<i>Model 2</i>	Alternative estimation techniques				
	GEE AR(1)	GEE Station. (6)	GEE Independent	Random effects	Fixed effects
<i>Model 2</i>					
Polity	-0.052*** (0.012)	-0.053*** (0.013)	-0.052*** (0.013)	-0.048*** (0.012)	-0.033 (0.022)
High Inclusion	-1.400*** (0.533)	-1.219** (0.537)	-1.428*** (0.544)	-1.229*** (0.458)	-0.670 (0.665)
Control variables (as in Table 2)	(Coefficient for control variables not shown)				
N (observations)	3,283	3,209	3,285	3,285	2,573
N (panels)	135	114	137	137	96
<i>Models 1 and 3</i>					
Polity (Model 1)	-0.060*** (0.014)	-0.060*** (0.014)	-0.060*** (0.014)	-0.055*** (0.012)	-0.039* (0.021)
Polity(PEPS) (Model 3)	-0.079*** (0.018)	-0.080*** (0.018)	-0.081*** (0.018)	-0.076*** (0.015)	-0.051* (0.026)
Control variables (as in Table 2)	(Coefficient for control variables not shown)				
N (Model 1)	3,283	3,209	3,285	3,285	2,573
N (Model 3)	3,112	3,069	4,117	3,117	2,436

Notes: Entries are logit regression coefficients (standard errors—robust for the GEE models—in parenthesis). * p < 0.10; ** p < 0.05; *** p < 0.01.

and in a considerable larger effect for Polity(PEPS) than for Polity. It is of note that the coefficients for our key variables sometimes achieve significance even when using a fixed-effects estimator, since this test fully disregards between-case variance and omits from the analysis many wealthy democracies that never experienced recessions.⁷⁸

A similar robustness check was performed on models 1 through 4 in Table 3 (results not shown). The interaction effect between Inclusiveness(CAM) and Contestation(CAM) is always negative. For models 1 and 2 it is significant in all the GEE specifications (p-values between 0.040 and 0.051), while for models 3 and 4 its significance hovers around the 0.10 level (p-values between 0.074 and 0.153). The random-effects estimator produces coefficients for the interaction that are always negative and significant at the 0.10 level (except in model 1, where the p-value of 0.108 falls just under the significance threshold). The fixed-effects estimator also produces negative coefficients for all models, but their significances are low (p-values between 0.266 and 0.310), a result to be expected when an inefficient estimator is coupled with the high information demands posed by the typically high levels of collinearity contained in an interaction.

Table 5. Effects of polity, high inclusion, and Polity (PEPS) on economic crisis (*Recession [-3%]*), 1961–98. Models 5, 6 and 7. Alternative estimation techniques.

	Alternative estimation techniques				
	GEE AR(1)	GEE Station. (6)	GEE Independent	Random effects	Fixed effects
<i>Model 6</i>					
Polity	-0.041*** (0.015)	-0.044*** (0.015)	-0.039*** (0.015)	-0.040*** (0.015)	-0.037 (0.029)
High Inclusion	-1.243** (0.556)	-1.496*** (0.518)	-1.283** (0.564)	-1.176** (0.481)	-1.234 (0.801)
Control variables (as in Table 2)	(Coefficient for control variables not shown)				
N (observations)	2,509	2,421	2,515	2,515	1,790
N (panels)	120	94	126	126	78
<i>Models 5 and 7</i>					
Polity (Model 5)	-0.049*** (0.016)	-0.053*** (0.017)	-0.047*** (0.016)	-0.048*** (0.015)	-0.046 (0.030)
Polity(PEPS) (Model 7)	-0.070*** (0.020)	-0.077*** (0.022)	-0.068*** (0.021)	-0.073*** (0.018)	-0.074** (0.037)
Control variables (as in Table 2)	(Coefficient for control variables not shown)				
N (Model 5)	2,509	2,421	2,515	2,515	1,790
N (Model 7)	2,413	2,341	2,418	2,418	1,725

Notes: Entries are logit regression coefficients (standard errors—robust for the GEE models—in parenthesis). * p < 0.10; ** p < 0.05; *** p < 0.01.

This section has shown that, controlling for several well-known economic determinants of growth, democratic countries have fewer and/or shorter crises than do autocracies. Moreover, both democratic contestation and democratic inclusion have independent effects that are statistically significant, substantively large, robust to most alternative statistical estimators, and which hold irrespective of the operationalization of the dependent variable used.

Conclusions and possible implications

In this paper we set ourselves several tasks. We first identified in the literature six distinct theoretical arguments linking variations in political regimes to economic growth, three highlighting aspects of democratic competition and three hypothesizing consequences from expansions of political inclusion. Next we elaborated a new model incorporating but also extending previous insights. The DCSI ('Dixie') model is to our knowledge the only political economy model explicitly linking both core dimensions of democracy to macroeconomic moderation, here operationalized as fewer growth crises. Our econometric investigation found evidence for independent effects from both democratic contestation and inclusion.

What might these findings mean, especially for economic policymaking in developing countries? A sizable group of scholars emphasizes the drawbacks of popular participation in economic policymaking. One thesis is that many essential reforms – for example, fiscal retrenchment or redirecting public spending toward investment – can never be popular, and should thus be implemented quickly, before the public catches on.⁷⁹ A related argument is that institutional reform should promote politically insulated public bureaucracies or automatic policy triggers – including independent central banks, fixed exchange rates, or balanced budget amendments – to enhance a country's credibility with investors, who reasonably fear the uncertainties of electorally driven economic populism.⁸⁰ State 'capacity' is hypothesized to be independent of political regime type, and benevolent autocracy is credited with allowing for the possibility of rapid state-led development in East Asia.⁸¹ By this logic, wide participation in new democracies may weaken the state, inviting pervasive clientelism, corruption, and fiscal irresponsibility.

Our investigations instead suggest the instrumental as well as normative desirability of both institutionalized democratic contestation and wide popular participation, the latter via elections (which we show) and in governance more generally.⁸² We assert the potential benefits from messy, inclusive, incremental, and imperfect political democracy, which may be a (possibly counterintuitive) means of achieving stable, reliable, and credible economic policymaking, at least over the medium term. Often the poor soon recognize that their interests are served by supporting politicians who promote boring, predictable macroeconomic moderation. This paper thus offers a median voter logic to counter both the age-old fears of elites and the anxieties of contemporary experts who worry

that enfranchising the unwashed and uneducated will invite populism or mob rule.⁸³

We do not advocate plebiscitarian or delegative democracy, in the sense of wide electoral participation combined with few subsequent institutional checks on the executive.⁸⁴ Wide inclusion lacking concomitant guarantees of orderly contestation and the rule of law is a recipe, *inter alia*, for political breakdown, as Dahl concluded decades ago.⁸⁵ Yet – and this has been a principal argument of this paper – we find that the macroeconomic benefits of democratic institutions and processes are additionally enhanced by the presence of wide democratic participation. Public policy reform conducted against a backdrop of broad society-wide or legislative involvement may in the end prove less disruptive and more successful than policymaking by insulated experts, even ones appointed by democratically chosen political leaders, especially for those relatively poor citizens who have the most to lose.⁸⁶

Acknowledgements

The authors acknowledge Branimira Slavova, who developed the project's early data sets and econometric work, and Reed College, which provided initial funding. We also thank Michael Coppedge, Juliano Assunção, Michael Berbaum, Thomas Borcherding, Tim Carter, John Echeverri-Gent, Robert Franzese, John Gerring, Robin Grier, Charles Hankla, John Jackson, A.M. Mobarak, David Nickerson, Sybil Rhodes, Mark Setzler, Gregory Wawro, Kurt Weyland, Richard Williams, and two anonymous reviewers for helpful comments. Any remaining errors are ours.

Notes

1. Dahl, Shapiro, and Cheibub, *Democracy Sourcebook*, especially sections on 'Defining Democracy', 1–54, and 'Democracy and Constitutionalism', 191–256.
2. Acemoglu and Robinson, 'Theory of Political Transitions'; Boix, *Democracy and Redistribution*.
3. Cf. Schmitter and Karl, 'What Democracy Is'; Huntington, *Third Wave*; Collier and Levitsky, 'Democracy with Adjectives'; Zakaria, 'Illiberal Democracy'; Diamond, *Developing Democracy*.
4. Dahl, *Polyarchy*; Dahl, *Democracy and Its Critics*.
5. Coppedge, Alvarez, and Maldonado, 'Two Persistent Dimensions'.
6. Sen, *Development as Freedom*.
7. Rodrik, 'Where Did the Growth Go?'; Hamilton, Madison, and Jay, *Federalist Papers*; Brown, Lynn-Jones, and Miller, *Debating the Democratic Peace*.
8. Huntington, *Third Wave*.
9. Barro and Sala-I-Martin, *Economic Growth*; Easterly, *Elusive Quest for Economic Growth*.
10. Przeworski and Limongi, 'Political Regimes and Economic Growth'; Brunetti, 'Political Variables'; Sirowy and Inkeles, 'Effects of Democracy'.
11. Przeworski *et al.*, 'Democracy and Development', 178–9.
12. Doucouliagos and Ulubasoglu, 'Democracy and Economic Growth', 61.
13. Quinn and Wooley, 'Democracy and National Economic Performance'; Almeida and Ferreira, 'Democracy and the Variability of Economic Performance'; Mobarak,

- 'Democracy, Volatility, and Economic Development'; Chandra and Rudra, 'Regime Type and Economic Performance'.
14. Przeworski *et al.*, 'Democracy and Development', 176–8; cf. Almeida and Ferreira, 'Democracy and the Variability of Economic Performance'.
 15. For fewer crises, see this paper's DCSI model; for less extreme crises, Acemoglu *et al.*, 'Institutional Causes'.
 16. For example, Pastor and Sung, 'Private Investment and Democracy'; Feng, 'Democracy, Political Stability, and Economic Growth'; Heinsz, 'Political Institutions and Policy Volatility'; Chong and Calderon, 'Causality and Feedback'.
 17. As in Stein *et al.*, 'The Politics of Policies'.
 18. For example, Acemoglu, Johnson, and Robinson, 'Colonial Origins of Comparative Development'; Acemoglu *et al.*, 'Institutional Causes, Macroeconomic Symptoms'.
 19. Acemoglu *et al.*, 'Institutional Causes, Macroeconomic Symptoms', 61–7.
 20. RL theorists are impressed by the example of a few soft authoritarian, yet apparently law-governed, regimes such as contemporary Singapore. We suggest that informal yet increasingly institutionalized processes of interest-aggregation and proto-contestation, including regular consultation with the business community, may make Singapore about as 'democratic' as early nineteenth-century England.
 21. Acemoglu *et al.*, 'Institutional Causes, Macroeconomic Symptoms', 68.
 22. Gleditsch and Ward, 'Double Take'.
 23. Tsebelis, 'Decision Making in Political Systems'.
 24. Heinsz, 'Political Institutions and Policy Volatility'; Cox and McCubbins, 'Institutional Determinants of Economic Policy'; Mobarak, 'Democracy, Volatility, and Economic Development', 351.
 25. Cf. Almeida and Ferreira, 'Democracy and the Variability of Economic Performance'.
 26. Chandra and Rudra, 'Regime Type and Economic Performance'; Lindblom, *Intelligence of Democracy*; cf. Rodrik, 'Participatory Politics'.
 27. Przeworski, *Democracy and the Market*, 10.
 28. Alesina and Rodrik, 'Distributive Politics and Economic Growth'; Persson and Tabellini, 'Is Inequality Harmful'.
 29. Baer, 'Social Aspects'; Hirschman, 'Social and Political Matrix of Inflation'; Dornbusch and Edwards, *Macroeconomics of Populism*.
 30. Quinn and Wooley, 'Democracy and National Economic Performance'; cf. Almeida and Ferreira, 'Democracy and the Variability of Performance', 225–8.
 31. Weyland, *Politics of Market Reform*.
 32. Bueno de Mesquita *et al.*, 'Political Institutions, Political Survival'; Morrow *et al.*, 'Retesting Selectorate Theory'.
 33. Bueno de Mesquita *et al.*, 'Political Institutions, Political Survival', 60–1, 70, 61.
 34. *Ibid.*, 64; Morrow *et al.*, 'Retesting Selectorate Theory', 393.
 35. Morrow *et al.*, 'Retesting Selectorate Theory', 395.
 36. *Ibid.*, 395; Marshall and Jagers, *Polity IV Project*.
 37. Moon *et al.*, 'Voting Counts'; Coppedge, Alvarez, and Maldonado, 'Two Persistent Dimensions'.
 38. Dahl, *Polyarchy*; Dahl, *Democracy and Its Critics*; cf. Vanhanen, 'A New Dataset for Measuring Democracy'.
 39. Przeworski *et al.*, *Democracy and Development*, 176–8; Quinn and Wooley, 'Democracy and National Economic Performance'.
 40. Rueschemeyer, Huber Stephens, and Stephens, *Capitalist Development and Democracy*.
 41. Cf. Halac and Schmukler, 'Distributional Effects of Crises'.
 42. Popkin, *The Rational Peasant*.

43. Cf. Bueno de Mesquita *et al.*, 'Political Institutions, Political Survival'; Morrow *et al.*, 'Retesting Selectorate Theory'.
44. Thus our 'politically relevant actors' correspond to the 'winning coalition' of Bueno de Mesquita *et al.*, *not* to the 'selectorate', the members of which vote and participate symbolically, but lack substantive power either to choose or depose/impeach incumbents.
45. Eichengreen, *Globalizing Capital*; Simmons, *Who Adjusts?*
46. Drèze and Sen, *Hunger and Public Action*.
47. Przeworski *et al.*, *Democracy and Development*.
48. Coppedge, Alvarez, and Maldonado, 'Two Persistent Dimensions'.
49. The Polity dataset is the political science discipline standard for measuring democracy, especially over long time periods. See Marshall and Jaggers, *Polity IV Project*. However, it recently has been the object of several critical evaluations. These include Gleditsch and Ward, 'Double Take'; Munck and Verkuilen, 'Conceptualizing and Measuring Democracy'; and Treier and Jackman, 'Democracy as a Latent Variable'.
50. Moon, *et al.*, 'Voting Counts'; Coppedge, Alvarez, and Maldonado, 'Two Persistent Dimensions'.
51. Franklin, 'Electoral Participation'.
52. Verba and Nie, *Participation in America*; Hill and Leighly, 'The Policy Consequences of Class Bias'; and Griffin and Newman, 'Are Voters Better Represented?' demonstrate this phenomenon for the US.
53. Lijphart, 'Unequal Participation'; Chong and Oliveira, 'Does Compulsory Voting Help Equalize Incomes?'
54. Pacek and Radcliffe, 'Turnout and the Vote'; Hicks and Swank, 'Politics, Institutions, and Welfare Spending'.
55. Paxton *et al.*, 'A Half-Century of Suffrage'; Vanhanen, 'A New Dataset for Measuring Democracy'.
56. For the 1960–98 period, the authors code only 3.9% of the country-years as giving voting rights to more than 0%, but less than 90%, of the adult population.
57. Given that Vanhanen's denominator is not the voting age population but the total population, the 50% threshold is very demanding. Only 19.7% of country-years lie above this level.
58. Moon, *et al.*, 'Voting Counts'.
59. Coppedge, Alvarez, and Maldonado, 'Two Persistent Dimensions'.
60. *Ibid.*, 632.
61. Acemoglu *et al.*, 'Institutional Causes, Macroeconomic Symptoms'.
62. The minimum number of countries with data for the main dependent variable for a given year is 70 (1961) and the maximum 148 (1993–94). The moderate amount of missing data is concentrated in poor and Communist countries, and in earlier years.
63. Macroeconomic data are from World Bank's *World Development Indicators*, various years.
64. Political regimes change only infrequently, so most annual Polity scores are the same as or very similar to the average of the previous five years (Pearson's r for these two variables is 0.96).
65. The expectation here is also curvilinear because of diminishing marginal returns to investment.
66. Fearon, 'Ethnic and Cultural Diversity'; cf. Easterly and Levine, 'Africa's Growth Tragedy'.
67. Beck, Katz, and Tucker, 'Taking Time Seriously'; Beck, 'Time-Series-Cross-Section Data'.
68. Wawro, 'A Panel Analysis of Campaign Contributions', 567.
69. Zorn, 'Generalized Estimating Equation Models'.

70. Hsiao, *Analysis of Panel Data*.
71. Zorn, 'Generalized Estimating Equation Models'.
72. Fitzmaurice, Laird, and Ware, *Applied Longitudinal Analysis*. On one criterion GEE models are inferior to random and fixed effects models: their sensitivity to missing data. With data missing at random, GEE produce biased coefficients, but likelihood-based methods such GLMMs do not, *assuming that the model and the random effects are correctly specified (ibid., 385)*. This qualification makes the missing data advantage of these models a tenuous foundation to prefer them over GEE models.
73. In all GEE models we used robust standard errors. Stata's 'robust' option for the xtgee command automatically clusters standard errors by the variable identifying cross sectional units (countries in our case). Clustered standard errors are correct even if some serial correlation remains after that modeled in the GEEs correlation structure. The corresponding Stata commands combine 'xtgee' with the options 'fam(bin)', 'link(logit)', 'corr(ar1)', 'corr(sta6)', or 'corr(ind)', and 'robust'. To avoid losing hundreds of observations due to the gaps in our database, we used the option 'force'. In the stationary(6) specification several countries are dropped because they have fewer than 7 observations. We tried running the model with an unstructured correlation matrix, but the large number of parameters to estimate made convergence impossible. The autoregressive structure makes the within-unit correlations an exponential function of the lag length (cf. Zorn, 'Generalized Estimating Equation Models'). Correlations are constrained to be constant across observations for each lag length, and to equal ρ^1 for a lag of one year, ρ^2 for two years, and so forth. The stationary structure also makes correlations across observations constant for a given lag, but estimates ρ for each of them from the data. Since this implies calculating more parameters, it is common to specify a maximum number of lags. We made this number 6 as our exploration of the data indicated that beyond six years the correlations become essentially random noise around zero. Both correlations structures are appropriate to model processes that, like crises, are expected to have positive but declining temporal dependence.
74. Standardized coefficients allow for the comparison of variables with different scales and standard deviations. Democracy and Democracy(PEPS) share a -10 to 10 scale, but the former has a somewhat smaller standard deviation. X-standardized coefficients are calculated by multiplying the unstandardized GEE logit coefficient of X_i by the standard deviation of X_i (that is, the SD in the effective sample used in a given model).
75. Greene, 'Econometric Analysis', 154.
76. Figure 1 was constructed using the coefficients of model 2 in Table 3.
77. All these models except random effects are run with standard errors clustered by country.
78. A total of 41 and 48 countries (in table 4 and 5, respectively) are dropped in the fixed effects models due to no variance on the dependent variable, reducing N from 3,285 to 2,573 and from 2,515 to 1,790, respectively. These countries include most of the advanced industrial democracies, but also many less developed nations such as Egypt, Pakistan, and Sri Lanka. Remarkably, Turkmenistan was also dropped due to *all positive* outcomes (it experienced a recession every single year from its separation from the USSR until 1998).
79. Przeworski, *Democracy and the Market*, 136–92.
80. Bernhard and Leblang, *Democratic Processes and Financial Markets*, 228–31; Keefer and Stasavage, 'Checks and Balances'.
81. Arbetman and Kugler, *Political Capacity and Economic Behavior*; Evans, 'The State as Problem and Solution'; Kohli, *State-Directed Development*.
82. Cf. Sen, *Democracy as Freedom*.

83. Cf. Burke, *Reflections on the Revolution*.
84. See O'Donnell, 'Delegative Democracy'; Zakaria, 'Illiberal Democracy'; Diamond and Morlino, 'Assessing the Quality of Democracy'.
85. Dahl, *Polyarchy*.
86. Cf. Armijo, 'Mass Democracy'; Slater, 'Can Leviathan Be Democratic'.

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Appendix: Descriptive statistics

Variable	N	Mean	SD	Min	Max
Recession(−3%)	4,204	.160	.366	0	1
Recession(−7%)	4,204	.075	.263	0	1
Polity	4,567	−.701	7.67	−10	10
Polity(PEPS)	4,308	−1.99	6.71	−10	9.69
High Inclusion	5,446	.092	.290	0	1
Contestation(CAM)	5,351	.050	1.07	−1.84	1.96
Inclusiveness(CAM)	5,351	.081	1.05	−3.04	1.91
GDPp/c	4,230	5.72	8.93	.064	56.2
GDP(log)	4,363	9.51	2.19	4.68	15.9
Trade/GDP	4,433	52.2	42.5	4.95	987
Commodity Exports	3,319	65.3	29.8	3.21	100
Investment(log)	4,344	3.01	.430	.470	4.68
World Growth	5,446	3.68	1.61	.420	6.72
Ethnic Fractionalization	5,220	.472	.266	.002	1